

# GRADUATE COURSE INVENTORY

---

This page contains a listing of all active graduate courses in The University of Alabama's course inventory by College. Click on any tab above to view the course titles, credit hours, descriptions, and prerequisites.

## College of Arts & Sciences Courses

### AAST502 Special Topics

SP

Hours 3

An examination of selected African American topics.

Special Topics Course

### AMS500 Internship

Hours 1-3

An internship opportunity that combines independent study and practical field work focusing on a particular problem or topic related to American culture and experience. Recent examples include internships in museum management, historic preservation, archaeological research, television production, category fiction, promotion of academic programs, documentary television, academic public relations, with Alabama Heritage and Louisville magazines, and with the Paul Bryant Museum.

### AMS505 Directed Study

SP

Hours 1-3

*No description available*

Special Topics Course

### AMS506 Directed Study

SP

Hours 1-3

*No description available*

Special Topics Course

### AMS507 Landscapes of the South

Hours 3

This seminar explores the cultural, social, and natural ecology of the Mississippi watershed from St. Louis to the Gulf Coast. This interdisciplinary American Studies course examines the river dubbed "the Body of the Nation," its history, cultural geography, and geophysical ecology. Through readings in history, literary accounts, and artistic expressions, we explore effects of human interventions in nature and nature's impact on the course of human events.

### AMS512 On The Road

Hours 3

This course seeks to introduce the breadth and power of the travel culture that defines "America" and examines enduring features when writers take to the open road in America.

### AMS516 American Environmental Thought

Hours 3

Popular conceptions of nature hold extraordinary power in shaping our responses and policies toward both the geophysical world and built environments. This interdisciplinary course examines key concepts and controversies in American thought about nature since before colonization. Using accounts from various regions, the course explores evolving conceptions of nature and justice, competing claims about race and class, and changing institutional responses and remedies to environmental degradation in the context of global change.

### AMS521 Writer & Artist in America

Hours 3

This course offers a comparative examination of responses by 20th century literary and visual artists to perceived social crises and challenges to American cultural values, such as sex in the early 20th century American city, working class struggles during the Great Depression, issues of atomic anxiety during the early years of the Cold War, the ethical dilemmas of the Vietnam War, the perils of the AIDS/HIV crisis, and the flourishing of contemporary consumer culture. The course also introduces several important movements in twentieth century American arts and letters, including Naturalism, Modernism, Social Realism, the Beat movement, Social Surrealism, and Postmodernism.

### AMS522 Popular Culture in America

Hours 3

Survey and analysis of 20th century US popular culture including social context and how it has reflected and shaped American society, including gender, race, class and region.

### AMS523 The Roots of American Music

Hours 3

This class surveys American music from ragtime, blues, and hillbilly to Broadway, Hollywood musicals, and swing jazz. Our focus will be on commercial mainstays and democratic audiences – how selling sound led to different identities being expressed through taste and style. Race, gender, class, sexuality, age, technology, and the music business will all factor as we move from blackface minstrelsy in the 1800s to World War II. We will listen closely to several songs each week, connecting music to larger themes through primary and secondary sources, regular writing, and in-class discussion.

**AMS529 American between the Wars**

Hours 3

This course examines a crucial period in the modern American experience beginning with the end of one world war and ending with the beginning of another. Adjusting to modernity required Americans to square old values with new departures, something that makes this period more than merely two decades linked by the calendar and the Stock Market Crash. Top to bottom, between 1919 and 1941, Americans redefined themselves and their society, embraced (some of them) and debated (nearly all of them), often hotly, old beliefs, new conceptions, and the implications of a modern, machine-driven, consumer society. What they argued over then, is what is still argued over, issues and assertions students should find very familiar. Students will look closely at this debate from its origins in post-war prosperity and its evolution through Great Depression scarcity, paying particular attention to such crucial issues as Modernism, consumerism, the growth of American national culture, and the influence of commercialized forms of popular expression on everyday lives and values.

**AMS530 Special Topics**

SP

Hours 3

Selected American topics in American Studies offered by AMS faculty members or Americanists from related departments. Recent example: Women in America.

Special Topics Course

**AMS531 Studies In Pop Culture**

Hours 3

Research and discussion of selected topics in American popular culture: literature, music, network broadcasting, advertising, film, and drama.

**AMS532 Studies In The Arts**

Hours 3

Research and discussion of selected topics in literature, film, painting, photography, and architecture, and the role of the artist in 19th- and 20th-century America.

**AMS536 Studies Social Experience**

Hours 3

Research and discussion of selected topics in the American social experience.

**AMS539 Urban Spaces**

Hours 3

This interdisciplinary social science course provides an introduction to the cultural and physical ecology of cities, focusing primarily on urbanization in the United States from the late 19th century to the present. Course readings include classical scholars in urbanism and urban design. Contemporary urban environmental histories explore population shifts and land use along the urban gradient from the suburbs to urban centers, with attention to water, sewer, and transportation infrastructure, pollution, and urban sprawl.

**AMS545 The "Good War"**

Hours 3

In popular memory, then and since, it is, say many, the defining moment of the twentieth century, perhaps all the American experience. Between 1941 and 1945, the American people waged global war, an undertaking of unprecedented scale and urgency. After Pearl Harbor, the national will stiffened and at least for the duration, the story goes, Americans forgot their differences, rallied to the cause, and through their collective suffering and sacrifice saved the world. This was not just a necessary war; it was a good war fought against a palpable evil in a world reduced to rival spheres of right and wrong whose only acceptable end, "victory," justified any means however extreme. Virtue abroad, cohesion at home, and prosperity in the marketplace, the war united all three in a way previous Americans had only dreamed about and never achieved before or since. Small wonder, then, that over the years since 1945, in a world less simple and a society more divided, the memory of World War II has hardened into myth, the golden, "feel good" moment of rectitude, shared sacrifice, and uncomplicated moral triumph. This course is very much about that moment and the myth it established. Please note, it is not a military history of the Second World War, replete with situation maps, production figures, and casualty reports. It is instead a topical examination of the American experience at home and abroad, 1941-45. It focuses critically on five related subjects, each providing ample opportunity to examine the myth and memory of "Good War America," this pivotal moment in national and global history.

**AMS565 Fictions of American Identity**

Hours 3

This course explores nineteenth- and twentieth-century American literature and culture. Novels and short stories by Zora Neale Hurston, Henry James, Gish Jen, James Weldon Johnson, Toni Morrison, Vladimir Nabokov, and other writers are studied in the context of debates over slavery, national identity, women's roles, immigration and assimilation, social mobility, sexual mores, consumer culture, and race relations. Paper assignments emphasize close reading techniques and process-oriented writing. Assigned literary critical readings include papers written by students in this class and subsequently published in *The Explicator*, a journal of text-based critical essays. Writing proficiency within this discipline is required for a passing grade in this course.

**AMS585 American Experience to 1865**

Hours 3

An exploration of the formative years of the American cultural experience, from early European encounters with the New World to the attainment of continental nationhood. The course will draw upon insights from many disciplines and will include several kinds of cultural evidence (for example: literature, art, and photography; religious, political, and social thought and behavior; and economic, technological, and geographical development) as well as consideration of recent major synthetic works of cultural scholarship. Topics covered include the growth of colonial societies; the Revolutionary movement and the political foundations of the American Republic; the Market Revolution and the rise of middle-class culture; the antebellum South and the emerging West; and the origins and evolution of American cultural diversity. Offered fall semester.

**AMS589 Approaches to Teaching American Studies**

SP

Hours 3

This course offers supervision and mentorship to second-year masters students when they teach an introductory level on topics of their choosing (the topics will vary each semester according to the instructor of record's choosing). Whether or not students plan to continue teaching (in whatever forms it takes) in their careers, learning how to teach applies to lots of fields: practicing how to gather and synthesize information, how to help unfamiliar audiences understand the key points, how to lead discussions, how to improve at public speaking, how to get more comfortable with various technical processes, and other issues.

Prerequisite(s): 18 AMS credit hours

Special Topics Course

**AMS592 American Topic Seminar**

SP

Hours 3

Study of special topics within the American cultural experience. Recent examples include American literary realism, women in America, the Civil Rights movement, the picture press, music and ethnicity, the politics of culture, regionalism in American culture, the changing American family, homelessness in America, American autobiography, American monuments, contemporary American folklore, Southern popular culture, Southern iconoclasts, politics and culture, historical memory, America by design, the other in America, women in America, race in America, 19th-century popular culture, and slavery and the Civil War in historic memory.

Special Topics Course

**AMS595 Ams Colloquium: Res & Methods**

Hours 3

Discussion of methodological and theoretical issues in American Studies.

**AMS596 Ams Colloquium: Scholarly Writ**

Hours 3

Presentation of research and methods.

**ANT500 Discussions in Anthropological Practice**

Hours 1

Students will explore the multifaceted landscape of anthropological practice in this lecture series. This course is designed to cultivate a nuanced understanding of the various methods, theories, challenges, and ethical considerations that shape contemporary anthropological research and practice. Through a blend of theoretical exploration and real-world case studies, students will develop the intellectual tools necessary to conduct research within the complex intersections of culture, society, and human experience.

**ANT501 Theory and Method in Linguistic Anthropology**

Hours 3

Advanced introduction to contemporary linguistic anthropology: explores various theoretical and methodological approaches to the study of language as a semiotic resource for social actors and communities.

**ANT502 Health Inequities**

Hours 3

Explores the gendered, ethnic, cultural, and class dimensions that underlie the patterning of disease and illness worldwide, with attention to the long-term health effects of racism, sexism and poverty. Topics include reproductive and sexual health, obesity, body image, HIV/AIDS, mental illness, homelessness, and more.

**ANT505 Culture, Mind, and Behavior**

Hours 3

The cultural and linguistic basis of cognitive organization, local systems of folk classification, and the collection and analysis of data of shared cultural and social information. Offered according to demand.

**ANT506 Biocultural Bodies**

Hours 3

This course will explore the body as the object and subject of culture. It will examine how viewing the body as a biocultural canvas and looking at culture as "lived through" the materiality of the body influences our understandings of health and health care. Students will be challenged to examine health as a concept that is quantifiable and generalizable as well experiential and person-centered. They will be challenged to view the discipline of medicine as a framework for employing verifiable and shared (or questionable and contested) knowledge of biological systems whose foundational assumptions and core meanings are grounded in particular social and cultural worlds.

**ANT507 Psychological Anthropology**

Hours 3

In this course, we review three main models of research within psychological anthropology: psychodynamic, cognitive, and experiential/phenomenological. We also gain a comprehensive understanding of person-centered ethnography, which involves in-depth interviews designed to reveal individuals' self-perceptions and experiences in relation to the sociocultural context. Students gain practice in this methodology by conducting a series of interviews over the course of the semester.

**ANT509 Ancient Maya Civilizations**

Hours 3

What was the lived daily experience in the pre-contact Maya world? How did aspects of material culture such as architecture, food, musical instruments, tools, and clothing frame Maya society, and how were these elements also framed by it? How are perceptions of the ancient Maya marshaled in today's politics and policies? In this course, we will engage with the world of the pre- and post-contact Maya, through scholarship that explores the material culture of daily life. The course is arranged around framing questions about the past through ethnographic and ethnohistoric accounts of daily life; using diverse scientific methods and theoretical perspectives to address these questions; and interpreting and possibly re-interpreting daily life of the ancient Maya, focusing on the dynamic interplay between the material and the social.

**ANT510 Ethnography of Communication**

Hours 3

Students in this course will learn to use the concepts and methods of ethnography of communication by developing and carrying out a research project on language and social interaction. You will learn how social interaction is organized, how to document and study it, and how to address such evidence to anthropological and applied problems. Graduate students will produce a research report worthy of submission to a research conference of their professional scholarly organization. All students will finish the course with a critical and sophisticated understanding of how social interaction works in a variety of contexts.

**ANT511 Culture Health & Healing**

Hours 3

Provides the student with an overview of health, illness, and healing as they vary between and within cultural systems.

**ANT512 Anthropology of Europe**

Hours 3

The course examines ethnicity, nationalism, democratization, unification, and fragmentation with an emphasis on specific countries or regions within Europe. Classic anthropological topics, such as kinship, political organization, ritual, and religion are employed in the study of European nations, ethnicities, and minority communities.

**ANT514 Anthropology of Africa**

Hours 3

Students in this class will learn about the diversity of cultural beliefs and behaviors across the African continent, make connections between local/global historical events and contemporary contexts, and evaluate the factors influencing perceptions of African cultures. Topics covered include continent history, stereotypes of Africa, sorcery, health and disease, apartheid, subsistence living, childhood, feminism, identity in the diaspora, and art. Students will additionally compare contemporary and historical ethnographies as well as those written by African and non-African anthropologists.

**ANT519 Myth, Ritual, And Magic**

Hours 3

Across cultures, people rely on various belief systems to bring meaning to their lives and understanding of the world around them. This course will dive into the anthropological literature on themes related to religion, including myth, ritual, magic, witchcraft, totemism, shamanism and trance. Cross-cultural ethnographic examples—including a range of religious, spiritual, and magical belief systems—will be provided to illuminate how anthropologists analyze belief systems in their interpretations of culture.

**ANT521 Ethnography**

Hours 3

Ethnography is a hallmark of anthropology. It is at once a theoretical approach, set of methods, and style of writing. This course highlights ethnographic theory, methods for collecting ethnographic material, and techniques for writing about culture by reading exemplary texts, discussing key concepts, and practicing various methods. Each student will develop an ethnographic project that involves fieldwork, data analysis, and writing.

**ANT522 Archaeological Ethics**

Hours 3

Students all encounter dilemmas in their everyday lives. Oftentimes, these situations do not present a clear solution, forcing us to ponder the morals and codes we live by and the manner in which we attempt to present logical responses to ethical conundrums. The field of archaeology may, at first, seem like an odd candidate for discussion of ethics given that it studies past peoples. Students will learn that archaeology is indeed heavily situated in the present and has many ties to such subjects as identity, notions of nationhood and nation-building, collective memory, and historical revision. This class will explore the legal and ethical dimensions of modern archaeology through a consideration of the archaeology as a profession, professional codes on archaeological ethics, the relationship between archaeology and others (the public, ethnic groups, collectors, etc.), international and national approaches to archaeological heritage management, the antiquities trade, maritime law, underwater archaeology, and treasure hunting, cultural resource management in the United States, and archaeological education.

**ANT523 Legal Anthropology**

Hours 3

What is law? Do all societies have it? Is there really something distinct about “thinking like a lawyer”? This seminar primarily draws on anthropological studies of legal systems and practices to show that the answers to these questions are surprisingly complex. We will study law both cross-culturally and, within the United States, cross-contextually, in order to explore what really distinguishes legal rules from cultural norms and to ask whether basic legal concepts exist across cultures.

**ANT525 Geographical Information Systems for Archaeologists**

Hours 3

This course covers the basic background and skills necessary to manage and analyze spatial datasets using GIS (Geographic Information Systems). We will emphasize the GIS concepts and techniques that are most useful to archaeologists, and we will be working with real archaeological data for all labs and projects. Topics include data acquisition, spatial queries, working with rasters, catchments, cost# surface analysis and visualization analysis. The course includes a weekly guided lab on ESRI ArcGIS software.

**ANT527 Radiocarbon for Archaeologists**

Hours 3

Radiocarbon (AMS 14C) dating is the most commonly used dating method in archaeological research. The purpose of this class is to gain a deep understanding of radiocarbon so that we, as archaeologists, can better sample/collect, calibrate, and analyze these data for our own research, and critically evaluate the scholarly literature. We will further our understanding of radiocarbon and its archaeological applications through course lectures, presentations and discussions of the recent literature, calculation and calibration activities, and individual research projects. This course has relevancy for any student interested in field archaeology, as it will train them to collect appropriate samples for dating and design dating strategies that are consistent with their research goals.

**ANT528 Analytical Archaeology**

Hours 3

Contemporary issues in concept formation, theory construction, methods, and techniques. Offered according to demand.

**ANT533 Geoarchaeology**

Hours 3

Geoarchaeology is a field-based discipline that implements earth science methods in archaeology. This course explores the varied applications of earth science in the investigation of archaeological sites by using a landscape-approach to survey geoarchaeological case studies. Methodological emphasis will be on stratigraphy, sedimentology, and soils. This course include will be mixed lecture and student-led seminar-style discussion on our weekly readings. Student participation in the form of weekly discussions, a research paper, and a final class presentation are expected. This course is intended for any student interested in learning more about field interpretation of archaeological sites.

**ANT534 Archaeology of Food**

Hours 3

This course will undertake a broad survey of the literature on modern and ancient foodways, addressing major themes including the domestication of plants and animals; food and social complexity; food, power, politics, and status; the daily meal; feasting and drinking; plating and presentation; food preferences/taste and disgust; and the intimate relationship between food and identity. Furthermore, we discuss the wide range of methods and techniques in the archaeologist's toolkit that aid in the undertaking of gastronomic research, including the analysis of plant and animal remains, residues recovered from cooking and serving ware, and the chemical composition of human bones.

**ANT543 Adv Field Archaeology**

Hours 3

Directed field study in the excavation and analysis of archaeological deposits. Each student must design and conduct a research project, then adequately report the results. Off campus.

**ANT545 Historical Archaeology**

Hours 3

12 hours of anthropology or permission of instructor; graduate standing  
This course combines the methods used in historical archaeology with a basic survey of the archaeological record of the historic period of North America.

**ANT550 Probs In Anthropology**

SP

Hours 3

Devoted to issues not covered in other courses. Offered according to demand.

Special Topics Course

**ANT562 Ancient Andean Civilizations**

Hours 3

The Andes is a region of geographic and environmental extremes that witnessed the early rise of complex societies long before the Inca Empire. In this course, we examine the prehispanic cultures that resided in this region—from the peopling of South America to the aftermath of Spanish Conquest.

**ANT564 Paleoethnobotany**

Hours 3

This laboratory class is designed to introduce archaeological laboratory methods, reasoning and interpretation through paleoethnobotanical identification and data analysis. We will be studying the major classes of plant remains likely to be encountered in archaeological sites, how to identify them, and how to organize the data to produce interpretable results. The course will emphasize the use of plant remains to answer archaeological questions, rather than study the plant remains for their own sake.

**ANT571 Fossil Humans and Evolution**

Hours 3

A survey of the discoveries, methods, and theories that provide the background for modern research in macroevolution in the human lineage.

**ANT573 Human Osteology**

Hours 4

A detailed introduction to human osteology, emphasizing the identification of fragmentary remains and the criteria for determination of age, sex, and race. Offered according to demand.

**ANT574 Neuroanthropology**

Hours 3

This course provides an introduction to evolutionary and biocultural approaches within anthropology to the central and peripheral nervous systems and their interconnections. Topics include the evolution of the brain; how culture and social structure shape the brain, its development, and its activity; and anthropological perspectives on connections among culture, behavior, brain, mind, and body.

**ANT575 The Plastic Human: Our Biology, Culture, & Evolution**

Hours 3

An introduction to the biocultural and evolutionary bases of human adaptability.

**ANT576 Nutritional Anthropology**

Hours 3

An introduction to anthropological inquiries and methods in nutrition including food habits, food systems, dietary variability, and food movements using an engaged anthropological framework. This experiential learning class teaches students how to conduct nutritional anthropological fieldwork within local community settings.

**ANT578 Anthro of Human Development**

Hours 3

Health culturally competent socialized adults and mature physical forms arise from a developmental process with evolutionary, biological, social and cultural dimensions. We survey child/human development from an anthropological perspective, considering interactions across levels of analysis from genes to culture.



**ANT581 Anthropology is Elemental: Teaching Anthropology in Primary and Secondary Settings**

Hours 3

This course is an introduction to teaching anthropology at the primary and secondary levels. It is a service-learning course, which means that all students will serve as instructors in a local anthropology course offered in the Tuscaloosa area. This course will expose students to applied anthropology through teaching the anthropological perspective via an activity-based four-subfield curriculum in conjunction with local elementary schools, after-school programs, or similar community partners. These programs will be taught by teams, and each student will be responsible for attending weekly course meetings, developing curricular material and implementing it in a classroom setting, and co-teaching with other students.

**ANT598 Individ Investigations**

Hours 1-9

Directed nonthesis research in archaeology, cultural anthropology, anthropological linguistics, or physical anthropology.

**ANT599 Thesis Research**

Hours 1-6

*No description available*

**ANT600 Research Design**

Hours 3

This course will acquaint incoming graduate student with the logical sequence of stages involved in the conduct of original research, and to provide an introduction to the broad range of skills necessary to achieve this. Each student will be expected to design and carry out preliminary data collection, write up the results, and use the experience as the basis for writing a fundable research grant proposal. Prerequisites for the course are graduate standing, and consent of professor for any student not enrolled in the UA Anthropology graduate program.

**ANT601 Advanced Research Methods**

Hours 3

This seminar is designed to refine doctoral students' background in qualitative and quantitative research methods necessary for dissertation research. Emphasis is placed on the integration of qualitative and quantitative methods for students doing ethnographic research, and techniques of numerical induction for archaeology students.

**ANT602 Advanced Qualitative Methods in Anthropology**

Hours 3

This course provides students with an in-depth understanding of qualitative ethnographic research methods. It also provides students with the skills to understand and critically evaluate reports based on qualitative analysis. Students will learn to formulate qualitative research questions that tie directly into existing research literature.

**ANT603 Theory & Method In Archaeology**

Hours 3

An examination of contemporary archaeological theory and method and their development during the 19th and 20th centuries.

**ANT604 Sem Archaeology Complex Society**

Hours 3

Contemporary issues in the archaeology of complex societies, including different aspects of complexity and attempts to classify and measure them.

**ANT610 Theory Method Medical Anthropol**

Hours 3

A detailed introduction to theory and method in medical anthropology. Approaches include adaptation, biocultural, psychoanalytic, stress, and other theoretical perspectives.

Prerequisite(s): ANT 511 and ANT 600

**ANT612 Sem Biocultural Anthropology**

Hours 3

A biocultural overview of the anthropology of health. Topics include biological and cultural approaches to various dimensions of human health and illness.

**ANT621 Native Americans Ethnohy Persp**

Hours 3

An examination of Indians and Eskimos of North America during the historical period, focusing on the impact of European contact on culture and society.

**ANT625 Survey History Archaeology**

Hours 3

A critical examination of archaeology's history as a science, with emphasis on intellectual trends, changes in method and theory, and recent developments. Offered once a year.

**ANT640 Landmarks Anthropologcl Resear**

Hours 3

This course examines seminal works in the history of anthropology. Works may include books or smaller publications that exemplify important developments in theory and method.

**ANT641 Culture**

Hours 3

This seminar reviews past and contemporary theories and approaches used in cultural anthropology.

**ANT670 Principles of Biological Anthropology**

Hours 3

A series of seminars and lectures designed to refine the student's knowledge of research on nonhuman primates, fossil hominids, population genetics, and human variation and adaptation. Offered once a year.

**ANT698 Individual Investigations**

Hours 1-9

Directed dissertation research in archaeology, cultural anthropology, anthropological linguistics, or physical anthropology.

**ANT699 Dissertation Research**

Hours 1-15

*No description available*

**ARB580 Readings in Arabic**

SP

Hours 3

This course focuses on the acquisition of basic grammatical structures, expanding vocabulary and reading comprehension skills. It develops functional communication abilities in written Modern Standard Arabic. Topics will be presented using authentic materials. The course is also designed to help students gain a better understanding of cultural practices and perspectives in many Arabic countries. This course is for graduate programs campus-wide. It will provide graduate students with the necessary knowledge and tools in their research, especially with scientific terms and language structure. Students intending to do research in or about the Middle East and North Africa will find this course beneficial.

Prerequisite(s): Instructor's approval. Placement test for language level.

Special Topics Course

**ARB604 Feminist Theory and Arab Literature**

Hours 3

This course allows for an in-depth look at the diverse literature written by women or about women who represent a number of cultures in the Arab world in nations from the Mashrek (Middle East) to the Maghreb (North Africa). The second primary goal is to study such women through the eyes of leading Arab women theorists who have made an impact not only in their own countries, but also on disciplines intersecting with women's and gender studies worldwide. Students will explore through literary texts the Arab woman's place in her respective society, in political and economic systems, and in the family. The course will provide an overview of Arab and Islamic feminism throughout history, from its origins to recent movements. Newer theories in gender studies will also be included in the course. Theories from Cultural Studies will also be studied because in-depth studies of the condition of the Arab woman reveal that sources of oppression are more culture-based.

**ARH550 Literature Of Art**

Hours 3

Principles and methodology of the discipline as described in the writing of its founders and chief makers; bibliographical research method and mastery. Required of all art history MA students.

**ARH552 Advanced Research Seminar**

Hours 3

This advanced seminar focuses on the development and application of discipline-specific research skills. Students will broaden their knowledge of art historical methodologies and themes generally, as well as construct a research program specific to their area of study (Medieval, Early Modern, Modern/Contemporary, etc.). Each class session will address a different theme or topic that students will discuss in relation/apply to individual topics or questions. Generally, these sessions will focus on historiographic issues, ideas, and trends, as well as professional expectations with regard to scholarship and academic practice. As part of this course, students are expected to work closely not only with the instructor and their peers in the class, but also with their major (faculty) advisor. This seminar is intended to be taken after students complete ARH 550 (Literature of Art) since it demands the further study and application of the methods and theoretical approaches learned in that course.

Prerequisite(s): ARH 550

**ARH555 Asian Seminar**

Hours 3

This seminar course considers a broad range of issues, objects, and themes relevant to the study of Asian art.

**ARH560 Medieval Seminar**

Hours 3

This course considers a broad range of issues, objects, and themes relevant to the study of art and architecture in medieval Europe. Class sessions will be organized around readings selected to introduce existing scholarship and methods while stimulating new questions for future research.

**ARH565 Topics in Renaissance Art/Renaissance Seminar**

SP

Hours 3

This graduate-level seminar will explore a variety of critical themes and issues in the study of Early Modern/Renaissance art.

Special Topics Course

**ARH570 Baroque & Rococo Seminar**

Hours 3

This seminar course considers a broad range of issues, objects, and themes relevant to the study of Baroque or Rococo art.

**ARH575 Nineteenth-Century Seminar**

Hours 3

This seminar course considers a broad range of issues, objects, and themes relevant to the study of nineteenth-century art.

**ARH577 American Art Seminar**

Hours 3

This seminar course considers a broad range of issues, objects, and themes relevant to the study of American art in a historical context.

**ARH580 Twentieth-Century Seminar**

Hours 3

This seminar course considers a broad range of issues, objects, and themes relevant to the study of modern or contemporary art.

**ARH588 Topics in African American Art Graduate Seminar**

SP

Hours 3

This course considers a broad range of issues, objects, and themes relevant to the study of African American art. Class sessions will be organized around readings selected to introduce existing scholarship and methods while stimulating new questions for future research. Topics may include African American Photography, American Spectacles and Race, African American Film, African American Portraiture, and Race and American Mythologies.

Special Topics Course

**ARH598 Independent Study**

SP

Hours 3

Independent study allows students to pursue academic interests outside the formal classroom setting under the supervision of a faculty member of the department. The activities may include reading, research, or a special project. Independent study is not a substitute for courses regularly available in the department curriculum and is only available to students who are ready to conduct in-depth and largely self-directed research on a specific topic. Enrollment is subject to approval by the Graduate Program Director and a supervising faculty member. A proposal of the topic, and program of work must be submitted to the instructor for approval.

Prerequisite(s): Graduate student status and permission of the instructor

Special Topics Course

**ARH599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in art history. The course is conducted under the guidance of the thesis advisor. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing a unique research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**ART506 Independent Studies**

SP

Hours 1-6

Students may make proposals for projects not taught in the regular curriculum. These must be approved by a faculty sponsor and the chairperson of the department.

Special Topics Course

**ART508 Special Projects**

Hours 3

Special projects course titles include Alternative Photographic Process, Photo-based Printmaking, Water Media on Paper, Figurative Modeling and Sculpture, Experimental Drawing and The Photographic Artist's Book.

**ART510 Advanced Drawing Seminar**

Hours 3

The focus of this course will be the study and production of drawings as an activity that documents our memories, examines and explains the world around us, transforms our perceptions of time and space, and helps us invent new ways of seeing and thinking.

**ART511 Graduate Seminar**

Hours 3

A critical examination of contemporary issues, philosophies, criteria, and ideas in art.

**ART512 Ceramics**

Hours 2-6

The ceramics program has a fully equipped facility with a complete inventory of clay and glaze materials. Facilities include equipment for clay mixing and preparation; workstations for forming and throwing; gas, wood fire, raku, and electric kilns; and materials for experimental kiln construction. Personal instruction is given in all forming techniques, glaze calculations, and firings. Students are encouraged to experiment with the medium and explore new processes. Emphasis is placed on the student's development of concepts and forms.

**ART516 Painting**

Hours 2-6

The primary goal of the painting program is to enhance the student's ability in conceiving of a strong personal vision. The program defines painting as a complex and vital art form that exists in a state of constant flux, a tradition that is both mired in history and capable of regularly redefining itself. It equally embraces students who define painting as a practice that goes far beyond the brush, and those who employ more traditional methodologies.

**ART518 Photography**

Hours 2-6

Photography is viewed as a means of personal expression and exploration, emphasizing development of the student's vision. Instruction is individually tailored and, although the facilities are designed for black and white printing, the exploration of alternative applications is encouraged. Graduate students are expected to increase their knowledge of the history of photography and contemporary art, and participate in teaching undergraduates. Facilities include a film developing area, two darkrooms, and a critique space. Computers are accessed through the digital media area.

**ART520 Printmaking**

Hours 2-6

Graduate printmaking is conducted in a workshop situation, including group critiques and technical demonstrations. The program philosophy embraces a broad spectrum of activities relating to the idea of the multiple and the history of printed material. Students are expected to master traditional techniques and encouraged to work in an interdisciplinary manner, exploring the boundaries of the media area. The facility comprises equipment for intaglio and relief printing, stone and plate lithography, screen printing, and photo-based/digital printmaking.

**ART522 Sculpture**

Hours 3-6

The sculpture program allows students to work with an extensive range of media and processes while emphasizing conceptual development and refined technical ability. Sculpture encompasses traditional media, methods, and processes as well as technologies that can be adapted to sculptural activities, idioms, and forms. Facilities include a full wood shop, metal fabrication shop, foundry, critique/installation room, and graduate studio space.

**ART525 Graduate Critiques**

Hours 3

This course examines the studio practice through critical discourse, defending and discussing aesthetic philosophy and its application to research in the visual arts.



**ART612 Ceramics**

Hours 2-6

The ceramics program has a fully equipped facility with a complete inventory of clay and glaze materials. Facilities include equipment for clay mixing and preparation; workstations for forming and throwing; gas, wood fire, raku, and electric kilns; and materials for experimental kiln construction. Personal instruction is given in all forming techniques, glaze calculations, and firings. Students are encouraged to experiment with the medium and explore new processes. Emphasis is placed on the student's development of concepts and forms.

**ART616 Painting**

Hours 2-6

The primary goal of the painting program is to enhance the student's ability in conceiving of a strong personal vision. The program defines painting as a complex and vital art form that exists in a state of constant flux, a tradition that is both mired in history and capable of regularly redefining itself. It equally embraces students who define painting as a practice that goes far beyond the brush, and those who employ more traditional methodologies.

**ART618 Photography**

Hours 2-6

Photography is viewed as a means of personal expression and exploration, emphasizing development of the student's vision. Instruction is individually tailored and, although the facilities are designed for black and white printing, the exploration of alternative applications is encouraged. Graduate students are expected to increase their knowledge of the history of photography and contemporary art, and participate in teaching undergraduates. Facilities include a film developing area, two darkrooms, and a critique space. Computers are accessed through the digital media area.

**ART620 Printmaking**

Hours 2-6

Graduate printmaking is conducted in a workshop situation, including group critiques and technical demonstrations. The program philosophy embraces a broad spectrum of activities relating to the idea of the multiple and the history of printed material. Students are expected to master traditional techniques and encouraged to work in an interdisciplinary manner, exploring the boundaries of the media area. The facility comprises equipment for intaglio and relief printing, stone and plate lithography, screen printing, and photo-based/digital printmaking.

**ART622 Sculpture**

Hours 3-6

The sculpture program allows students to work with an extensive range of media and processes while emphasizing conceptual development and refined technical ability. Sculpture encompasses traditional media, methods, and processes as well as technologies that can be adapted to sculptural activities, idioms, and forms. Facilities include a full wood shop, metal fabrication shop, foundry, critique/installation room, and graduate studio space.

**ART625 Graduate Critiques**

Hours 3

This course examines the studio practice through critical discourse, defending and discussing aesthetic philosophy and its application to research in the visual arts.

**AY521 Theoretical Astrophysics**

Hours 3

This course provides a broad introduction to the theoretical foundations of astrophysical phenomena, demonstrating how fundamental phenomenology arises from physical laws. Several broad domains of astrophysics are covered, including planetary and stellar orbits, radiation, radiative transfer, ionization, star and planet formation, stellar evolution, binary stars, special and general relativity (including black holes), galactic structure and dynamics (including dark matter), active galaxies, spacetime structure, formation of large scale matter structure, and cosmology (including the accelerating expansion of the Universe, dark energy, and Grand Unification of forces in the early Universe).

**AY533 Observational Techniques**

Hours 3

Theoretical and practical aspects of modern astronomical observational techniques. Photometry, spectroscopy, interferometry, and optical and radio data reduction and image processing.

**AY550 Stars & Stellar Evolution**

Hours 3

This course is intended to facilitate a fairly complete understanding of stars, including their structure, evolution (formation, stages of burning, end states), synthesis of elements, and the physical processes involved in each of these, as well as introduce the modern computational modeling techniques used to apply stellar physics to stars. For astronomy students, this course will provide the background necessary to understand the underlying principles of stellar processes and modelling as they are used both in ongoing research into stellar physics and phenomena and in support of other areas of astronomical research where stellar populations, products and processes are important. In a broader context, relevant for any physics student, this course will discuss how understanding the physical principles in fluid dynamics, high-density materials, heat transfer, plasma physics, nuclear structure, and nuclear processes are assembled into our modern understanding of how stellar objects behave, and how the study of stars pushes the frontier of understanding in these areas of physics.

**AY580 Cosmology**

Hours 3

This course surveys the evolution of the universe, including discussion of general relativity, the Standard Big Bang Cosmology, cosmological inflation, the cosmic microwave background, large scale structure, baryogenesis, dark matter and dark energy.

**AY582 Selected Topics in Astronomy**

SP

Hours 1-3

This course may deal with any astronomy topic not covered by existing courses. The course title is added at the time the course is taught. Repeat credit is allowed for different course titles.

Special Topics Course

**AY590 Research Techniques**

Hours 3

This course provides graduate students with domain-specific skills and knowledge in their research specialty. This training is expected to be undertaken in the context of active engagement by the student in an ongoing or semester-long research project. Alternatively, if formal preparation beyond the available courses is necessary for a student's success within their specialty, such formal preparation (reading, assignments, etc) will be performed under the direction and supervision of the instructor. Any combination of active research and additional specialty formal preparation may be specified by the instructor, as is necessary to advance the student's knowledge and skill toward that necessary to plan and perform successful research in their specialty.

Prerequisite(s): Permission of instructor is required. Core courses must be completed before taking this Research Techniques course.

**AY597 Astrophysics Seminar**

Hours 1

Required of all full-time physics graduate students specializing in astronomy each semester in residence. Students must attend weekly seminars and make one oral presentation.

**AY620 Extragalactic Astronomy**

Hours 3

This course surveys the observational and physical aspects of galaxies, clusters of galaxies, active galaxies, quasars, and astrophysical cosmology. The cosmic distance scale and galaxy evolution will be addressed. On successful completion of this course, a student will be prepared to understand the relevant research literature and be ready to embark on independent research in these topics.

**AY630 Stellar and Galactic Dynamics**

Hours 3

The subject of this course is the dynamics of collisionless objects (stars and dark matter) within self-gravitating systems, i.e. within galaxies and star clusters. The course is primarily theoretical, but there will be considerable discussion of the connections to observations. The approach will combine rigorous mathematical analysis with computational experiments.

**AY640 Radiation Processes in Astrophysics**

Hours 3

This course covers radiative transfer, blackbody radiation, and non-relativistic and relativistic electromagnetic radiation processes, including bremsstrahlung, synchrotron and Compton radiation, as well as atomic and molecular transitions.

**AY682 Selected Topics in Astronomy**

SP

Hours 1-3

This course may deal with any astronomy topic not covered by existing courses. The course title is added at the time the course is taught. Repeat credit is allowed for different course titles.

Special Topics Course

**BSC500 Vertebrate Funct Morphol**

Hours 4

Morphology of animals, primarily vertebrates, with emphasis on functional aspects of anatomy. Laboratory deals mainly with comparative anatomy of the vertebrates. Offered fall semester.

**BSC501 Molecular Ecology**

Hours 3

This course examines how variation in nucleic acid or protein sequences allow organisms or populations to function within, and adapt to, their environment.

**BSC505 Introduction to Graduate Studies in Biological Sciences**

Hours 2

This graduate level course presents topics designed to accelerate the progress and success of incoming and early stage graduate students as they transition into a M.S. or Ph.D. program in Biological Sciences. As a career preparation course, it aims to provide graduate students the practical skills and tools that will be applicable throughout their careers, regardless of their research focus.

**BSC507 Research Tech In By**

Hours 1-6

Individualized instruction and the application of research techniques to specific problems for graduate students in the department. Offered fall and spring semesters.

**BSC511 Phage Discovery Laboratory**

Hours 3

A research-based laboratory course that isolates and characterizes bacterial viruses (phages) using modern microbiology, microscopy, and molecular biology techniques.

Prerequisite(s): Graduate Standing or permission of the instructor.

**BSC512 Limnology**

Hours 3

A study of freshwater environments and organisms living in lakes, ponds, and streams. Offered fall semester.

**BSC513 Cave Biology**

Hours 3

This class focuses on biology related to caves and subterranean habitats, including biodiversity, ecology, evolution, microbiology, conservation, and applications to human health.

Prerequisite(s): Undergraduate courses in genetics and ecology or permission of the instructor

**BSC514 Marine Biogeography and Evolution**

Hours 3

Although the study of biogeography and evolution isn't fundamentally different in the ocean than it is on land, important differences exist in the history and pace of discovery, as well as in the mode and tempo of how biodiversity is generated, distributed, and maintained across geographic space. In this course we will focus on historical and contemporary biogeography in the marine realm, and compare and contrast evolutionary processes between marine and terrestrial ecosystems. There will be a special focus on the origin of marine biodiversity hotspots, geological processes & extinction, ocean currents, temperature gradients, depth gradients, the relative contribution of allopatric and sympatric speciation, gene flow, and effective population sizes.

Prerequisite(s): Undergraduate courses in general biology, genetics, and ecology or by instructor permission

**BSC515 Wetland Ecology**

Hours 3

An in-depth analysis of wetland ecology emphasizing the biology and ecology of vascular plants, including plant adaptations to anaerobic soils, reproductive adaptations, habitat, and plant zonation, and the role of plants in ecosystem function.

**BSC516 Disease Ecology**

Hours 3

This class will focus on the study of host-pathogen interactions within the context of their environment and evolution.

**BSC517 Environmental Modeling**

Hours 3

An integrated survey of quantitative principles and computer-based solution techniques important for understanding environmental systems and for environmental problem solving. Offered alternate fall semesters.

**BSC518 Comparative Neuroanatomy**

Hours 3

This course covers the study of the general principles of neuroanatomy across invertebrates and vertebrates, including their evolutionary relationships, brain morphology, and cellular biology. Anatomy will be learned via hands-on dissection and illustrations of various neural structures from flies to sheep.

Prerequisite(s): Undergraduate courses in cell biology and ecology or by permission of instructor

**BSC519 Evolutionary Genomics**

Hours 3

Evolutionary Genomics explores fundamental aspects of genome structure and function in an evolutionary context. Course topics range from chromatin structure evolution to whole genome duplication, and explores how these genomic traits impact the evolution of different organisms.

**BSC520 Principles Of Systematics**

Hours 4

An introduction to the principles, methods and applications of systematic zoology and the zoological classifications. Offered alternate fall semesters.

**BSC521 Personalized and Genetic Medicine**

Hours 3

This course will examine biological techniques that are advancing medical research and care. Topics include personalized medicine, direct-to-consumer genetic testing, predictive medicine, pharmacogenomics, and preimplantation genetic diagnosis. It will also explore concomitant ethical, legal, and societal ramifications related to many of these discoveries, such as ownership of biological material, informed consent for human experimentation, the burden of knowledge regarding genetic information, eugenics, and the Genetic Information Non-Discrimination Act.

**BSC522 Biology of Cancer**

Hours 3

This course is an introduction to the biological principals that explain the origins, development, pathology, and treatment of cancer. Students will work in teams assigned to particular types of cancer and will investigate what is known on various topics as related to that type of cancer.

Prerequisite(s): Must be enrolled in university graduate program.

**BSC524 Human Physiology**

Hours 3

Examines the cardiovascular, digestive, endocrine, muscular, neural, renal, reproductive and respiratory systems. Offered spring semesters.

**BSC525 Human Physiology Lab**

Hours 2

Centers on principles of physiology and instrumentation for physiology. Offered alternate fall semesters.

Prerequisite(s): None. Corequisite: BSC 524.

**BSC526 Computational Biology Lab**

Hours 3

Computational Biology Lab introduces the programming skills, statistical methods and conceptual foundations necessary to pursue computational analysis and modeling of biological systems. This course is designed for biology students, and it is not expected that students will have prior with experience with computing or programming.

**BSC528 Biology Of Fishes**

Hours 4

A survey of the structure, function, ecology, and classification of fishes. Offered alternate spring semesters.

**BSC530 Introduction to Pharmacology**

Hours 3

This course will cover the basic principles of pharmacology including mechanisms of drug action and drug absorption, distribution, metabolism, and excretion.

**BSC531 Pathogenic Microbiology**

Hours 3

A study of microorganisms related to health and disease. Offered spring semester.

**BSC534 Plant Systematics**

Hours 4

Characteristics and distribution of the major families of vascular plants, and practice in the collection and identification of flowering plants. One weekend field trip is required. Offered alternate spring semesters.

**BSC535 Immunology**

Hours 4

Thorough exploration of various aspects of modern immunology at the molecular and cellular levels. Offered fall semester.

**BSC537 Epidemiology of Pathogens**

Hours 3

This course will acquaint students with the principles of epidemiology and provide an understanding of the applications of epidemiology to public health and global disease burden. Major concepts include introductions into the various applications of epidemiological studies; discrimination between epidemics caused by infectious organisms, genetic backgrounds, and human behavior; and examples of how epidemiology can be applied in a clinical setting.

Prerequisite(s): Undergraduate course in microbiology or permission of the instructor

**BSC539 Bch/Molecular Biology Lab**

Hours 3

A survey of the common analytical techniques used in molecular biology. Topics include protein purification and characterization, enzymology, DNA isolation and restriction endonuclease mapping, and gene cloning. Offered spring semester.

**BSC541 Developmental Biology**

Hours 3

The course provides basic information about events in developing animal systems, emphasizing cellular, molecular, and genetic research approaches to the study of development. Offered spring semester.

**BSC542 Integrated Genomics**

Hours 4

This advanced undergraduate/graduate level course will introduce you the major technologies and concepts in genomics, familiarize you with some publicly available of bioinformatics databases and tools, contribute to the public knowledge base through your own bioinformatics and literature based research, and give you hands-on experience with genomics wet lab methods. This course will also provide information on careers in biotechnology.

**BSC544 General Virology**

Hours 3

The molecular biology of bacterial, animal, and plant virus replication, including the biophysical, biochemical, and biological properties of virus particles. Offered spring semester.

**BSC548 Animal Behavior**

Hours 3

This course is designed to provide modern perspectives on the study of animal behavior, pulling from fields as diverse as evolutionary biology, ecology, neurobiology and economics. However there will be a historical undercurrent which will illustrate the roots of this truly interdisciplinary field.

**BSC549 Endocrinology**

Hours 3

A detailed examination of the vertebrate endocrine system that uses a comparative approach to explore intricate relationships between the brain, endocrine glands, hormones and target organs.

**BSC550 Fundamentals of Biochemistry**

Hours 3

A one-semester survey of protein structure, enzyme kinetics, bioenergetics, and metabolism and its regulation. Offered fall and spring semesters.

**BSC551 Bch/Molecular Biology II**

Hours 3

A one-semester survey of the synthesis, processing, and degradation of DNA, RNA, and protein and the regulation of these processes. Offered spring semester.

**BSC553 Biochemistry Lab**

Hours 3

This course is an advanced laboratory course which will introduce students to some basic concepts and common modern techniques used in biochemical/molecular biology/cell biology research. A broad spectrum of techniques will be presented to students, including native protein purification from animal tissue, chromatography, electrophoresis, characterization of molecular weight and sequences of the purified protein through mass spectrometry, enzymatic kinetics studies, and spectroscopic analysis. For students who have interest and aspire to pursue a research career in biochemistry, cell biology, molecular biology, immunology and/or other related biological science areas, this course will provide basic training and experience for a smooth start for their future laboratory work.

**BSC555 Chemical Ecology**

Hours 3

Chemical interactions underlie and generate the biotic environment in which we live. This course will examine chemical interactions between organisms that can happen on different levels, from cell-cell interactions, intraspecific and multitrophic-level interactions, to community-wide interactions and ecological processes.

**BSC556 Microbial Ecology**

Hours 3

A study of microorganisms in the environment, with emphasis on their roles in energy transformations, biogeochemical cycles, and biotic interactions. Offered alternate fall semesters.

**BSC558 Drug Discovery Laboratory**

Hours 3

A research-based laboratory course that focuses on the identification of new drug leads from natural products using modern pharmacognosy, phytochemistry and phytopharmacology techniques.

**BSC560 Human Developmental Biology**

Hours 4

Development of the human embryo and fetus, including molecular, physiological, and structural aspects of morphogenesis and functional development. Offered irregularly.

**BSC561 Ecohydrology**

Hours 3

Ecohydrology is the interdisciplinary study of how water flows through and interacts with ecosystems. In this course, students will explore fundamental concepts in hydrology; plant-water interactions and their impact on the structure and function of ecosystems; the movement of materials and energy through watersheds; and ecohydrologic concepts in natural resource management.

Prerequisite(s): BSC 385 or permission of instructor.

**BSC562 Biological Barriers in Health and Disease**

Hours 3

The biological barriers offer a formidable separation between various compartments in the body or to the environment. Often times these are cellular barriers that when functioning properly, allow for normal healthy tissue function. However, when these barriers fail, complications such as infection, cancer, cystic fibrosis, and other diseases can occur. This course will examine the various physical and cellular barriers with special emphasis on human and biologically relevant model systems, to study their function in health and dysfunction in disease.

Prerequisite(s): BSC 300 or permission of instructor

**BSC564 Biology Of Algae**

Hours 4

Freshwater and marine algae and their structure, development, taxonomy, and distribution. Offered irregularly.

**BSC565 Principles Of Toxicology**

Hours 3

A study of the extent and significance of toxic agents in the environment and the biological processes which determine their behavior, fate, and ultimate effect on human health. We will cover basic principles of toxicology, including cellular penetration, distribution, metabolic conversion, and elimination of toxic agents, as well the basics of different body systems, and the effects of exogenous chemicals upon those systems.

Prerequisite(s): BSC 300 and BSC 315 or equivalent courses, or permission of the instructor

**BSC567 Data Management and Visualization in R**

Hours 3

An introduction to the R computing environment with emphasis on data management and visualization.

Prerequisite(s): BSC 300 Minimum Grade of B or BSC 310 Minimum Grade of B or BSC 385 Minimum Grade of B

**BSC569 Histology Of Vertebrates**

Hours 4

*No description available*

**BSC570 Principles of Population Genetics**

Hours 3

Population genetics is the study of how evolutionary forces (genetic drift, natural selection, mutation, and gene flow) affect allele and genotype frequencies in populations. Population genetics is a field with a rich theoretical history that has allowed scientists to make predictions about these evolutionary processes. With the advent of massive amounts of genetic data in many species, it is now possible to test these predictions, and a solid foundation in theory, its expectations, and assumptions is crucial for interpreting results from genetic analyses. Students should expect to learn how evolutionary forces acting on individuals affect patterns of inheritance and ultimately drive the changes we see between species.

Prerequisite(s): Must be enrolled in university graduate program.

**BSC571 Plant Physiology**

Hours 3

Plant physiology is a survey course covering all aspects of plant transport, translocation of nutrients, plant biochemistry, plant metabolism and plant growth and development considered in depth.

**BSC573 Bioinformatics**

Hours 3

Bioinformatics BSC 473/573 is a lecture course that covers the tools and approaches necessary to perform computational analysis of large datasets. We will focus on analyzing high-throughput sequencing data although the tools we will learn are applicable to a wide range of modern biological questions. Specific topics include operating in a UNIX/bash shell environment, scripting, genome assembly, alignment, and algorithms. BSC 473/573 is a writing course and writing proficiency within this discipline is required for a passing grade in this course.

Prerequisite(s): Graduate standing

**BSC575 General Entomology**

Hours 4

A survey of the structure, function, classification, and habits of insects. Offered irregularly.

**BSC576 Aquatic Insects**

Hours 4

A survey of aquatic insects, with emphasis on their identification, life histories, and ecology. Offered alternate spring semesters.

**BSC577 Invertebrate Zoology**

Hours 4

The classification, morphology, evolution, and ecology of invertebrate animals.

**BSC578 Microbiomes in Health and Disease**

Hours 3

This class focuses on the study of host-microbiome interactions within the context of their environment, evolution, and global health.

**BSC580 Plant Ecology**

Hours 3

This course will examine the ecology of plants at different levels: individual, population and community.

Prerequisite(s): None

**BSC581 Foundations in Advanced Biostatistics with Applications to R**

Hours 3

This course provides an overview to common statistical methods used in biological research, using case studies from biology, ecology, and natural resources management. The overarching objective of this course is to give students the ability to use and effectively evaluate biological data. We will demonstrate and conduct statistical analyses with an emphasis on utilizing the statistical computing language, R, to apply statistical concepts to biological and ecological data.

Prerequisite(s): Graduate standing or permission of the instructor.

**BSC582 Conservation Biology**

Hours 3

A thorough examination of the principles of conservation biology. Offered alternate spring semesters.



**BSC583 Evolution**

Hours 3

*No description available*

**BSC584 Aquatic Biology Seminar**

Hours 1

Review and discussion of current topics in aquatic biology. Offered spring semester.

**BSC585 Foundations in Forest Resources and Conservation**

Hours 4

This course provides an introduction to the foundational ideas of forest resources and conservation. The course includes a history of the forestry profession and a variety of perspectives to develop students' knowledge of forestry field and research methods. This course also helps students develop an understanding and appreciation of the diversity of forest resources both here in Alabama and globally.

**BSC587 Biogeography**

Hours 3

Examination of the ecological and historical factors influencing the geographical distribution of plants and animals.

Prerequisite(s): Undergraduate or graduate-level course in ecology.

**BSC590 Stream Ecology**

Hours 4

A thorough study of the structural (physical and biological) and functional (energy flow, nutrient cycling, community structure) attributes characteristic of stream and river ecosystems. Offered alternate spring semesters.

**BSC594 Signal Transduction Neuroby**

Hours 3

Seminar on current topics related to signal transduction, as it pertains to the molecular basis of neurobiology and development. Offered alternate fall semesters.

**BSC598 Non-Thesis Research**

Hours 1-15

Non-Thesis Research.

**BSC599 Thesis Research**

Hours 1-15

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Biology. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**BSC601 Biological Sciences Seminar**

Hours 1

This course will introduce graduate students to a diversity of current topics and expand their knowledge of the methodology and application of research and research methods in the biological sciences. In addition to attending seminars by invited speakers and departmental faculty members, the course will also provide graduate students with instruction and practice in the oral presentation of research data.

**BSC604 Scientific Writing and Data Presentation**

Hours 3

This course will teach students writing skills for grant proposal and research paper preparation as well as other data presentation techniques in the biological sciences.

Prerequisite(s): Graduate standing or permission of the instructor.

**BSC607 Adv Research Tech In By**

Hours 1-6

Individualized instruction and the application of research techniques to specific problems at an advanced level for graduate students in the department. Offered fall and spring semesters.

**BSC610 Pedagogy in Biological Sciences**

Hours 3

Discussion of topics associated with teaching biology at the college-level, including reviews of the literature associated with science education, metacognition, and the scholarship of teaching and learning.

**BSC615 Integrative Biology Seminar**

Hours 1

This course is designed to provide modern perspectives on integrative biology through primary literature review and by reviewing graduate student manuscripts, conference presentations, and grant proposals. The course also will provide opportunities for graduate students to gain professional development advice and to learn more about statistical techniques for analyzing experimental data.

**BSC620 Molecular Systematics**

Hours 4

Theory and methods of phylogenetic analyses using molecular sequence data. Students will be able to select appropriate loci for the desired level of phylogenetic analysis, align sequences, generate phylogenetic hypotheses with a variety of inference methods, generate and evaluate branch-support values, and infer evolutionary patterns of from phylogenetic trees. Students will be able to critically evaluate phylogenetic methods and the support for conclusions reached in the phylogenetic literature for organisms across the Tree of Life.

Prerequisite(s): BSC 520

**BSC650 Foundations of Ecology**

Hours 3

This course emphasizes the current big ideas in ecology and the history behind these concepts. Students will gain an understanding of a common set of concepts and major lines of ecological development that characterize current research by reading early papers from the Foundations of Ecology. They will match current journal papers on a similar topic to compare changes in ecological thought over the decades. The progression of ideas will move from early to current work on populations, models of population growth, competition, and predator-prey dynamics as well as the early and more recent niche concepts. Students then consider community ecology, succession, and plant-animal interactions as well as ecosystem research on food webs, energy flow, and nutrient cycling. Students refine their research interests by leading discussions and selecting some of the papers for discussion that relate to their own research projects. Papers are meant to help students to initiate writing an introduction to their dissertation or thesis prospectus and prepare to meet with their dissertation committee members for further developing their ideas.

**BSC652 Community Ecology**

Hours 3

Thorough investigation of theory and empirical studies of ecological communities (plant, animal, microbial), including methods, community structure, diversity, succession, links to ecosystem function, resource management. Offered alternate spring semesters.

**BSC656 Microscopical Techniques**

Hours 4

An introduction to the methods and applications of electron microscopy in biological research, including techniques for preparation of biological specimens, operation of the transmission and scanning electron microscopes, and photography. Offered irregularly.

**BSC657 Advanced Techniques in Microscopy**

Hours 1

This course provides individual training on the use of different equipment in the Optical Analysis Facility in support of graduate student research. Emphasis will be placed on sample preparation techniques and advance microscopy usage (e.g., confocal microscopy, transmission electron microscopy and scanning electron microscopy).

**BSC666 Disease Models and Mechanisms**

Hours 3

A graduate level seminar on current topics related to use of animal model systems, as they pertain to the molecular basis of human disease. This course is designed to expose students to recent research in a variety of diseases. The instructor and students will give lectures that provide a general survey of current disease research topics. During each class, a student will give an introduction on the particular disease being discussed that week. This introduction usually contains some basic information about the disease (e.g. symptoms, incidence rate, diagnosis and prognosis) as well as the known and unknown aspects of what causes the disease. Detailed student presentations will then follow on specific and recent literature within that topic with a focus on molecular mechanisms. This is designed to foster interactive class discussion and to strengthen the analytical and presentation skills of graduate students in cell and molecular biology. Emphasis on critical thinking and evaluation of scientific approaches and application of methods will be a major component of this course. In addition to the presentation of a disease topic and participation of the course in each class, as a final assignment, students will be asked to write a "News and Views" type "preview" article on a recent or in-press article related to human disease modeling. If demonstrating appropriate scholarly value, select articles might be revised under the supervision of the instructor and then submitted for publication to an appropriate journal, such as Disease Models and Mechanisms or the Journal of Neuroscience. Specific guidelines for this assignment are provided. Assessment of student progress in terms of pre-test/post-test, written critiques of presentations and writing assignments will be provided. Following each class, Dr. Caldwell will provide immediate feedback on their presentation and suggest areas for improvement. Outline of Course Topics: 1) the molecular basis of select diseases 2) strengths/weaknesses of specific animal model systems (worms, flies, mice, zebrafish) 3) role of genetic, cellular, and molecular processes in disease 4) application of model systems toward therapeutic development.

Prerequisite(s): Graduate Student Status

**BSC675 Global Change Biology**

Hours 3

Students will take a detailed look at climate change across a variety of scales (species to biomes) using primary literature sources. Each student will lead a discussion in an area of climate change of their choice (e.g. climate change leading to disease, climate change and biological feedbacks, alteration in climate and storm intensity, decline of amphibians); these topics need not be limited to biological subjects. Students will be expected to participate in critiques of primary literature, class discussions, and the development of an individual proposal (including preproposal, budgets, and panel discussions of funding).

Prerequisite(s): Must be enrolled in University Graduate Program.

**BSC681 Topics in Drosophila Biology**

SP

Hours 1

This is a graduate level course on the current genetic research methods and technologies using *Drosophila* as a model system. The course covers topics including using *Drosophila* to model human disease, developmental biology, evolution and development, and ethics and professionalism in science.

Special Topics Course

**BSC695 Spec Topics Biolog Sci**

SP

Hours 1-4

Courses with this number may address any biological topic not covered by existing courses. The credit hours and format are arranged as appropriate to each topic. The specific course title is added at the time the course is taught. Offered irregularly.

Special Topics Course

**BSC696 Resident Study**

Hours 2-6

Credit for the course is determined by the extent of the coursework. Offered fall and spring semesters.

**BSC698 Res Not Rel Dissertation**

Hours 1-15

Research Not Related to Dissertation.

**BSC699 Dissertation Research**

Hours 1-15

Dissertation Research.

**CD501 Introduction to Research Methods**

Hours 3

This course covers the study of research methods for use in communicative disorders and related disciplines. This includes an emphasis on evaluation of experimental design for clinical research and critical reading of published research.

**CD502 Psychology of Language**

Hours 3

Language is a system of symbols that we use to communicate. The power of this system enables us to share the contents of our minds with other people who share that language. The evolution of language has profoundly shaped the lives of human beings, enabling our species to transmit knowledge from one generation to the next. This accumulated knowledge over time and space has allowed humans to proliferate as a species. New words are added to a language as new ideas emerge. The psychology of language is the study of the processes by which we as human beings generate grammatical sequences of linguistic symbols for comprehension by the listener.

**CD506 Augmentative/Alternative Communication & Children with Disabilities**

Hours 3

This course will review the basic aspects of the field of augmentative/alternative communication including aided and unaided symbols, strategies, and techniques. This course will also explore the complex needs of children with disabilities and the role of the SLP as a member of the child's interdisciplinary care team.

**CD508 Diagnostic Practicum**

Hours 3

The course is designed to provide graduate students in speech-language pathology with clinical practicum experience evaluating individuals across the lifespan who present with a wide variety of speech, language, feeding and swallowing, hearing and other communication needs.

**CD509 Language 1**

Hours 3

Advanced study of typical and atypical language and communication development. Presentation and discussion of theories, individual differences, and cultural differences in ages 0-5.

**CD512 Language 2**

Hours 3

Advanced study of typical and atypical language and communication development ages 5 to 21 years. Presentation and discussion of theories, practices and methods of differential diagnosis and language intervention for language-impaired children and adolescents.

**CD514 Autism Spectrum Disorders**

Hours 3

This course includes presentation and discussion of theories and methods of assessment and intervention of neuro-diverse populations.

**CD515 Professional Seminar**

Hours 3

Study of professional issues in the field of communicative sciences and disorders. Includes current issues, practice standards, certification, licensure, ethics, employment, and professional organizations.

**CD517 Advanced Clinical Practicum Speech**

Hours 1-9

The course is designed to provide graduate students in speech-language pathology with supervised evidence-based clinical practicum experiences involving evaluation, intervention, and counseling services to diverse individuals across the lifespan who present with a wide variety of needs in the area of speech-language pathology. These experiences are offered in a variety of on- and off-campus clinical settings. The student will, with increasing independence and confidence, demonstrate application of theory, knowledge, and skills, under the supervision of a licensed and certified Speech-Language Pathologist.

**CD518 Advanced Clinical Practicum Speech II**

Hours 3-9

The course is designed to provide graduate students in speech-language pathology with supervised evidence-based clinical practicum experiences involving evaluation, intervention, and counseling services to diverse individuals across the lifespan who present with a wide variety of needs in the area of speech-language pathology. The student will demonstrate application of theory, knowledge, and skills at an external practicum site, under the supervision of a licensed and certified Speech-Language Pathologist.

Prerequisite(s): Completion of 4 semesters of CD 517: Advanced Clinical Practicum Speech

**CD520 Spec Topics Commun Disorders**

SP

Hours 1-3

Graduate students will enroll in special topics one or more times depending upon offerings and student program interests. Topics will vary annually to reflect students' needs for educational experiences within the profession appropriate at the time.

Special Topics Course

**CD525 Applied Research in CD**

W

Hours 3

This course is meant to be a gentle-but-fast introduction to conducting research in Communicative Disorders. The goals of it is to help students position themselves to contribute to research in communicative disorders, construct the plan for completing a thesis during their Master's studies in CD, and develop practical research skills (conducting a systematic literature review, designing a study with attention to possible biases, analyzing data, and writing for professional audiences). Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course.

Writing

**CD535 Medical SLP**

Hours 3

This graduate-level elective course will address current topics related to the practice of medical speech-language pathology in a variety of medical settings. This course will prepare learners for healthcare practicum placements and a career in the healthcare setting by teaching topics not covered in other content courses. A variety of topics will be explored including the following: collaborative models in the medical setting, medical/administrative terminology, clinical documentation, counseling, as well as practical applications throughout.

**CD543 Basic Audiology**

Hours 3

This course will introduce students to the diagnosis and treatment/patient management of hearing loss. The normal auditory system will also be discussed. As part of these goals, the anatomy, physiology, and pathology of the normal and impaired auditory system will be included in the presented lectures.

**CD544 Aural Rehabilitation**

Hours 3

This course examines the implications of hearing loss across the life span, assistive technology including hearing aids and implantable devices, and the underlying principles and evidence-based approach to intervention in the discipline of auditory (re)habilitation.

**CD545 Audiology Lab Experience**

Hours 1-3

Supervised laboratory or clinical experience in hearing evaluation and rehabilitation.

**CD546 Aural Rehab for the Speech-Language Pathologist**

Hours 3

Speech-language pathology students will develop a deeper understanding of how hearing loss impacts speech and language development and learn to deliver evidence-based aural rehabilitation services across the lifespan.

**CD549 Sociolinguistics in SLP**

Hours 3

This course examines the relationship between language and society, with a primary focus on regional variation and social variation resulting from the interaction between various social constructs such as gender, class, culture, and ethnicity, with an emphasis on how variation might impact a clinical setting.

**CD550 Independent Study**

SP

Hours 1-3

*No description available*

Special Topics Course

**CD551 Phonological Development Assessment & Intervention**

Hours 3

This course covers the advanced study of typical phonological and articulatory production. This includes presentation and discussion of theories, practices, differential diagnosis and intervention of speech sound disorders.

**CD552 Neurology I**

Hours 3

An advanced course in neuroscience as it relates to the field of speech-language pathology. Students will be able to explain the anatomy and physiology of the brain, explain functions associated with structures in both the central and peripheral nervous systems, appreciate the nature and scope of neurogenic impairments, and understand brain abnormalities and neurological illnesses.

**CD553 Neurology II**

Hours 3

Advanced study of the nature, assessment, and treatment of language and cognitive disorders associated with acquired brain injury, such as stroke, TBI, and dementia.

**CD554 Fluency & Counseling**

Hours 3

The study of the nature, assessment, and treatment of stuttering. Emphasis on understanding the different onset and developmental theories and different approaches to treatment.

**CD555 Seminar in Voice Disorders**

Hours 3

This course covers the advanced study of the physiological, acoustical, and psychological factors underlying voice disorders, methods of rehabilitation, and research to support evidence based practice.

**CD556 Acquired Motor Speech Disorders**

Hours 3

Advanced study of the nature, assessment and treatment of acquired speech disorders, including dysarthria and apraxia.

**CD565 Advanced Aphasia**

Hours 3

The purpose of this course is to prepare future clinicians to assess, diagnose, and treat aphasia. Students will learn diagnostic procedures as well as intervention and management of the various types of aphasia. The course is designed to help students become competent consumers of the aphasia treatment literature, which will help them provide evidence-based treatment throughout their future careers. Family involvement, quality of life, cultural considerations, working with medical professionals, and clinical documentation will be integrated throughout the course. Students will gain valuable, practical knowledge and skill for working with persons with aphasia.

**CD575 Dysphagia in Children**

Hours 3

Advanced study of the nature, assessment, and treatment of feeding and swallowing disorders in children. Special populations will be discussed.

**CD576 Dysphagia In Adults**

Hours 3

Advanced study of the nature, assessment, and treatment of swallowing disorders in adults. Special populations (i.e., tracheostomized, ventilator-dependent) will be included.

**CD578 Counseling in Communicative Disorders**

Hours 2

Counseling in Communication Disorders introduces students to basic theoretical foundations of counseling, approaches to conduct interviews, basic counseling strategies, and the role of the counselor in the therapeutic alliance. Students have the opportunity to experience basic counseling strategies via in class activities.

**CD599 Thesis Research**

Hours 1-6

All aspects of the thesis, from selecting a problem to writing the results and conclusions.

**CH501 Introductory Inorganic Chemistry**

Hours 4

Three lectures and one three-hour laboratory. Survey in areas of coordination, main-group, and organometallic chemistry. Laboratory experiments involve the preparation, purification, and identification of inorganic compounds. This course is designed for students in the chemistry MSC degree and the accelerated masters program. This course will not satisfy any course requirements for the chemistry PhD degree.

**CH505 Medicinal Chemistry**

Hours 3

Detailed investigation of the drug design process. Includes lead discovery, target identification and validation, pharmacodynamics, pharmacokinetics, and drug delivery systems. Chemical modification to improve efficacy will be emphasized.

**CH519 Integrated Foundational Chemistry: Physical/Analytical**

Hours 3

Foundational course in graduate chemistry emphasizing the concepts that underpin and connect all chemistry sub disciplines.

**CH520 Integrated Foundational Chemistry: Structure/Bonding**

Hours 3

Foundational course in graduate chemistry emphasizing the concepts that underpin and connect all chemistry sub disciplines.

**CH524 Adv Anl Ch I Spec Meth**

Hours 3

Provides graduate students with knowledge of the fundamental aspects of various modern methods of spectroscopic analysis. Reference to analytical applications and experimental methods is made, where relevant.

**CH526 Chemometrics**

Hours 3

Chemometrics involves the application of statistical and mathematical methods to chemistry. Areas of emphasis will be data and error analysis, calibration, experimental design, signal processing and transform procedures, and data description and enhancement.

**CH530 Intro Grad Org Chem**

Hours 3

Generally, this course is for entering graduate students whose undergraduate training in organic chemistry is insufficient.

**CH531 Adv Organ Chem I-Physicl**

Hours 3

Theory and mechanism of organic transformations, detailed evaluation of organic structure, molecular dynamics, molecular orbital interactions, molecular symmetry, stereochemistry of reactions, and energetics of reaction paths.

**CH532 Adv Org Ch II React Synt**

Hours 3

Fundamentals of organic transformations and advanced synthetic methodology with application to the synthesis of complex organic structures.

**CH549 Adv Ph Ch II Atom/Mol**

Hours 3

*No description available*

**CH561 Biochemistry I**

Hours 3

First-semester course in basic biochemistry. Structure and properties of biological molecules, including proteins, DNA, RNA, carbohydrates, lipids, and enzyme cofactors and prosthetic groups. Introduction to intermediary metabolism and glycolysis. Offered fall semester.

**CH562 Biochemistry II**

Hours 3

Continuation of basic one-year course in biochemistry. Intermediary metabolism, TCA cycle, oxidative phosphorylation, and catabolism of biomolecules. Biosynthesis of amino acids, nucleotides, carbohydrates, and lipids. DNA and RNA replication, with introduction to recombinant technology. Protein biosynthesis and membrane transport. Offered spring semester.

**CH563 Biochemistry Lab**

Hours 3

One lecture and one six-hour laboratory. Biochemical techniques within the structure of a semester-long research project. Topics include protein purification and chromatography, spectroscopy, electrophoresis, kinetics, and DNA manipulation.



**CH564 Adv Biophysical Chem**

Hours 3

The study of physical techniques applied to the development and experimental verification of biochemical hypotheses. Examples include forms of spectroscopy, treatment of multiple equilibria, and enzyme kinetics. Examples of applications are drawn from such areas as oxygen transport, oxidative phosphorylation, and photosynthesis.

**CH565 Adv Bio-Inorganic Chem**

Hours 3

Study of current knowledge on the roles of metal ions in biological systems, including structural and catalytic functions. Topics include bio-coordination chemistry, spectroscopic and magnetic methods, and kinetics.

**CH566 Bioorganic Reaction Mechanisms**

Hours 3

This course will be divided into two main areas. We will begin with methods for studying enzyme reaction mechanisms. This section will include steady-state enzyme kinetics, derivation of rate equations, enzyme inhibition, isotope exchange methods, pH and viscosity effects, kinetic isotope effects, and site-directed mutagenesis. We will then utilize these methods in order to investigate the chemical mechanisms enzymes use to catalyze specific reactions (hydrolysis; group transfer; 1,1 hydrogen shift; 1,2 hydrogen shift; C-C bond formations; and redox chemistry). We will also cover the chemistry associated with several cofactors required by enzymes (flavins, thiamin pyrophosphate, tetrahydrofolate, etc).

**CH570 Research Techniques Chemistry**

Hours 1-6

Independent study in chemistry to learn the tools of chemical research.

**CH584 Literature and Communication in Graduate Chemistry**

Hours 3

This course is an introduction to researching chemistry literature. Topics covered will primarily be related to scientific critical analysis and effective scientific communication, both written and oral. Students will receive structured guidance from the class instructor (s), chemistry faculty, and their class peers throughout the semester to assist with writing a chemistry research paper and delivering an oral presentation. Successful completion of this course will fulfill the literature seminar requirements (written research paper and seminar) for chemistry graduate students.

**CH585 Chemistry Seminars**

Hours 1

Course requires attendance at presentations given by graduate students and outside speakers. All graduate students in residence are required to register for seminar during academic semesters except when the student has received permission from the departmental Director of Graduate Studies.

**CH586 Research Seminar**

Hours 1

Presentation of doctoral dissertation or Plan I Master's thesis research results.

Prerequisite(s): CH 585

**CH599 Thesis Research**

Hours 1-6

*No description available*

**CH601 Adv Inor Chi:Strct Mth**

Hours 3

*No description available*

**CH605 Spec Topics Inorg Chem**

SP

Hours 3

*No description available*

Special Topics Course

**CH609 Organometallic Chem**

Hours 3

Structure, bonding, and reactivity of organotransition metallic compounds, mechanisms of transformations and fundamental reaction types, applications to catalysis and organic synthesis.

**CH615 Solid State Materials Chemistry**

Hours 3

This course is designed for students interested in pursuing research in materials chemistry. This course looks at materials science from the chemist's point of view and uses chemistry language.

**CH618 Crystallography and X-ray Diffraction**

Hours 3

Fundamentals in crystallographic methods for representing atomic structure and their practical application in x-ray diffraction methods. Topics include space groups, miller indices, reciprocal lattice formalism, diffraction of a wave by a lattice, and crystal structure solution and refinement.

**CH621 Trends In Analytical Chem**

Hours 3

*No description available*

**CH625 Electrochemistry**

Hours 3

This course is designed to teach the fundamental aspects of electrochemistry and the application of electrochemical methods to chemical/engineering problems. Electrochemistry studies the relationship between electricity and chemical reactions. It has significant applications in areas such as environmental remediation, energy storage, and healthcare.

**CH626 Surface Analytical Techniques**

Hours 3

Introduces the student to the instrumentation and techniques used to study surfaces and interfaces. Spectroscopic, microscopic, desorption, and vacuum techniques are covered.

**CH627 Mass Spectrometry**

Hours 3

Deals with all areas of mass spectrometry (MS), including single and multiple stage MS and chromatography/MS. The emphasis is on fundamental principles and instrumentation, as well as applications and data interpretation.

**CH635 Sel Topics In Org Chem**

SP

Hours 3

*No description available*

Special Topics Course

**CH637 Spectroscopic Techniq**

Hours 3

Fundamentals of spectroscopic techniques for structure determination of organic molecules. Theory and application of IR, NMR, and MS in organic chemistry.

**CH660 Adv Research Techniques Chem**

Hours 1-6

Independent study in chemistry to learn advanced research techniques used in all areas of chemical research.

**CH680 Initial Research Review**

Hours 1

MS and PHD students present their initial research project progress to their thesis or dissertation committee, respectively.

**CH681 Oral Candidacy Exam**

Hours 1

PHD students prepare and present a third-year research report and defend an original research proposal in front of their dissertation committee.

Prerequisite(s): CH 680

**CH699 Dissertation Research**

Hours 1-12

Research efforts for dissertation content.

Prerequisite(s): CH 681

**CIP513 CIP Out-Going Enrollment**

Hours 1-18

CIP out-going independent/direct enrollment, Study abroad student, graduate or undergraduate, in-state or out-of-state student.

**CJ505 Gender & Crime**

Hours 3

*No description available***CJ506 Terrorism**

Hours 3

An analysis of selected areas of terrorism, counter-terrorism, and homeland security with an emphasis on parallels between terrorism and crime.

**CJ520 Seminar Law Enforcement**

Hours 3

Analysis of selected areas of law enforcement. Emphasis is on currently developing trends.

**CJ540 Sem Juvenile Delinquency**

Hours 3

The nature and extent of delinquency; competing explanatory models and theories. Evaluation of control and treatment modalities.

**CJ570 Sem Correction Policy**

Hours 3

Examines the historical and contemporary policy trends in institutional and community corrections.

**CJ581 Applic Statistics In CJ**

Hours 3

An evaluation of specific statistical methods for quantitative and nonquantitative analyses, concentrating on proper applications and interpretations in criminal justice settings.

**CJ584 Criminological Theory**

Hours 3

Examination of classical, neoclassical, positive, and social-defense theories of criminality and their interrelation with the broader problems of crime control. Offered spring semester.

**CJ586 Research In Cj Process**

Hours 3

Prepares the student to develop and to implement basic research designs. Offered fall semester.

**CJ590 Special Topics**

SP

Hours 3

Offers an opportunity for faculty and students to explore in depth topics of contemporary interest that are not generally covered in the standard courses. Course content will vary from section to section.

Special Topics Course

**CJ592 Independent Study**

SP

Hours 1-6

Research under faculty supervision in any area of interest to the student. Content may not relate to thesis or policy and practice project.

Special Topics Course

**CJ595 Practicum**

Hours 3-6

This course provides Criminology and Criminal Justice graduate students with the opportunity to work directly with an agency or a community partner over the course of a semester. Graduate students pursuing the practicum will write a technical report that synthesizes their coursework with their practicum and includes data analysis.

**CJ598 CJ Policy And Practice**

Hours 3

This course provides students who are not completing a thesis or practicum with the opportunity to demonstrate comprehensive knowledge about a policy-related topic selected in consultation with a faculty supervisor. Students completing the policy and practice paper will engage in a comprehensive literature review guided by research questions pertaining to a potential problem or issue associated with the policy or practice under study.

**CJ599 Thesis Research**

Hours 1-9

Research may be directed by any member of the faculty who accepts responsibility for supervising the thesis.

**DN500 Performance Practicum I-A**

Hours 1-3

This course will prepare students for practical application of technique and the creative process required for dance performance at the graduate level.

Prerequisite(s): Graduate standing in Dance (MFA) or Instructor consent.

**DN501 Performance Practicum I-B**

Hours 1-3

This course will continue to prepare students for the practical application of technique and the creative process required for dance performance at the graduate level.

Prerequisite(s): Graduate standing in Dance (MFA) or Instructor consent.

**DN505 Graduate Teaching Practicum**

Hours 1

This course is designed to help graduate students expand and develop their teaching practice through faculty and peer supervision, feedback, and review.

Prerequisite(s): DNCA 503 or DNCA 565, Dance MFA student, or permission of the instructor

**DN511 Graduate Contemporary Technique I-A**

Hours 1-3

Exploration and development of contemporary dance technique at the graduate level.

Prerequisite(s): Dance MFA student or permission of the instructor

**DN512 Graduate Contemporary Technique I-B**

Hours 1-3

Continued exploration and development of contemporary dance technique at the graduate level.

Prerequisite(s): Dance MFA student or permission of the instructor

**DN521 Graduate Ballet Technique I-A**

Hours 1-3

Study of ballet technique at the graduate level.

**DN522 Graduate Ballet Technique I-B**

Hours 1-3

Continued study of ballet technique at the graduate level.

**DN531 Graduate Movement Practice I**

Hours 1-3

Exploration of movement styles beyond traditional Western dance forms. May include world dance forms, social dance forms, theatrical movement, or somatic practices.

Prerequisite(s): Dance MFA student or permission of the instructor

**DN535 Rhythm, Music and Dance**

Hours 3

This course will examine various aspects of music and sound as it relates to dance performance and choreography.

Prerequisite(s): MFA Dance student or permission of instructor

**DN540 Graduate Improvisation and Composition I**

Hours 3

This course is designed to enhance graduate students' explorations into creative process with particular attention to improvisational and choreographic abilities.

Prerequisite(s): Dance MFA student or permission of the instructor

**DN541 Graduate Improvisation and Composition II**

Hours 3

This course is designed to continue to enhance graduate students' explorations into creative process with particular attention to improvisational and choreographic abilities leading into the thesis proposal.

Prerequisite(s): DN 540, Dance MFA student or permission of the instructor

**DN551 Graduate Jazz Technique I-A**

Hours 1-3

Study of Jazz dance technique at the graduate level.

**DN552 Graduate Jazz Technique I-B**

Hours 1-3

Continued study of Jazz dance technique at the graduate level.

Prerequisite(s): Graduate Standing, MFA in Dance

**DN595 Capstone Creative Research**

Hours 1-3

This course engages students in their research design and creative process leading to the MFA Capstone Project.

**DN599 Final Project Research**

Hours 1-3

This course engages students in their research design and creative process leading to the MFA Final Project.

Prerequisite(s): DN 541

**DN600 Performance Practicum II-A**

Hours 1-3

This course serves as preparation for the practical application of technique, the creative process and the development of artistry required for dance performance at the professional level.

Prerequisite(s): DN 500 or DN 501, or permission of instructor

**DN601 Performance Practicum II-B**

Hours 1-3

This course serves as continued preparation for the practical application of technique, the creative process and the development of artistry required for dance performance at the professional level.

Prerequisite(s): DN 500 or DN 501, or permission of instructor

**DN602 Staging Repertoire**

Hours 1-3

This course will examine the process required for restaging and reconstructing dance repertoire.

Prerequisite(s): DN 535, or permission of instructor

**DN611 Graduate Contemporary Technique II-A**

Hours 1-3

Advanced exploration and development of contemporary dance technique at the graduate level.

Prerequisite(s): DN 511 or DN 512, Dance MFA student or permission of the instructor

**DN612 Graduate Contemporary Technique II-B**

Hours 1-3

Continued advanced exploration and development of contemporary dance technique at the graduate level.

Prerequisite(s): DN 511 or DN 512, Dance MFA student or permission of the instructor

**DN621 Graduate Ballet Technique II-A**

Hours 1-3

Advanced study of ballet technique at the graduate level.

Prerequisite(s): DN 521 or DN 522

**DN622 Graduate Ballet Technique II-B**

Hours 1-3

Continued advanced study of ballet technique at the graduate level.

Prerequisite(s): DN 521 or DN 522

**DN631 Graduate Movement Practice II**

Hours 1-3

Continued exploration of movement styles beyond traditional Western dance forms. May include world dance forms, social dance forms, theatrical movement, or somatic practices.

Prerequisite(s): DN 531, Dance MFA student or permission of the instructor

**DN640 Collaborative Practice**

Hours 3

This class will be a laboratory for graduate choreographers, directors, designers, and composers to create collaboratively.

Prerequisite(s): DN 540, Dance MFA student or permission of the instructor

**DN650 Creative Process in Dance I**

Hours 1-3

This course explores creative processes in various dance styles. Students will research the chosen subject matter with a public presentation as the culmination of the class.

Prerequisite(s): DN 541, or permission of the instructor

**DN651 Graduate Jazz Technique II-A**

Hours 1-3

Advanced study of Jazz dance technique at the graduate level.

Prerequisite(s): DN 551 or DN 552

**DN652 Graduate Jazz Technique II-B**

Hours 1-3

Continued advanced study of Jazz dance technique at the graduate level.

Prerequisite(s): DN 551 or DN 552

**DN655 Creative Process in Dance II**

Hours 1-3

This course continues to explore creative process in relation to concert performance and promotion.

Prerequisite(s): DN 650, or permission of the instructor

**DN670 Dance in the Digital Age**

Hours 3

This course will hone a core set of practical and theoretical skills to help dance-artists navigate the ever-changing digital landscape.

Prerequisite(s): Dance MFA student or permission of the instructor

**DN680 Laban/Bartenieff Studies**

Hours 3

An introduction to Laban/Bartenieff Studies through movement integration, observation, notation, analysis, and application.

**DNCA503 Graduate Teaching Methods**

Hours 3

This course is designed for graduate dance students to analyze the principles, methods, philosophy, materials, and practice of teaching in colleges and universities.

Prerequisite(s): Dance MFA student or permission of the instructor

**DNCA565 Science of Dance Training**

Hours 3

This course explores dance science and somatics. Includes investigation of techniques for training dancers in order to minimize risk of injury and maximize potential.

Prerequisite(s): Graduate Standing in Dance or permission of instructor

**DNCA570 Research Methods in Dance**

Hours 3

Graduate course in research methods for dance.

Prerequisite(s): Graduate standing, Dance (MFA) or permission of instructor

**DNCA595 Capstone Scholarly Research**

Hours 1-3

This course involves the continued implementation of scholarly research leading to the MFA Capstone Project in Dance.

**DNCA630 Professional Issues in Dance**

SP

Hours 3

This course is designed to help students prepare for positions in academic and professional settings. Students will create a personal website, write their resume/CV, articulate personal goals and career aspirations, practice interview skills, and examine resources for network building.

Prerequisite(s): Dance MFA student or permission of the instructor

Special Topics Course

**DNCA660 Body Politics in Dance**

Hours 3

This course provides students ways to look at major dance works and choreography figures prominent in the development of dance in America to enhance the viewing and discussion of dance.

Prerequisite(s): Dance MFA student or permission of the instructor

**EN500 Special Topics**

SP

Hours 3

Special topics.

Special Topics Course

**EN512 Computers And Writing**

Hours 3

Seminar focused on the use of technology to help students improve their writing and to help teachers improve their writing instruction. CRES core course.

**EN523 History English Language**

Hours 3

An introduction to the external history of the English language along with the study of the accompanying internal changes in structure. A desirable prerequisite for this course is EN 320 or EN 321.

**EN524 Modern English Grammar**

Hours 3

An intensive investigation of the structures in the English language, including phonology, morphology, syntax, and semantics.

**EN525 Dialectology**

Hours 3

The study of the experience of the English language in America, with particular emphasis on its development and dialects. A desirable prerequisite for this course is EN 320 or EN 321.

**EN529 Directed Studies**

Hours 1-6

*No description available*

**EN532 Approach Teach Composition**

Hours 3

A study of the basic pedagogical approaches to teaching expository writing in secondary and higher education, along with examination of traditional conventions as well as innovative pedagogical approaches used in such instruction. Work with course goals, objectives, and writing outcomes, syllabus and writing assignment construction, training in assessing student writing. Required of all graduate assistants in English.

**EN533 Practicum Tchg College English**

Hours 2

Fall semester only. Required of all graduate assistants teaching EN 101 for the first time. Training in reaching EN 101 course goals and writing outcomes. Format for the course is a one-hour large group meeting taught by the WPA and/or others on the First-year Writing Program staff or CRES faculty, and a one-hour small group meeting taught by the WPA, FWP staff, and/or CRES faculty. The small group meetings will function to offer additional mentoring for GTA teaching and support for GTA student learning. Please note: EN 533 begins with required orientation workshops and an intensive multi-day orientation session immediately prior to the start of the fall semester. Orientation attendance is mandatory for retaining a graduate assistantship.

**EN534 Practicum Tchg College English**

Hours 2

Spring semester only. Required of all graduate assistants teaching EN 102 for the first time. Training in reaching EN 102 course goals and writing outcomes. Further instruction in teaching formal argumentation and advanced research techniques. Format for the course is a one-hour large group meeting taught by the WPA and/or others on the First-year Writing Program staff or CRES faculty, and a one-hour small group meeting taught by the WPA, FWP staff, and/or CRES faculty. The small group meetings will function to offer additional mentoring for GTA teaching and support for GTA student learning.

**EN535 Literary Criticism**

Hours 3

A study of selected major critics and critical trends from the classical period into the 20th century.

**EN537 Introduction to Graduate Studies**

Hours 3

A study of selected bibliographical resources and of some of the important method approaches employed in literary study, including an introduction to critical approaches, scholarly writing, and issues in the profession.



**EN539 Approaches to Teaching the Sophomore EN Survey**

Hours 1

This course is required for all GTAs assigned to teach a 200-level EN survey for the first time. It may be taken concurrently with or in advance of teaching one's first literature survey, and is typically taken by Ph.D. students in their second year of coursework and by MFA students in their third year of coursework. A grade of "pass" is required for students to teach literature courses in the department of English. Students should expect to meet weekly to discuss practical subjects like how to manage daily discussion, construct exams, assign and grade papers, and otherwise ensure that learning outcomes are being met. Students should also expect to prepare teaching materials for a number of the 200-level surveys and to have those items evaluated for their agreement with the department's 200-level course guidelines. Student Learning Outcomes:

- Students can produce a syllabus and other teaching materials that accord with departmental and disciplinary expectations for the 200-level literature surveys
- Students attain a broad knowledge of the scope and pedagogical goals of EN 205
- Students attain a broad knowledge of the scope and pedagogical goals of EN 206
- Students attain a broad knowledge of the scope and pedagogical goals of EN 207
- Students attain a broad knowledge of the scope and pedagogical goals of EN 208
- Students attain a broad knowledge of the scope and pedagogical goals of EN 209
- Students attain a broad knowledge of the scope and pedagogical goals of EN 210
- Students attain a broad knowledge of the scope and pedagogical goals of EN 249.

Prerequisite(s): One completed year of coursework in the English Ph.D. program or two completed years of coursework in the English MFA program

**EN541 Strategies for the Profession**

Hours 1

In this one-hour course, graduate students learn professional strategies and practices. Topics may include practical advice for navigating graduate school, finding funding, preparing for conferences, and applying for academic and non-faculty posts. Students might expect to produce all the standard materials required to apply for an academic job, major research grant, or postdoctoral fellowship.

**EN598 Non-Thesis Research**

Hours 1-12

Non-Thesis Research.

**EN599 Thesis Research**

Hours 1-12

*No description available***EN601 Fiction Workshop**

Hours 3

Enrollment limited to students with approved portfolios (approval secured upon admission to the MFA program or during advising period; see creative writing director). Focus will be discussion of original student writing; other reading and writing may be assigned.

**EN603 Poetry Workshop**

Hours 3

Enrollment limited to students with approved portfolios (approval secured upon admission to the MFA program or during advising period; see creative writing director). Focus will be discussion of original student writing; other reading and writing may be assigned.

**EN605 Workshop Special Topics**

SP

Hours 3

Enrollment limited to students with approved portfolios (approval secured upon admission to the MFA program or during advising period; see creative writing director). Focus will be discussion of original student writing; other reading and writing may be assigned.

Special Topics Course

**EN608 Forms Special Topics**

SP

Hours 3

Through readings of primary works and theory by writers in a particular genre or form, this course examines the traditional and contemporary practice of that genre's aesthetics. Sample topics: Prosody, Short Short Fiction and the Prose Poem, Characterization Across Genres.

Special Topics Course

**EN609 Form Theory Practice**

Hours 1

Short course in specialized topic of interest to creative writers. Sample topics: Teaching Creative Writing, Profession of Authorship, Writing Internship, Publishing: A Brief History, Poetry and Dance, Episodic Form.

**EN610 Meth Teaching English Sec Lang**

Hours 3

A detailed account of language teaching approaches and methods according to their underlying theories of language and language learning.

**EN611 Technologies for Second & Foreign Language Teaching and Learning**

Hours 3

This seminar explores the application of various technologies for second/foreign language teaching and learning. The course surveys research in computer-assisted language learning (CALL) and technology-enhanced language learning (TELL) in areas such as generative AI, virtual reality, corpora and corpus-based tools, digital games, platforms such as Duolingo & Babel, computer-mediated communication (CMC), and social media.

Prerequisite(s): EN 524 OR EN 610 OR EN 613 OR EN 620

**EN612 Topics In Applied Linguistics**

SP

Hours 3

Rotating topics in applied linguistics.

Special Topics Course

**EN613 Second Language Development**

Hours 3

A study of psycholinguistic, sociolinguistic, neurolinguistic, and other approaches to understanding how people develop skill in a second language.

**EN617 Teach Esl Acad Language Skills**

Hours 3

A course focusing on the teaching of academic writing skills in the context of an American university.

**EN620 Descriptive Linguistics**

Hours 3

An advanced introductory linguistics course that focuses on the English language and which has relevance for students in the applied linguistics/ TESOL, literature, rhetoric and composition, and MFA programs.

**EN630 Directed Studies**

Hours 1-6

*No description available***EN635 Literary Criticism**

Hours 3

Intensive study in the writings of one critic or exploration of a topic involving works by several critics. Recent topics have included feminist criticism and psychoanalytic criticism.

**EN637 Workshop In Academic Writing**

Hours 3

A writing workshop normally taken in the student's final year of coursework. To pass this course, the doctoral student will be required to revise a paper and submit it for publication.

**EN638 Sem Rhetoric & Composition**

Hours 3

This seminar covers rhetorical texts from ancient Greece to the Renaissance, particularly texts having influence on today's field of composition.

**EN639 Topics Rhetoric Composition**

SP

Hours 3

Topics to be proposed by faculty each semester. Typical topics include literacy theory, theoretical perspectives on basic writers, and computers and literacy.

Special Topics Course

**EN640 Spec Topics Sem American Lit**

SP

Hours 3

Recent topics have included "American Madness: the Literary Figurations of Unreason"; and Thoreau, Dickinson, and related contemporary writings.

Special Topics Course

**EN641 Sem American Lit Before 1850**

Hours 3

Intensive literary and historical study of writing by one or more American authors. A recent topic was the making, recording, and remaking of history in 19th-century American literature.

**EN643 Sem 20th Century American Lit**

Hours 3

Intensive literary and historical study of writing by one or more American authors. Recent topics have included the American 1960s and Hemingway.

**EN647 Seminar Southern Literature**

Hours 3

An intensive look at a major aspect of Southern American drama, poetry, and/or prose. Recent topics have included a study of race and gender in writings of Southern women; Faulkner and his legacy; and Tennessee Williams.

**EN648 Seminar African-American Lit**

Hours 3

A critical exploration of African-American literature (culturally, historically, politically and aesthetically) with efforts to define and contextualize the African-American experience.

**EN651 Politics of Teaching Writing**

Hours 3

Introduction to the theories and practices of pedagogical politics as they impact teaching, learning, and power relations in the composition classroom.

**EN652 Composition Theory**

Hours 3

A survey of major theories in composition studies, exploring philosophical underpinnings and major issues in the field.

**EN653 Research Methodology**

Hours 3

Survey of empirical research methods, with practice of methodological frameworks employed in composition/rhetoric research reports and designs. CRES core course.

**EN654 Sem Visual & Digital Rhetoric**

Hours 3

Seminar focused on understanding rhetoric in visual and digital texts, with emphasis on pedagogical applications. CRES core course.

**EN658 History of Rhet/Comp II**

Hours 3

This seminar covers rhetorical texts from the Renaissance to the Postmodern era, particularly texts having influence on today's field of composition.

**EN662 Middle English Lit Ex Chaucer**

Hours 3

A survey of the period with emphasis on types of literature, allegory, and satire. The opinions and attitudes of the Middle Ages are examined.

**EN663 Seminar in Renaissance Literature I**

Hours 3

Recent topics have included Elizabethan drama and friendship in Renaissance literature.

**EN664 Seminar in Renaissance Literature II**

Hours 3

Recent topics have included Jacobean and Caroline drama and Shakespearean tragedy.

**EN667 Shakespeare in Performance Practicum**

Hours 3

Shakespeare wrote his plays to be performed, and this course investigates conditions and implications of performance on stage and in film, present and past.

**EN668 Seminar in Renaissance Literature III**

Hours 3

Recent topics have included John Donne's poetry and mourning and the elegy.

**EN669 The Strode Seminar**

Hours 3

This seminar is offered in the spring semester of even-numbered years and typically features visits from distinguished faculty from other universities. Recent topics have included constructing gender and Milton and Shakespeare in literary history.

**EN674 Sem 18th Century Literature**

Hours 3

Emphasis is on a major figure (Fielding, Pope, Swift) and/or groups of writers (The Age of Johnson) and/or form (the novel, biography, drama). Specific topics are announced prior to registration.

**EN683 Seminar Romantic Literature**

Hours 3

Intensive study of English Romantic poetry and prose. Recent topics have included Wordsworth and Coleridge, and the Shelley circle.

**EN685 Seminar Victorian Literature**

Hours 3

Intensive study of Victorian literature. Recent topics have included Browning and Hopkins, and "Anatomies of Pleasure and Pain."

**EN690 Modern British Literature**

Hours 3

A study of some major aspect or aspects of the literature from 1890 to 1945. Recent topics have included Modernism; Woolf, psychoanalysis, and feminism; and Dylan Thomas, D. H. Lawrence, and Ted Hughes.

**EN693 Seminar in Postcolonial Literature**

Hours 3

A seminar that examines literatures from the Global South. Recent topics have included postcolonial theory, colonialism, decolonization, diaspora, and globalization.

**EN698 Non-Dissertation Research**

Hours 1-9

*No description available*

**EN699 Dissertation Research**

Hours 1-12

*No description available*

**FR501 Reading Proficiency I**

Hours 3

Intensive introduction to French grammar and vocabulary. Emphasis on reading and translation skills. Preparation of the French reading examination. For students in graduate programs campus-wide.

**FR502 Reading Proficiency II**

Hours 3

Continued study of grammar and vocabulary, with emphasis on further developing reading and translation skills.

**FR511 Research Methodology**

Hours 3

Basic research tools and techniques.

**FR512 Practicum in Applied Linguistics**

Hours 3

The analysis and various practical applications of selected teaching techniques.

**FR514 Qualitative Methods in Applied Linguistics Research**

Hours 3

In this course, students will explore procedures commonly used within a qualitative research framework in applied linguistics and second language studies. Students will examine a range of qualitative research methodologies, such as case study, narrative inquiry, participant observation, interviews, questionnaires, discourse analysis and experience collecting data through selected methods. We will discuss the Institutional Review Board process, the general organization of a research report and how qualitative research evidence can be evaluated. Critical examination of published research will enable students to reflect on the connection between research questions, data collection instruments, and analysis procedures. Students will develop their own research proposal using one of the qualitative research methodologies discussed in the course.

**FR515 Topics in Second Language Acquisition**

SP

Hours 3

Topics vary. Analysis of major issues, theories, research findings and their implications for teaching. Examples: second language reading, classroom language acquisition. May be repeated for credit.

Special Topics Course

**FR516 Discourse Analysis**

Hours 3

This course aims to introduce students to the main theories, ideas, notions, terms, and practices in Discourse Analysis. Being interdisciplinary in both content and methodology, topics of Discourse Analysis vary considerably from Discourse, Text, Communication Constraints (both system and ritual constraints), Power and Solidarity, Identity, Gender, Discourse and Culture, Voice and Ideology, Stereotyping/Political Correctness, Code-switching and Negotiation of meaning, Critical Discourse Analysis, Contextual features and text analysis, Schemata, Stylistics, Discourse and Pragmatics to co-textual relations. Applying a multidisciplinary approach, this course examines written and spoken languages/texts as a springboard to understand not only the linguistic qualities of socially situated language use but also, more importantly, the impact of surrounding discourse(s) on people's beliefs, attitudes, assumptions, actions, interactions, and social behaviors.

**FR521 Pronunciation & Phonetics**

Hours 3

Introduction to phonetic theory and corrective phonetics aimed at mastery of French pronunciation. Instruction on the articulation of the sounds of French, the phonetic transcription of French, and the correspondence between the sounds of French and its standard orthography. Frequent practice exercises.

**FR531 Francophone Sub-Saharan Africa**

Hours 3

Prominent themes of the African experience, seen through the eyes of Francophone authors and cinematographers of Sub-Saharan Africa and the diaspora.

**FR533 Democracy and France**

Hours 3

Exploration of the political, technological, and cultural movements of post-revolutionary France from 1789 to the present through the evolution of its democratic institutions. The first half of the semester will explore the history of democratic movements and institutions in France from the Revolution until the second World War; the second half of the semester will focus on issues facing contemporary France, including decolonization, the rise of the European Union, and the current migrant crisis.

**FR535 Bande Dessinée**

Hours 3

Culture, language, image, and narrative as uniquely captured and represented in French Bande Dessinée. Recognized and developed as an art form in the Francophone spaces of Europe and beyond, graphic novels and comics incorporate a wide spectrum of topics, resulting in complex representations, both factual and fictional. The development and methods of the medium, especially in France and Belgium, are highlighted, as well as the semiotics of the multimodal systems used in the creation of comics.

**FR536 Francophone African Religions**

Hours 3

This course explores the diverse religious traditions of Francophone Africa, examining the cultural, historical, and linguistic contexts that shape these traditions. Through an interdisciplinary approach, students will delve into the rich tapestry of beliefs, rituals, and cosmologies found in French-speaking African countries.

**FR543 French Renaissance Poetry**

Hours 3

Focus on the reinvention of French poetry during the 16th century by poets such as Marot, Scève, Louise Labé, Du Bellay, Ronsard.

**FR544 French Renaissance Prose**

Hours 3

Study of 16th-century narrative and intellectual works by authors such as Rabelais, Marguerite de Navarre, Montaigne, La Boétie.

**FR545 17th-Century French Literature I**

Hours 3

17th century French literature.

**FR546 17th-Century French Literature II**

Hours 3

Verse writings of the 17th century including, but not limited, to the pre-classical poets (such as Saint-Amant and de Vieu) and the dramatic works in verse (such as the plays of Corneille, Molière and Racine).

**FR548 18th-Century Philosophie Movement**

Hours 3

In this course we will study key works of the French Enlightenment, a thorough knowledge of which is essential to understanding both the modern and the postmodern intellectual scene.

**FR552 Special Topics in 19th-Century French Literature**

SP

Hours 3

Readings in poetry, theatre and prose either genre-specific or in combination, generally focusing on the first or latter half of the century in order to consider movements in literary thought. May be repeated for credit.

Special Topics Course

**FR553 20th-Century French Novel**

Hours 3

Major novelists of the period and their works. Reading and discussion of complete texts; lectures and reports.

**FR554 Special Topics in 20th and 21st Century French Literature**

SP

Hours 3

Major trends in 20th and 21st Century French poetry, theater, essays, and history of ideas. Seminar including lectures and reports.

Prerequisite(s): An undergraduate degree, possibly in French, or testing into appropriate level of language competence.

Special Topics Course

**FR555 Quebecois Literature and Culture**

Hours 3

A study of the history, culture and literature of Québec and French Canada, with emphasis on the modern period.

**FR561 French Linguistics**

Hours 3

Linguistics theory applied to the analysis and description of French phonological, morphological, syntactic, and lexical systems. Tendencies of change in contemporary French. Dialect areas.

**FR563 French-English Translation**

Hours 3

Study of the problems of translation and of translation strategies addressing them, in connection with relevant theoretical approaches.

**FR570 Graduate Seminar**

Hours 3

In depth study of French or Francophone literature, linguistics, civilization, or a combination. Emphasis on research and analytic skills. May be repeated for credit.

**FR575 Francophone Africa Economic Development**

Hours 3

This course is a study of selected topics and resources in Economic Development which provides an in-depth examination of the economic challenges, opportunities, and strategies related to the development of African countries. The course explores the complex factors that have shaped the economic landscape of the African continent, including historical, political, social, and environmental dimensions. Throughout the course, students will study the diverse economies of African countries, analyzing key economic indicators, development theories, and policy frameworks. Students will explore the major sectors driving economic growth, such as agriculture, industry, and services, and examine the role of natural resources and international trade in Africa's economic development.

**FR576 Academic Professions**

Hours 3

This course is a study of selected topics and resources in professional skills development, including an introduction to critical approaches, scholarly writing, access to US academia job market and issues in the profession. Designed as an introductory course for new graduate students as well as a preparatory course for ABDs.

**FR577 French Cinema**

Hours 3

Critical study of motion pictures produced in French with emphasis on student research and presentations. Film screenings are a necessary part of this course.

**FR578 Writing Immigration**

Hours 3

This course is a graduate seminar that focuses on writings on immigration in the context of all movement of immigrants in the French-speaking world, not just the French metropole and its immigrant neighborhoods. Writings cover a range of experiences and social classes, from an elite class of immigrants to clandestine immigration. Interdisciplinary critical theory is an important tool in literary analysis for this course.

**FR580 Special Topics**

SP

Hours 3

Special topics in relation to French or Francophone literature, linguistics, civilization, or a combination. Emphasis on research and analytic skills. May be repeated for credit.

Special Topics Course

**FR590 Directed Readings / Directed Study**

SP

Hours 1-9

Directed Readings / Directed Study.

Special Topics Course

**FR598 Non-Thesis Research**

Hours 1-6

*No description available***FR599 Thesis Research**

Hours 1-9

*No description available***FR680 Special Topics**

SP

Hours 1-3

May take the form of either a graduate seminar or individual research, as circumstances warrant. May be repeated for credit when topics vary.

Special Topics Course

**FR698 Non-Dissertation Doctoral Research**

Hours 1-9

This course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of an advisor, leading to the production of a prospectus for the doctoral dissertation. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field. Credit hours may vary in accordance with a number of factors, but typically the doctoral candidate must be enrolled in a minimum of 3 credit hours every fall and spring semester until the dissertation has been successfully defended and submitted to the Office of the Graduate School.

Prerequisite(s): There are no specific course prerequisites. However, the enrollee must have completed or nearly completed all required coursework and must be engaged with the creation of the dissertation prospectus.

**FR699 Dissertation Research**

Hours 1-15

*No description available***GEO501 Paleoclimatology**

Hours 3

Survey of the variability of global climate through geologic time and investigation of the mechanisms of change.

Prerequisite(s): MATH 126 or MATH 146; and PH 102

**GEO502 Communicating Geology**

Hours 3

Evaluate and develop effective scientific communication skills including writing, oral presentations and poster presentations.

Prerequisite(s): None

**GEO503 Petroleum System Analysis**

Hours 3

The course will cover the geologic events that lead to the formation of petroleum systems and plays. Geologic events form sedimentary basins by causing subsidence and delivery of sediments to a basin. This sedimentary fill is modified by compaction as well as the transport of heat and reactive fluids through the rock matrix during sedimentation and lithification. These processes determine the amount and nature of oil and/or gas accumulation and production in a basin. Petroleum system analysis requires the integration of geology, geophysics, petrophysics, geochemistry, and risk analysis. The generated basin models incorporate data obtained directly from outcrops via geologic mapping, petrographic thin section analysis, geochemical data, seismic reflection profiles and well log analysis if there are wells drilled for oil and gas exploration in a sedimentary basin.

Prerequisite(s): Department of Geological Sciences Graduate student standing or Instructor's consent.



**GEO505 Introduction to Environmental Biogeochemistry**

Hours 3

An introduction to fundamental concepts in biogeochemistry, a scientific discipline that integrates the study of geological, physical, chemical, and biological principles that govern the natural environment. The course discusses the lithosphere, hydrosphere, atmosphere, and biosphere, and emphasizes their interactions and connectivity through the cycles of elements and energy. Students will learn through lectures, discussions, field trips, and laboratory exercises.

**GEO506 Organic Geochemistry**

Hours 3

This is an introductory course to molecular biomarkers, which are a group of source-specific compounds preserved in the environment. Biomarkers have core structures that are generally resistant to environmental degradation. These structures allow tracing back to the source biota and making interpretations of modern and past activities of life and associated environmental and climatic changes. Lectures acquaint students with different classes of biomarkers and their applications to geological and environmental research. Labs familiarize students with the analytical methods including extraction, purification, chromatographic separation, and instrumental analysis of biomarkers.

**GEO507 Seismology**

Hours 3

This course provides an overview of earthquake seismology for both undergrad and graduate geoscience students. Topics include elastic wave propagation, seismic ray theory, travel time interpretation, surface wave dispersion and seismic tomography.

Prerequisite(s): MATH 126 or MATH 146

**GEO509 Advanced Hydrogeology**

Hours 3

An advanced level hydrogeology course that investigates groundwater flow and continuum approach in groundwater hydrology, applied stochastic subsurface hydrology, development of governing groundwater flow equations, analytical and numerical modeling of groundwater flow, unsaturated flow, well hydraulics, and environmental topics of interest related to water resources.

Prerequisite(s): GEO 306; MATH 125; MATH 126; PH 101 or PH 105; PH 102 or PH 106.

**GEO510 Soil & Groundwater Restoration**

Hours 3

Methods for restoring contaminated soil and groundwater by examining the factors and processes influencing the efficacy of remediation systems. An emphasis will be placed on the scientific principles upon which soil and groundwater remediation is based.

**GEO511 Contaminant Transport in Porous Media**

Hours 3

This course will cover topics related to the transport and fate of contaminants in subsurface systems. Specifically, this course will discuss the many factors and processes influencing contaminant transport such as the effects of dispersion, inter-phase mass transfer, transformation reactions, and porous-media heterogeneity. In addition, representative conceptual/mathematical models describing contaminant transport phenomena will be discussed.

Prerequisite(s): MATH 125, PH 102, CH 102, GEO 306 or equivalents; and/or with instructor's permission.

**GEO515 Metamorphic Petrology**

Hours 3

Study of metamorphic processes, types, textures, and petrogenesis and the use of metamorphic rocks for understanding tectonism. Offered on demand.

**GEO516 Volcanology**

Hours 3

Rheologic properties of magmatic systems and application of these principles to the understanding of volcanic processes. Offered on demand.

**GEO522 Sedimentary Basin Analysis**

Hours 3

Examination of the evolution and development of sedimentary basins. Emphasis is on sedimentary, tectonic, and geochemical processes and their influence in petroleum generation, accumulation, and preservation. Offered on demand.

Prerequisite(s): GEO 365 and GEO 367 and GEO 210

**GEO525 Adv Topics In Geology**

SP

Hours 1-6

Advanced topics in the following areas: economic geology, geochemistry, geohydrology, geophysics, geomorphology, mineralogy, paleontology, petrology, sedimentation, stratigraphy, structural geology, and tectonics. Offered on demand.

Special Topics Course

**GEO535 Graduate Seminar**

Hours 1

Oral presentations on current geological topics. Offered fall and spring semesters.

**GEO536 Graduate Seminar**

Hours 1

Oral presentations on current geological topics. Offered fall and spring semesters.

**GEO542 Geodynamics**

Hours 3

Introduction to the structure of the Earth's interior and theory of plate tectonics. Quantitative analysis of the physical processes governing the formation of major tectonic and magmatic features on the Earth. Emphasis is on understanding geodynamic processes in orogenic belts, volcanic arcs, intraplate magmatism, sedimentary basins and continental extensional provinces. Offered spring semester.

Prerequisite(s): GEO 365 or GEO 314; and PH 102 and MATH 126 or MATH 146

**GEO550 Geostatistics**

C, W

Hours 3

This course serves as an introduction to statistics for the Earth and Environmental Sciences. Topics include an introduction to probability theory, experimental design, statistical hypothesis testing, regression, clustering, Kriging and other forms of spatial analysis, time series analysis, and an introduction to machine learning. All material is covered theoretically and with practical implementation in Matlab. Computing proficiency is required for a passing grade in this course. Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course. The course includes two lectures and one computer lab weekly.

Prerequisite(s): MATH 125 or MATH 145; and CS 101, CS 102, or CS 110

Computer Science, Writing

**GEO551 Tracers in Water Science**

Hours 3

The objective of this course is to introduce students to currently used isotope techniques in aquatic science. Emphasis will be given to the application of the U/Th- naturally occurring radioactive decay series.

Prerequisite(s): MATH 126 or MATH 146 and PH 102 or instructor's approval

**GEO554 Electron Microscopy in the Earth Sciences**

Hours 4

This course will involve operation and use of the scanning electron microscope (SEM) for applications relevant to the Earth, environmental, and planetary sciences. Topics will include sample preparation, secondary electron imaging, backscattered electron imaging, x-ray element mapping, and energy/wavelength dispersive spectroscopy. Laboratory exercises will provide hands-on experience in preparing geologic samples and obtaining data on those samples with the SEM.

**GEO555 Marine Science**

Hours 3

This class is an upper level introduction to the elemental budgets on the global ocean.

Prerequisite(s): CH 101 and CH 102, or permission of instructor.

**GEO565 Compactive Struct Geology**

Hours 3

Analysis of the original literature on structural families and deformation-mechanism associations, emphasizing the low-temperature environment.

**GEO566 Introduction to Planetary Science**

Hours 3

This course in Planetary Science will provide an overview of the major processes that have shaped our Solar System, with some focus on extra-terrestrial materials and associated data. The course will examine the major aspects of our Solar System, considering physical, chemical and geological concepts. We will explore the different bodies in the Solar System, and learn from the data collected from missions and analytics on samples.

Prerequisite(s): For graduate students, there are no prerequisites aside from a GEO, CHEM or PHYSICS background.

**GEO568 Paleo Seminar**

Hours 1

Weekly seminar meetings on 'Paleo' topics as guided by enrolled students. Typical semesters will focus on specific areas or concepts within Paleo-related sciences, including, but not limited to paleobiology, paleoclimatology, and paleoecology. Meeting times may also be used to discuss active Paleo research by participating students, faculty, or visiting scholars.

Prerequisite(s): None, permission of instructor.

**GEO569 Light Stable Isotope Geochemistry**

Hours 3

This course is an introduction to concepts of stable isotope fractionation, and the application of stable isotopic measurements to answering geological questions. This class specifically focuses on light elements, primarily H, C, O, S, and N, though other elements/systems may be explored if there is time/interest.

Prerequisite(s): CH 102 or CH 118 (C- or better, and, GEO 101 or GEO 102 (C- or better), and MATH 112 or MATH 115 (C- or better)

**GEO570 Introduction to Geochemistry**

Hours 4

Introduction to the field of low-temperature geochemistry (elementary chemical equilibria and thermodynamics, solubility and redox equilibria, organic geochemistry), with an emphasis on solving geologic problems. Three lectures and one seminar per week. Offered in the Spring semester.

Prerequisite(s): GEO 314

**GEO571 Thermodynamics For Geologists**

Hours 3

Semi-derivational approach to understanding the thermodynamic relations most useful to geologists. Emphasis is on using the derived relations to solve common geologic problems. Offered alternate fall semesters.

Prerequisite(s): MATH 126 or MATH 146

**GEO576 Environmental Field and Laboratory Methods**

Hours 3

Theory, techniques, and application of methods for the environmental sampling and geochemical analysis of rocks, ores, and aqueous fluids. Offered in alternate Fall semesters.

Prerequisite(s): CH 101 and CH 102, or permission of instructor.

**GEO580 Cosmochemistry and Techniques**

Hours 3

This course in cosmochemistry and analytical techniques will examine notable topics, geological concepts and analytical methods used to better understand our Solar System. The course will be part-lecture and part discussion/seminar based, where students will read journal articles on topics and make short presentations for discussion, to develop scientific curiosity and critical thinking. Writing proficiency within the discipline is required for a passing grade in this course.

Prerequisite(s): Some background in geochemical/astronomy themes is strongly encouraged. GEO 566 or permission of the instructor

**GEO583 Global Tectonics**

Hours 3

Study of tectonics, plate motions, and tectonic environments. Includes discussion of controlling factors, driving forces, and resulting structures with emphasis on island arcs, trenches, backarc basins, transform boundaries, and continental margins. Offered alternate spring semesters or on demand.

Prerequisite(s): GEO 365 and GEO 367

**GEO597 Geological Internships**

Hours 3

Field and laboratory projects with government and industry.

**GEO598 Non-Thesis Research**

Hours 1-6

Non-Thesis Research.

**GEO599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Geology (Geological Sciences). The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**GEO602 Communicating Geology**

Hours 3

Evaluate and develop effective scientific communication skills including writing, oral presentations and poster presentations.

Prerequisite(s): None

**GEO626 Adv Topics In Geology**

SP

Hours 1-6

Advanced topics in the following areas: economic geology, geochemistry, geohydrology, geophysics, geomorphology, mineralogy, paleontology, petrology, sedimentation, stratigraphy, structural geology, and tectonics. Offered on demand.

Special Topics Course

**GEO635 Graduate Seminar**

Hours 1

Oral presentations on current geological topics. Offered fall and spring semesters.

**GEO636 Graduate Seminar**

Hours 1

Oral presentations on current geological topics. Offered fall and spring semesters.

**GEO698 Non-Dissertation Res**

Hours 1-12

Non-Dissertation Res.

**GEO699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral (Ph.D.) degree in Geology (Geological Sciences). The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**GN503 German Reading Proficiency I**

Hours 3

Introduction to German grammar and vocabulary, with emphasis on developing basic reading and translation skills.

**GN504 German Reading Proficiency II**

Hours 3

Continued study of grammar and vocabulary, with emphasis on further developing reading and translation skills.

**GN510 History of the German Language**

Hours 3

The relationship to Indo-European and to the other Germanic dialects; linguistic development from the earliest times to the present.

**GN514 Teaching Methodology**

Hours 3

Analysis of basic concepts and practical applications of foreign language teaching and learning.

**GN515 Middle High German**

Hours 3

Introduction to the language and literature of the Middle High German period.

**GN518 Historical Linguistics**

Hours 3

Advanced introduction to various levels of historical language change. Variety of language used for examples.

**GN520 Renaissance and Baroque Literature**

Hours 3

Works from the Renaissance (including literature from the Reformation and Humanism) and the Baroque (17th century).

**GN525 Literature of the Age of Goethe**

Hours 3

Includes the German Enlightenment, Sturm und Drang, Weimar Classicism, and the Romantic movement.

**GN551 Special Problems / Directed Readings**

SP

Hours 1-3

Special Problems / Directed Readings.

Special Topics Course

**GN552 Special Problems / Directed Readings**

SP

Hours 1-3

Special topics chosen by students in conference with the instructor.

Special Topics Course

**GN571 Selected Authors**

Hours 3

Students will normally give reports and write at least one research paper.

**GN576 Seminar on a Literary Theme**

SP

Hours 3

Students will normally give reports and write at least one research paper.

Special Topics Course

**GN599 Thesis Research**

Hours 3-6

*No description available*

**GY500 Research Traditions Meth In Gy**

Hours 3

An investigation of the historical development of geography, including its changing philosophies and prominent contributors. Students are also introduced to various approaches for conducting research in geography and must develop a written research proposal in an area of their interest.

**GY504 Physical Geo of SE US**

Hours 3

A study of the physical landscapes in the southeastern United States. Emphasis is on the geological setting, geomorphic features, climate, soils, and vegetation, and the interrelationships of these conditions that shape the landscape in this region.

**GY505 Dir Research Physical Geograph**

Hours 1-3

*No description available*

**GY506 Dir Research Human Geography**

Hours 1-3

*No description available*

**GY509 Forest Ecosystem Restoration**

Hours 4

Investigation of the theories, tools, and techniques used in historical ecology with a focus on the establishment of reference conditions for habitat restoration and management decisions.

**GY510 Geography of National Parks**

Hours 3

This course is devoted to the changing geography of the national park system and related protected areas throughout the world, with an emphasis on their design, planning, and operations.

**GY512 Hydroclimatology**

Hours 3

To provide a basic understanding of the waters of Earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water in streams, lakes and on or below the land surface.

**GY513 Applied Climatology**

Hours 3

Applied Climatology is a graduate/senior level course designed to expand upon fundamental concepts learned in GY 101 and also GY 402 (Climatology). Within this broad field, a specific focus in GY 513 concentrates upon climate and human health/behavior, and human modification of climate. The course contains a mixture of lecture, lab, and field assignments.

Prerequisite(s): GY 101

**GY514 Climate Change and Health**

Hours 3

This course is an introduction to the effect of global climate change on health. The course will be taught from a geographical perspective and will introduce students to the physical science of climate change and the impact it has on health through discussion of extreme weather events, altered ecological systems, and threats to human security and welfare. Discussion will build on the core concepts of climate change science to provide students with a solid foundation to further examine a variety of topics from acute impacts such as heat waves and other weather extremes to chronic conditions such as shifting disease vector habitats, degraded air quality, and food security. Direct correlations between health impacts and climate change will be emphasized throughout as will discussion of mitigation and adaptation strategies.

**GY516 Introduction to Geostatistics Using R**

Hours 3

This course is an introduction to geostatistical data analysis using R. The course will be taught from the perspective of geographical and climate data analysis but serves as a broad introduction to the high-level programming language, R, as well as applied spatial data analysis. Students will load and manipulate data of different types, perform a variety of statistical analyses, generate graphical output, and create productive workflows using R alone. The primary outcome will be to facilitate students' use of R to analyze data of their own choosing on a final project. Students will present these methods to the class for others to critique, analyze and learn from. Code sharing and re-use is highly emphasized, as is collaboration. The course is designed as a 1-hour lecture plus 2-hour lab each week.

**GY517 Extreme Weather and Society**

Hours 3

EW&S is an integrated physical and social science (W) seminar class consisting of readings, discussion, and lectures on perception, understanding, and communication of severe weather hazards.

**GY518 Spatial Statistics and Geostatistics**

Hours 3

This course presents a comprehensive overview of the geographic sub-disciplines of Spatial Statistics and Geostatistics. Students will learn about the nature of spatial data, and the methods of centrography, point pattern analysis, spatial interpolation, spatial autocorrelation, density mapping and estimation, spatial regression, and both spatio-temporal and network based spatial statistical analyses. Students will learn the limitations of the methods, their proper use, and how to accurately describe their outputs.

**GY520 Remote Sensing I**

Hours 4

Focuses on basic principles behind remote sensing physics, techniques, and technology and introduces new sensor systems and digital image processing. Major topics include electromagnetic radiation principles, airborne remote sensing, microwave remote sensing, satellite remote sensing, and digital image processing.

**GY521 Spatial Databases**

Hours 4

This course is an advanced course in the field of Geographic Information Systems (GIS) and covers spatial database design and management. Specifically, this course covers the following aspects: basic concepts and principles of relational and spatial databases, relational/spatial database design, entity-relationship (ER) diagram, structured query language (SQL), spatial query, data/user management, spatial indexing, etc. Meanwhile, this course also aims to help students develop some practical skills in relational and spatial databases via the use of relevant database software (e.g., PostgreSQL/PostGIS and Microsoft SQL Server) in the lab section.

Prerequisite(s): GY 430

**GY522 Introduction to UAS**

Hours 3

This course will prepare students for real-world safe operation of Uncrewed Aerial Systems (UAS), and will provide basic understanding of the regulations in preparation for small Unmanned Aircraft Systems FAA 107 certification test. The class covers the history of UAS, types of UAS platforms, payloads/sensors, UAS operational requirements, current FAA rules and regulations, industry and societal implications, career outlooks, and geospatial applications of UAS. The field flight demonstration involves flight mission planning with Pix4Dcapture software. Activities will focus on using simulation tools to help students learn how to operate a drone and how to use ArcGIS Pro and PIX4Dmapper to process common drone data. This course is designed to provide a comprehensive foundation in UAS, blending theoretical knowledge with hands-on experience.

**GY523 Quantitative Methods**

Hours 3

This course introduces several quantitative methods used by geographers to analyze and interpret geographic data and solve geographic problems. Topics include: Data formatting and organization, descriptive statistics, sampling, hypothesis formulation and testing, and parametric and non-parametric statistical procedures through factor analysis.

**GY526 Uncrewed Aircraft Systems (UAS) Applications**

Hours 3

This course covers an overview of a variety of Uncrewed Aircraft Systems (UAS) field applications. This course will provide students with real world applications of UAS used by scientists and professionals and their applied benefits of using UAS products. Examples of UAS field application topics to be discussed in this course will be on water, agricultural, land, and natural resources.

**GY527 Uncrewed Aerial Systems (UAS) Data Processing and Analysis**

Hours 3

This course will focus on how to process and analyze different types of data collected by UAS. The class covers different types of UAS data, flight mission planning, and relevant methods and tools for UAS data processing and analysis. Class activities will focus on how to use ArcGIS Pro and PIX4Dmapper to process and analyze different types of drone data.

**GY528 Web GIS**

Hours 4

This course is about the use of GIS in the web environment. Specifically, this course covers the following aspects: basic concepts and principles of Web GIS, Web GIS design, Web GIS implementation, and Web GIS applications. Meanwhile, this course also aims to help students develop practical skills in using ArcGIS products to design and implement Web GIS applications.

Prerequisite(s): GY 430

**GY529 Fundamentals of GIS**

Hours 3

This course is a hands-on, practical Geographic Information Systems (GIS) introduction. GIS is a computer-based system used for gathering, analyzing, and displaying geographic information. GIS enables users to integrate multiple spatial data sources, perform complex geographic analysis and present the results in digital and paper map. This technology has a wide range of applications for research, businesses and governments. Tailored toward first-time users, this course will focus on learning how to use the ArcGIS software package to import, generate, display and analyze spatial data.

**GY530 Intro Geographic Info Systems**

Hours 4

Introduces the basic concepts of GIS, including definition and components of GIS, spatial data structures, data sources, data input, manipulation and analysis, applications of GIS, and managing GIS.

**GY532 Spec Research In Geog**

SP

Hours 2-4

*No description available*

Special Topics Course

**GY534 GIS Internship**

Hours 3-6

Individual work experience in GIS supervised by the staff of an off-campus agency.



**GY535 Remote Sensing II**

Hours 4

Focuses on the quantitative analysis of non-photographic remote sensor data, providing students with hands-on experience using a digital image processing software package. Topics include preprocessing, image enhancement, classification, digital change detection, and remote sensing and GIS.

**GY536 Adv Geographic Info Syst**

Hours 4

Focuses on the analytical use of spatial information as well as GIS applications. Topics include spatial aspects of geographic information, attribute data structure, error and uncertainty, spatial analysis theories, GIS modeling, and GIS design.

**GY537 GIS for Transportation**

Hours 4

The application of Geographic Information Systems to transportation has resulted in a sub-field known as GIS-T. This course will provide a hands-on introduction to GIS-T.

**GY539 GIS Programming**

Hours 4

This course focuses on the extension of geographic information systems (GIS) through programming as well as on the development of stand-alone algorithms for spatial analysis and numerical modeling.

**GY541 Land Use Regulations**

Hours 3

The course explores the legal standards by which land is regulated and controlled in the U.S. It is designed for students who wish to become actively involved or exposed to land management and the planning profession.

**GY542 Computational Methods for Socio-Ecological Systems**

Hours 4

Environmental problems are social problems, and social problems are environmental problems. This truism is becoming increasingly apparent with the convergence of several grand challenges: climate change, biodiversity loss, widening socioeconomic inequality, and meeting the growing food demands of a global population expected to top 9 billion by 2050. Moreover, possible solutions to these problems often present unavoidable social value tradeoffs that are difficult to judge objectively, and the complexity of social and ecological systems make unintended consequences nearly impossible to foresee. In other words, social-ecological problems are "wicked problems".

Prerequisite(s): GY 523 or instructor permission

**GY543 Location Science**

Hours 3

This course presents the theory and practice of Location Science – the study of the optimal or near optimal spatial location and allocation of facilities, routes, personnel, or other assets. A variety of optimal procedures for location problems is presented, including minimum spanning tree, shortest path, maximal flow, and transportation problem algorithms. The Simplex method as applied to location problems is outlined and demonstrated. Heuristic approaches to location problems including greedy heuristics and Tabu search heuristics are reviewed. The peer-reviewed literature in location science is explored.

**GY544 Field Studies In Africa**

Hours 6

Experiential learning course. It explores how different cultural groups in Africa relate to the natural environment.

**GY545 Agriculture: Environment and Development**

Hours 3

This course examines the geographical elements of how people use the biophysical environment to grow domesticated plants (crops). Agriculture is understood in this course as the transformation of biophysical or "natural" environments into "cultural" environments. It is assessed in regard to both the plants cultivated, and the soil, slope, moisture, and temperature conditions that exist and then are modified or created by farmers. Ecological and systematic approaches are taken in order to understand how different agricultural strategies insure continual long-term productivity and stability. Microeconomics is an important and recurring theme.

**GY551 Global Environmental Change**

Hours 3

Global Environmental Change focuses on the major issues of global change, including anthropogenic climate change, land use and land cover change, biodiversity issues, environmental pollution, potential global change-related impacts on human health, and relevant social policies. The class will follow a quasi-seminar format where individual presentations and group discussion will comprise a large portion of the in-class activity. Each week students will do research on and/or read assigned articles and additional articles of your own selection on relevant subjects. Instructor will provide a summary of the weekly topic and as a class, students will discuss issues raised in the research and readings.

**GY552 Environ Decision Making**

Hours 3

Designed to help students develop both the tools and the personal philosophy necessary to analyze and manage scarce resources. A review of current environmental topics is followed by a survey of different paradigms and techniques that contribute to environmental decision making.

**GY553 Environment & Society**

Hours 3

Explores the linkages between the biophysical environmental and human social systems. Public-policy implications are viewed from a social science perspective.

**GY558 Urban Analysis Planning**

Hours 3

A thorough examination of the literature in economics, political science, and sociology that is relevant to the geographical study of contemporary urban structure, power, and conflict.

**GY559 Water, Energy, Food System Sustainability**

Hours 3

The primary objective of this course is to introduce students to the essential characteristics and basic processes of inquiry and analysis in the area of the water-energy-food (WEF) nexus. Specifically, the WEF nexus will be considered in relation and its application to human concerns, such as emerging supply and demand issues and their impacts of social and economic systems, ecological health, and human well-being. This course will encourage the development of critical thinking skills and requires students to analyze, synthesize, and evaluate knowledge about core WEF concepts.

**GY561 Political Ecology**

Hours 3

Political ecology is a multidisciplinary approach to studying the environment through interrogating how power shapes and intersects with human-environment relationships. As a field of inquiry and practice, political ecology has greatly expanded over the past several decades to not just understand the political foundations of environmental problems or challenges, but also the co-production of environments with close attention to matters of justice, power, and inequality. Political ecology contends that through critical analysis and interdisciplinary methodologies, we can come to better understand the roots of socio-environmental problems in order to work for political change and social good.

**GY562 Land Use Science**

Hours 4

This course explores the interactions between land use, land cover, and social and environmental processes at multiple scales. The emphasis is on understanding how the natural landscape influences human activities, how humans modify the natural landscape to meet our needs, and how those modifications create a co-evolution between landscapes and human use. Understanding how land uses are, or should be, allocated to achieve multiple goals, including food and fiber production, space for human settlement, provision of ecosystem services, and access to renewable energy sources, requires consideration of these multiple objectives and of the various factors driving land-use decisions at multiple scales.

**GY566 Transport Geography**

Hours 3

Examines location and function of the multimodal North American transportation system, the urban transport planning process, and the political and environmental contexts of transport systems, including impacts of continued reliance on the automobile.

**GY570 Special Topics**

SP

Hours 1-6

Special Topics.

Special Topics Course

**GY572 Soil Science**

Hours 4

Introduction to the scientific study of soils. Covers soil physical properties, morphology, development, classification, environmental functions and uses, and resource degradation.

**GY573 Public Policy Development in Water Resources Seminar**

Hours 3

This course will evaluate the current approaches to policy theory and examine systematically the broader implications of the substantive aspects of public policy development in the water resources spectrum. In analysis of public policy development in water resources, the student will look at both policy process and policy substance. Attention will be given to the questions of how and why water policy differs across states, and how one might evaluate policy performance cross-nationally.

**GY574 Cartography Practicum**

Hours 3-6

Individual work experience in cartography supervised by the faculty and staff of the University.

**GY576 Gis Practicum**

Hours 3-6

Individual work experience in GIS supervised by the faculty and staff of the University.

**GY577 Water Resources Management, Law, and Policy**

Hours 3

The Water Resources Management, Law, and Policy course will provide students with a survey of water resources development, control, law, policy and management with particular emphasis on public policy considerations including: the acquisition and exercise of water rights – appropriative and riparian; groundwater management; water districts and user organizations; environmental considerations; Federal/State relations including interstate allocation; and the Alabama Water Resources Act. The course will also address international water law – the multinational treaties, laws, cases, practices and politics governing Earth's transboundary freshwater resources (watercourses including rivers, streams, lakes, and groundwater aquifers) shared by two or more countries.

**GY579 Planning Internship**

Hours 3-6

Individual work experience in planning supervised by the staff of an off-campus planning agency.

**GY581 Water Diplomacy**

Hours 3

The course will focus on the linkages between water resources policy and conflict or cooperation with primary interest on interstate (transboundary) and intrastate water issues. The conceptual framework of the course is centered on water scarcity, water conflict, hydropolicy, hydrohegemony, water security, and dispute resolution. The role of disparate stakeholders and the problem of scale will be considered. The policy, norms and laws for mediating water conflict at different jurisdictional levels, including adversarial legalism (lawsuits) are examined.

**GY582 Data Science Analytics for Water**

Hours 3

Navigating the nexus of water resources and data science, this course offers a deep dive into the transformative power of analytics in understanding and managing our most vital resource. Grounded in practical applications, students harness computational tools like Python or R, and Excel to explore, analyze, and visualize water-related data. The course emphasizes the synergy of traditional methods and contemporary data-driven techniques, including advanced visualization with tools like Power BI. Beyond just techniques, the course offers a journey into the essence of water data, from data collection to predictive modeling for critical challenges like floods and droughts. Through interdisciplinary engagement, students will gain a comprehensive understanding of water's data landscape, fostering informed solutions for a sustainable future. Combining hands-on labs with theoretical insights, students emerge not just as data analysts but as stewards of our water future.

**GY585 River Hydrology**

Hours 3

Rivers are dynamic natural systems that are of great importance to ecosystems and society. This course examines river hydrology processes from a physical geography perspective. A major theme of the course will be impacts of human actions on river systems.

Prerequisite(s): instructor permission

**GY586 Watershed Science and Management**

Hours 3

An examination of the physical operation of drainage basins (watersheds), focusing on surface water hydrology, erosion, and sedimentation.

Prerequisite(s): GY 102 or GEO 101

**GY588 Digital Terrain and Watershed Analysis**

Hours 4

This course covers concepts, numerical algorithms, and techniques for digital terrain and watershed analysis. It combines lectures with a substantial practical lab component. The lectures covers spatial representation of topography, topographical data acquisition techniques (Photogrammetric Stereo, InSAR, LiDAR, GPS, cartography), terrain visualization, terrain parameter derivation, extraction of critical terrain features, landform recognition and classification, watershed analysis, cut-and-fill and volumetric analysis, drainage network extraction, watershed delineation, and distributed watershed models. The practical component, involving 8 lab assignments and one individual mini-project, will give students hands-on experience in using proprietary GIS software packages, ArcGIS, EPA BASINS 4.0 and HSPF 12.0 to handle topographic and image data for terrain and watershed analysis.

Prerequisite(s): GY 430 or equivalent or GY 530

**GY589 Forest Eco Veg Analysis**

Hours 4

A study of the relationship of trees to the environment, and the interrelationship of organisms that compose the forest community.

**GY590 Internship**

Hours 3

Individual work experience with agency involved in geographical research, analysis, and reporting.

**GY591 Fluvial Geomorphology**

Hours 3

This course provides an in-depth investigation of the processes that form rivers and their evolution.

**GY596 Forest Ecosystem Management: Silviculture**

Hours 4

In this course silviculture is treated as applied forest ecology. The goal of this course is to provide students with a knowledge of silviculture and its ecological basis so they can design manipulations in forest ecosystems to achieve a range of management objectives. The course requires field trips to tour different sites and visit with forest scientists and managers. In this course students learn about tree growth and stand development and use this information to develop silvicultural prescriptions to meet a diverse range of management goals. We will explore how silvicultural treatments can influence stand structure and composition and how these changes influence timber quantity and quality, forest health, biodiversity, soil, and wildlife habitat among other features. We will also focus on how silviculture is influenced by broader social, economic, and ecological issues.

Prerequisite(s): GY 489 or GY 409 or GY 492 or GY 494 or instructor permission

**GY598 Non-Thesis Research**

Hours 1-3

*No description available***GY599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Geography. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**GY601 Geography Colloquium**

Hours 1

This seminar format course fulfills required graduate level participation in colloquium hours. Students will attend seminars by invited speakers and departmental faculty, and will have the opportunity to present on their own current and planned research. Colloquium topics will be communicated to students well in advance, through departmental emails and other avenues. A total of 3 colloquium hours are required for PhD students and 1 hour for MS students. The course is conducted under the guidance of the Colloquium Chair. The student repeats hours in this course until the required three hours have been satisfactorily completed. Material covered will be of an advanced nature aimed at providing graduate students with an understanding of the latest research and current developments within the field.

**GY602 Seminar in Climatology**

Hours 3

This course is a doctoral level research intensive seminar in the geographic sub-field of climatology. The course will be taught by faculty with varied expertise within climatology and will, therefore, be dynamic in its topical focus from semester to semester. Content will broadly fall within hydro-climatology, synoptic climatology, climatological extremes, bio-climatology, and historical or paleo-climatology. The material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion will be directed towards readings of research articles and development of research methodology with the aim of producing an original research product that could be submitted in a scholarly journal for publication.

**GY610 Seminar in Forest Science and Management**

Hours 3

This is a reading and discussion intensive graduate seminar course. Each week you will be expected to come to class prepared to critically discuss the readings and other assignments. We will cover a diversity of topics in forest science and management and some additional reading may be necessary for you to be fully prepared to engage in class discussion. Our seminar time will be devoted to discussion of topics selected by individual students and the instructor. Students are encouraged to select a topic related to their research, but this is not a requirement. Throughout the semester we will also discuss the philosophy of science, the rubrics of scientific evaluation, the publication process, and other topics to aide in your training as a research scientist.

**GY612 Hydroclimatology**

Hours 3

Hydroclimatology focuses on understanding the processes and patterns of distribution of water (in all forms) from an Earth Systems perspective as well as the impacts of hydroclimatological variability on the environment and society.

**GY615 Seminar Human-Environmental Interactions**

Hours 3

This is a reading and discussion intensive graduate seminar course. Each week, students will be expected to come to class prepared to critically discuss the readings and other assignments. A diversity of topics will be covered in human-environmental interactions in geography and some additional reading may be necessary for students to be fully prepared to engage in class discussion. Seminar time will be devoted to discussion of topics selected by individual students and the instructor. Throughout the semester there will be discussion of the philosophy of science, the rubrics of scientific evaluation, the publication process, and other topics to aide in student training as a research scientist.

**GY630 Seminar in Geographic Information Science**

Hours 3

Geographic Information Sciences (GISci) include a range of spatial technologies, including Geographic Information Systems, remote sensing, computer modeling, GPS, and cartography. This seminar will examine contemporary issues in GISci through readings and group discussion.

**GY663 Seminar in Geomorphology**

Hours 3

Geomorphology is the study of earth surface processes and landforms, including quantitative analyses of how and why landscapes change over space and time. In this seminar students will examine how and why geomorphic systems function and change in response to climatic and tectonic forcing and human activities through readings and group discussions.

**GY670 Special Topics**

SP

Hours 1-6

Courses with this number address geography topics not covered by existing courses. The credit hours and format are arranged as appropriate to each topic. The specific course title is added at the time the course is taught. Offered irregularly.

Special Topics Course

**GY699 Dissertation Research in Geography**

Hours 1-12

This independent research course partially fulfills required doctoral level research dissertation hours toward the Ph.D. in Geography. A total of 24 dissertation hours are required. The course is conducted under the guidance of the Ph.D. advisor. The student repeats hours in this course at least until the dissertation requirements have been satisfactorily completed. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology with the aim of producing an original scientific contribution that represents a novel development in the field or a novel twist on a pre-existing topic in the field.

Prerequisite(s): You must be a PhD student in Geography that has defended a dissertation proposal and successfully completed requirements for Ph.D. candidacy.

**HY500 Special Studies in History**

SP

Hours 3-6

*No description available*

Special Topics Course

**HY599 Thesis Research**

Hours 1-6

*No description available***HY600 Teaching History**

Hours 1

A basic introduction to teaching history in colleges and universities. Will treat such issues as course planning, lecturing, handling discussions, classroom procedures and policies, student evaluation and ethical problems in teaching.

**HY601 Literature Of American History**

Hours 4

*No description available***HY602 Lit American History Sc 1865**

Hours 4

Course examines major historical scholarship of American history since the Civil War.

**HY603 Literature European Hist**

Hours 4

This course examines major historical scholarship of European Literature.

**HY605 Lit Latin Amercn History**

Hours 4

This course examines major historical scholarship of Latin American History.

**HY606 Prosem Us Histry To 1877**

Hours 4

*No description available***HY607 Prosem Us HY Since 1877**

Hours 4

*No description available***HY608 Prosem Southern History**

Hours 4

This reading-intensive proseminar introduces students to important historiographical debates in the History of the American South. Chronological boundaries of the course vary by instructor.

**HY631 Early Mod Brit Eur Hy**

Hours 4

Course examines major historical scholarship of early modern British European history.

**HY635 Recent Brit Eur History**

Hours 4

*No description available***HY639 Prosem Military/Naval Hy**

Hours 4

*No description available***HY665 Special Studies**

SP

Hours 4

A special topic seminar: the seminar work varies each time offered. Students primarily work independently on selected projects; however, they work closely with the course instructor. Students will share their research with their colleagues and engage in peer critique throughout the semester.

Special Topics Course

**HY680 Grad Research Seminar**

Hours 4

This course will offer students the opportunity to do original research in primary sources for the purpose of completing an article-length piece of original scholarship. In addition to working intensively (in conjunction with the instructor) on all stages of their individual seminar paper projects, students will examine the skills and methods necessary to conduct research, discuss matters of common concern in the research and writing processes, share the results of their research with their colleagues, and engage in peer-critique of each other's work. Our group conversations will not only be designed to aid individual students in the production of their seminar papers, but also will continually focus on the historians' craft, the challenges historians face in carrying out our work, and the methods we deploy to address those challenges.

**HY697 Directed Readings**

SP

Hours 1-4

*No description available*

Special Topics Course

**HY698 Directed Research**

Hours 1-4

*No description available***HY699 Dissertation Research**

Hours 1-12

*No description available***IT538 Renaissance Comedy**

Hours 3

From the revival of classical tropes to the invention of commedia dell'arte, from the arrival of the new professional actress to the first burlesque play published by a woman, Italy was at the avant-garde of early modern comedy in Europe. This course traces that tradition, looking first at ancient theories and models before considering the impact of humanism, poetic theory, conduct literature, the rise of professional theater troupes, the celebrity associated with female performers, and anti-classical satire. While plays will be at the core of our primary readings, poetry, treatises, dialogues, and contrasti (theatrical debates) will also be incorporated. Secondary studies will explore comedy from the perspectives of reception theory, performance studies, gender studies, the history of emotions, and social history.

**LA590 Adv Readings Latin Literature**

SP

Hours 3-6

*No description available*

Special Topics Course



**MATH500 Teaching Workshop**

Hours 3

This course is to prepare graduate students to teach departmental, lower-division courses. These 3 credit hours will not count toward any degree program, but will be considered part of the tutoring duties assigned to graduate students during the semester. 3 hours per week scheduled for this course will correspond to 3 fewer hours scheduled for tutoring each week.

**MATH501 Pathway to Graduate Studies in Mathematics**

Hours 3

This course is to help students transition into graduate studies in math, and improve their understanding of math topics in introductory real analysis and advanced linear algebra. These 3 credit hours will not count toward any degree program.

**MATH503 Algebraic Structures for Secondary Teachers**

Hours 3

Explore the interconnections between the algebraic, analytic, and geometric areas of mathematics with a focus on properties of various number systems, importance of functions, and the relationship of algebraic structures to solving analytic equations. This exploration will also include the development and sequential nature of each of these branches of mathematics and how it relates to the various levels within the algebra mathematics curriculum.

Prerequisite(s): C- or higher in MATH 237 and C- or higher in MATH 301

**MATH504 Topics Mod Math Teachers**

SP

Hours 1-3

Diverse mathematical topics designed to enhance skills and broaden knowledge in mathematics for secondary mathematics teachers.

Special Topics Course

**MATH505 Geometry for Secondary Teachers**

Hours 3

This course will give an overview of geometry from a modern point of view. Axiomatic, analytic, transformational, and algebraic approaches to geometry will be used. The relationship between Euclidean geometry, the geometry of complex numbers, and trigonometry will be emphasized.

Prerequisite(s): C- in MATH 403 or C- in MATH 503

**MATH508 Topics In Algebra**

SP

Hours 3

Content changes from semester to semester to meet the needs of students. Designed for graduate students not majoring in mathematics.

Special Topics Course

**MATH509 Data Analysis for Secondary Teachers**

Hours 3

Concepts and techniques of posing questions and collecting, analyzing, and interpreting data. Topics include: univariate and bivariate statistics, probability, simulation, confidence intervals and hypothesis testing.

Prerequisite(s): C- or higher in MATH 125 and C- or higher in ST 260

**MATH510 Numerical Linear Algebra**

Hours 3

Further study of matrix theory emphasizing computational aspects. Topics include direct solution of linear algebraic systems, analysis of errors in numerical methods for solutions of linear systems, linear least-squares problems, orthogonal and unitary transformations, eigenvalues and eigenvectors, and singular value decomposition.

Prerequisite(s): MATH 371 or MATH 572

**MATH511 Numerical Analysis I**

Hours 3

Mathematical principles of numerical analysis and their application to the study of certain methods. Topics includes numerical methods for solving nonlinear equations; iterative methods for solving linear systems of equations; approximation and interpolation methods; numerical differentiation and integration techniques; and numerical methods for solving initial-value problems for ordinary differential equations.

Prerequisite(s): (MATH 237 and MATH 238 and MATH 537) or permission of instructor

**MATH512 Numerical Analysis II**

Hours 3

This is the second course in the numerical analysis sequence for graduate students in mathematics, science or engineering with an emphasis on numerical methods for solving boundary value problems, ordinary differential equations and partial differential equations, multistep methods for initial value problems, and approximation theory (least-squares problems, fast Fourier Transforms).

Prerequisite(s): MATH 343 and MATH 511

**MATH520 Linear Optimization Theory**

Hours 3

This course is an introduction to theory of linear programming. Topics include: basic theory (fundamental theorem of LP, equivalence of basic feasible solutions and extreme points, duality and sensitivity results), simplex algorithm and its variations, and special applications to transportation and network problems. Non-simplex methods are also briefly introduced.

Prerequisite(s): MATH 572 or permission of instructor

**MATH521 Non-Linear Optimization Theory**

Hours 3

This course is an introduction to nonlinear programming. Topics will include necessary and sufficient conditions for optimality, as well as basic theory and numerical algorithms for several traditional optimization methods, e.g., basic descent methods, conjugate direction methods, quasi-Newton methods, penalty and barrier methods, Lagrange multiplier methods. A brief introduction to selected modern topics may be added if time permits.

Prerequisite(s): MATH 572 or permission of instructor

**MATH537 Applied Math Topics I**

SP

Hours 3

This course is a survey of topics in applied mathematics.

Prerequisite(s): Permission of the department.

Special Topics Course

**MATH538 Topics in Mathematics**

SP

Hours 3

This is a general topics course in mathematics. The contents will vary depending on department needs.

Special Topics Course

**MATH541 Boundary Value Problems**

Hours 3

Emphasis on boundary value problems for classical partial differential equations of physical sciences and engineering. Other topics include Fourier series, Fourier transforms, asymptotic analysis of integrals and boundary-value problems for ordinary differential equations.

Prerequisite(s): MATH 343 and MATH 486 or MATH 586.

**MATH551 Math Stats W/Applictn I**

Hours 3

Introduction to mathematical statistics. Topics include bivariate and multivariate probability distributions, functions of random variables, sampling distributions and the central limit theorem, concepts and properties of point estimators, various methods of point estimation, interval estimation, tests of hypotheses and Neyman-Pearson lemma with some applications. Usually offered in the Fall semester.

Prerequisite(s): MATH 355

**MATH552 Math Stats W/Applictn II**

Hours 3

This course considers further applications of the Neyman-Pearson lemma, likelihood ratio tests, Chi-square test for goodness of fit, estimation and test of hypotheses for linear statistical models, analysis of variance, analysis of enumerative data, and some topics in nonparametric statistics. Note: Credit for this course will not be counted toward an advanced degree in mathematics.

Prerequisite(s): MATH 551

**MATH554 Math Statistics I**

Hours 3

Distributions of random variables, moments of random variables, probability distributions, joint distributions, and change of variable techniques.

Prerequisite(s): MATH 237 and (MATH 486 or MATH 586)

**MATH555 Math Statistics II**

Hours 3

Order statistics, asymptotic distributions, point estimation, interval estimation, and hypothesis testing.

Prerequisite(s): MATH 554 or equivalent

**MATH557 Stochastic Processes I**

Hours 3

Introduction to the basic concepts and applications of stochastic processes. Markov chains, continuous-time Markov processes, Poisson and renewal processes, and Brownian motion. Applications of stochastic processes including queueing theory and probabilistic analysis of computational algorithms.

Prerequisite(s): MATH 355

**MATH559 Stochastic Processes II**

Hours 3

Continuation of MATH 557. Advanced topics of stochastic processes including Martingales, Brownian motion and diffusion processes, advanced queueing theory, stochastic simulation, and probabilistic search algorithms such as simulated annealing.

Prerequisite(s): MATH 457 or MATH 557

**MATH560 Intro Differential Geom**

Hours 3

Introduction to basic classical notions in differential geometry: curvature, torsion, geodesic curves, geodesic parallelism, differential manifold, tangent space, vector field, Lie derivative, Lie algebra, Lie group, exponential map, and representation of a Lie group.

Prerequisite(s): MATH 586 or equivalent

**MATH565 Intro General Topology**

Hours 3

Basic notions in topology that can be used in other disciplines in mathematics. Topics include topological spaces, open sets, closed sets, basis for a topology, continuous functions, separation axioms, compactness, connectedness, product spaces, quotient spaces, and metric spaces.

Prerequisite(s): MATH 586 or equivalent

**MATH566 Intro Algebraic Topology**

Hours 3

Homotopy, fundamental groups, covering spaces, covering maps, and basic homology theory, including the Eilenberg Steenrod axioms.

Prerequisite(s): MATH 565 or equivalent

**MATH570 Prin Modern Algebra I**

Hours 3

This is a first course in abstract algebra. Topics include groups, permutations groups, Cayley's theorem, finite Abelian groups, isomorphism theorems and Lagrange's theorem. Usually offered in the spring semester. Credit for this course will not be counted toward a Ph. D. in Mathematics.

Prerequisite(s): (MATH 237 and MATH 301) or MATH 371 or MATH 572

**MATH571 Prin Modern Algebra II**

Hours 3

An introduction to ring theory. Topics include rings, polynomial rings, matrix rings, modules, fields and semi-simple rings. Usually offered in the fall semester.

Prerequisite(s): MATH 570

**MATH572 Linear Algebra**

Hours 3

Vector spaces; linear transformations and matrices; determinants; systems of linear equations and Gaussian elimination; eigenvalues, eigenvectors and diagonalization; generalized eigenvectors and Jordan decomposition; minimal polynomials, Cayley-Hamilton theorem; Inner product spaces.

Prerequisite(s): MATH 237

**MATH573 Abstract Algebra I**

Hours 3

Fundamental aspects of group theory are covered. Topics include Sylow theorems, semi-direct products, free groups, composition series, nilpotent and solvable groups, and infinite groups.

Prerequisite(s): MATH 570

**MATH580 Real Analysis I**

Hours 3

Topics covered include measure theory, Lebesgue integration, convergence theorems, Fubini's theorem, and LP spaces.

Prerequisite(s): MATH 587

**MATH583 Complex Analysis I**

Hours 3

The basic principles of complex variable theory are discussed. Topics include Cauchy-Riemann equations, Cauchy's integral formula, Goursat's theorem, the theory of residues, the maximum principle, and Schwarz's lemma.

Prerequisite(s): MATH 586

**MATH585 Intro Complex Variables**

Hours 3

Some basic notions in complex analysis. Topics include analytic functions, complex integration, infinite series, contour integration, and conformal mappings. Credit for this course will not be counted if it is taken after MATH 583.

Prerequisite(s): MATH 227 or MATH 247

**MATH586 Introduction to Real Analysis I**

Hours 3

Rigorous development of the calculus of real variables. Topics include the topology of the real line, sequences and series, limits, limit suprema and infima, continuity, and differentiation, Taylor polynomials.

Prerequisite(s): MATH 301

**MATH587 Introduction to Real Analysis II**

Hours 3

A continuation of Math 586. Topics include Riemann integration, sequences and series of functions, uniform convergence, power series, topology of metric spaces, the Weierstrass approximation theorem, and the Arzela-Ascoli theorem.

Prerequisite(s): MATH 586

**MATH588 Theory Diff Equations I**

Hours 3

Topics covered include existence and uniqueness of solutions, Picard theorem, homogenous linear equations, Floquet theory, properties of autonomous systems, Poincare-Bendixson theory, stability, and bifurcations.

Prerequisite(s): MATH 238 and MATH 586

**MATH591 Teaching College Math**

Hours 3

Preparation for future mathematics faculty for the teaching component of a faculty position at community colleges, four-year colleges or universities, comprehensive universities, or research universities. Topics include active learning strategies and course development, including syllabi, textbook selection, and assessment strategies.

**MATH593 Collegiate Math Education Rsrc**

Hours 3

This course is designed to enable students to understand and synthesize current research in college mathematics education involving subjects usually taught during the first two years of college. This will include a survey of a range of educational research models and will discuss qualitative, quantitative, and mixed methods research design in mathematics education research.

**MATH598 Non-Thesis Research**

Hours 1-3

Research not related to thesis.

**MATH599 Thesis Research**

Hours 1-6

*No description available***MATH610 Iterative Meth Linear Sys**

Hours 3

Describes some of the best iterative techniques for solving large sparse linear systems.

**MATH611 Numerical Methods for Partial Differential Equations**

Hours 3

Finite difference methods for hyperbolic, parabolic, and elliptical partial differential equations; consistency, convergence, and order of accuracy of finite difference schemes; stability analysis and the Courant-Friedrichs-Lewy (CFL) condition; numerical dispersion and dissipation; finite difference schemes in higher dimensions; implicit methods and alternating direction implicit (ADI) schemes; a brief introduction to additional topics, such as spectral methods, pseudo-spectral methods, finite volume methods, and finite element methods, may be offered at the discretion of instructor.

Prerequisite(s): MATH 512 or equivalent, and ability to program in a high-level programming language (MATLAB, C++, or FORTRAN).

**MATH642 Partial Differential Equations**

Hours 3

This is an introductory course in partial differential equations. It covers the theory, methods of solution, and applications related to the three second order equations of mathematical physics (the Laplace's equation, the heat equation, and the wave equation), and the nonlinear first order equations.

Prerequisite(s): MATH 238 and MATH 586 or equivalent, or permission of instructor

**MATH644 Singular Perturbations**

Hours 3

This is an introductory course in perturbation methods. It covers both the theory and the methods of solution for a variety of equations ranging from algebraic, ordinary differential equations, to partial differential equations containing either small or large parameters.

Prerequisite(s): MATH 238, some familiarity with ODE's and PDE's or permission of the instructor

**MATH648 Topics in Partial Differential Equations**

Hours 3

This course concerns the modern theory of partial differential equations (PDE). We will concentrate on modern techniques in the theoretical study of linear and nonlinear PDEs. Topics include Sobolev spaces, weak solutions for second order elliptic, parabolic, and hyperbolic equations, the calculus of variations, nonvariational techniques, systems of conservation laws, fluid dynamics, and other topics decided by instructor.

Prerequisite(s): (MATH 541 or MATH 642) and MATH 580, or permission of instructor.

**MATH661 Algebraic Topology I**

Hours 3

In-depth study of homotopy and homology. The theory of cohomology is also introduced as are characteristic classes.

**MATH674 Abstract Algebra II**

Hours 3

Topics include the theory of fields, including Galois theory, Noetherian and Artinian rings and their modules, polynomial rings, and free and projective modules.

Prerequisite(s): MATH 573

**MATH677 Topics Algebra I**

SP

Hours 3

Content decided by instructor. Recent topics covered include linear groups, representation theory, commutative algebra and algebraic geometry, algebraic K-theory, and theory of polycyclic groups.

Special Topics Course

**MATH681 Real Analysis II**

Hours 3

A continuation of Math 580. Topics covered include basic theory of LP spaces, convolutions, Hahn decomposition, the Radon-Nikodym theorem, Riesz representation theorem, and Banach space theory, including the Hahn-Banach theorem, the open mapping theorem, and the uniform boundedness principle.

Prerequisite(s): MATH 580

**MATH684 Complex Analysis II**

Hours 3

We will cover various topics in Complex Analysis. Some possible topics include: Riemann mapping theorem, conformal mapping, normal families, Zalcman's lemma, Picard's theorem, Bloch's theorem, the monodromy theorem, elliptic functions, ultrahyperbolic metrics, harmonic measure, Hardy spaces, special functions.

Prerequisite(s): MATH 583

**MATH686 Functional Analysis I**

Hours 3

An introduction to functional analysis. Topics include Banach spaces, duality, weak and weak\* topologies, Banach-Alaoglu Theorem, Hilbert spaces, Riesz theorem, orthonormal bases, operator theory on Banach and Hilbert spaces, spectral theory, compact operators.

Prerequisite(s): MATH 681 and (MATH 583 or MATH 585)

**MATH688 Topics in Analysis**

SP

Hours 3

Advanced course in real analysis. Topics may include harmonic analysis (the Fourier transform, Hardy-Littlewood maximal operator, interpolation, singular integral operators, BMO and Hardy spaces, weighted norm inequalities) or analysis and PDEs (Sobolev spaces, weak solutions to PDEs, Lax-Milgram theory, the Fredholm alternative, existence and regularity for elliptic and parabolic equations).

Prerequisite(s): MATH 681

Special Topics Course

**MATH698 Non-Dissertation Research**

Hours 3-9

This course will examine a topic not included in the student's dissertation.

**MATH699 Dissertation Research**

Hours 1-12

*No description available*

**MS548 Intro To Oceanography**

Hours 4

A general introduction to the oceans, with emphasis on chemical, physical, and geological processes and the relationship of these processes to biological systems.

**MUA501 Secondary Applied Study**

Hours .5-1

Private instruction.

**MUA518 Trumpet Ensemble**

Hours 1

Applied performance ensemble for trumpet students at the graduate level.

**MUA527 Horn Choir**

Hours 1

Applied ensemble for horn students at the graduate level.

**MUA528 Tuba and Euphonium Ensemble**

Hours 1

Small applied ensembles at the graduate level.

**MUA550 Huxford Symphony Orchestra**

Hours 1

Applied ensemble at the graduate level.

**MUA551 Brass Choir**

Hours 1

Applied ensemble for brass musicians. Permission of instructor is required.

**MUA552 Wind Ensemble**

Hours 1

Applied Ensemble at the graduate level.

**MUA554 Symphonic Band**

Hours 1

MUA 554 is a listening-focused, processed-oriented ensemble that provides an opportunity for the members to emphasize interactive musical skills in a large ensemble setting. Specifically on the graduate level, students would be interacting with both graduate and undergraduate musicians on current and historic works inside of the wind band repertoire. While promoting the advancement of wind music of artistic and historical significance, it reinforces the musical skills taught in the individual studios and develops the applications of those skills. Graduate students are pushed to embrace individual parts while interacting in a new ensemble setting full of student musicians with similar talents and skills.

**MUA555 Trombone Choir**

Hours 1

Applied ensemble for trombone students at the graduate level.

**MUA556 Percussion Ensemble**

Hours 1

Percussion ensemble at the graduate level.

**MUA557 Campus Band**

Hours 0-1

Applied ensemble at the graduate level open to the entire campus community.

**MUA558 Contemporary Ensemble**

Hours 1

Applied ensemble at the graduate level.

**MUA559 Jazz Ensembles**

Hours 1

Applied ensemble in jazz for graduate students.

**MUA560 Opera Workshop**

Hours 1

Applied ensemble at the graduate level.

**MUA561 Opera Production**

Hours 1

This course will explore all aspects of opera production, including musical and staging rehearsals, technical elements and stage management and will culminate in a full length production.

**MUA562 University Chorus**

Hours 1

Applied Ensemble at the Graduate level.

**MUA563 University Singers**

Hours 1

Applied ensemble at the graduate level.

**MUA564 Alabama Chamber Choir**

Hours 1

The Alabama Chamber Choir is a mixed choral ensemble primarily conducted by advanced University of Alabama undergraduate choral music education students. Chamber Choir will afford all choristers the opportunity to peruse a broad spectrum of choral ensemble music, most of which will be suitable for programming in a traditional public school choral music setting. While experiencing breadth of repertoire will be a key philosophical component of Chamber Choir, high quality choral performance will drive the methodology. In that regard, student directors, through collaboration with the instructor, will prepare and conduct one selection in an authentic performance setting.

**MUA565 Flute Choir**

Hours 1

Applied ensemble for flute students at the graduate level.

**MUA567 Jazz Combo**

Hours 1

*No description available*

**MUA568 Treble Chorus**

Hours 1

Applied Ensemble at the Graduate level.

**MUA569 Chamber Music**

Hours 1

Small applied ensembles at the graduate level.

**MUA570 Harp (Majors)**

Hours .5-4

*No description available*

**MUA571 Piano**

Hours .5-4

*No description available*

**MUA572 Organ**

Hours .5-4

*No description available*

**MUA574 Voice**

Hours .5-4

*No description available*

**MUA575 Violin**

Hours .5-4

*No description available*

**MUA576 Viola**

Hours .5-4

*No description available*



**MUA577 Cello**

Hours .5-4

*No description available*

**MUA578 Double Bass**

Hours .5-4

Double bass study at the graduate level for music majors.

**MUA579 Flute**

Hours .5-4

*No description available*

**MUA580 Oboe**

Hours .5-4

*No description available*

**MUA581 Bassoon**

Hours 1-4

Applied Bassoon study for majors in the Masters of Music program.

**MUA582 Clarinet**

Hours .5-4

*No description available*

**MUA583 Saxophone**

Hours .5-4

*No description available*

**MUA584 Trumpet**

Hours .5-4

*No description available*

**MUA585 French Horn**

Hours .5-4

*No description available*

**MUA586 Trombone**

Hours .5-4

*No description available*

**MUA587 Euphonium**

Hours .5-4

*No description available*

**MUA588 Tuba**

Hours .5-4

*No description available*

**MUA589 Percussion**

Hours .5-4

*No description available*

**MUA592 Tenor and Bass Chorus**

Hours 1

Applied Ensemble at the Graduate level.

**MUA670 Harp (Majors)**

Hours .5-4

*No description available*

**MUA671 Piano**

Hours .5-4

*No description available*

**MUA672 Organ**

Hours .5-4

*No description available*

**MUA674 Voice**

Hours .5-4

*No description available*

**MUA675 Violin**

Hours .5-4

*No description available*

**MUA676 Viola**

Hours .5-4

*No description available*

**MUA677 Cello**

Hours .5-4

*No description available*

**MUA678 Double Bass**

Hours .5-4

Double bass study at the graduate level.

**MUA679 Flute**

Hours .5-4

*No description available*

**MUA680 Oboe (Majors)**

Hours .5-4

Applied oboe study at the Doctoral level.

**MUA681 Bassoon (Majors)**

Hours .5-4

Applied bassoon study at the Doctoral level.

**MUA682 Clarinet**

Hours .5-4

Applied clarinet study at the Doctoral Level.

**MUA683 Saxophone**

Hours .5-4

*No description available***MUA684 Trumpet**

Hours .5-4

*No description available***MUA685 Horn**

Hours .5-4

*No description available***MUA686 Trombone**

Hours .5-4

*No description available***MUA687 Euphonium**

Hours .5-4

*No description available***MUA688 Tuba**

Hours .5-4

*No description available***MUA689 Percussion**

Hours .5-4

*No description available***MUS501 Intro Grad Study In Mus**

Hours 3

An introduction to the basic bibliographic tools and research techniques in music. Offered fall semester.

**MUS502 Film Scoring**

Hours 3

A study of the art of scoring music for films. The course will examine aesthetics of film scoring and apply it in this course. Offered fall semester.

**MUS503 18th-Century Counterpoint II**

Hours 3

The analysis and writing of fugue, variation, ground-bass, and canon.

**MUS504 Analysis of Tonal Music**

Hours 3

Survey of recent analytical techniques for tonal repertoires with an emphasis on creating close readings of complete pieces.

**MUS505 Studio Tech Arrang Orchestrn**

Hours 3

This course is an approach to arranging and orchestration in both jazz and commercial settings. The emphasis will be placed on writing for the studio orchestra, MIDI instrumentation, and vocal groups with a focus on the 4- to 6-piece group (jazz and commercial). Offered fall semester.

**MUS510 Advanced Arranging**

Hours 3

Study of current techniques in arranging, including use of symmetrical scales and chords, pedal points, polytonality and planing techniques. Offered spring semester.

**MUS512 Electronic Music I**

Hours 3

A survey of seminal works featuring electronic elements. Mastering the principles of recording, editing, signal processing, mixing, mastering, MIDI, sampling, and sound design. This course encourages work that overlaps with other programs of study; particularly composition, performance, audio engineering, and music production.

**MUS514 Electronic Music II**

Hours 3

A continued survey of seminal works featuring electronic elements. Instruction in the design and utilization of sound-generating computer programs for digital synthesis, MIDI, and advanced techniques associated with recording and producing audio. This course encourages work that overlaps with other programs of study; particularly, composition, performance, and audio engineering degrees.

**MUS516 Special Topics in Music Theory**

SP

Hours 3

Advanced course in music theory; topics may vary according to instructor.

Special Topics Course

**MUS517 Special Topics in Music Composition**

SP

Hours 3

Advanced course in music composition; topics may vary according to instructor.

Special Topics Course

**MUS518 Schenkerian Analysis**

Hours 3

Study of pitch structure in tonal compositions as revealed by Heinrich Schenker and his followers.

Prerequisite(s): MUS 504

**MUS519 Adv Composition I**

Hours 3

Creation of large-scale musical compositions. Offered fall and spring semesters and on demand.

**MUS520 Adv Composition II**

Hours 3

Creation of large-scale musical compositions. Offered fall and spring semesters and on demand.

**MUS525 Instrumentation**

Hours 3

A survey of instrumental strengths, abilities, and weaknesses. Basic instrumentation and writing for all ensembles and orchestra. This course encourages work that overlaps with other programs of study; particularly composition, performance, audio engineering, and music production.

**MUS527 Studies In Special Lit**

SP

Hours 3

Materials vary each semester. May be repeated for credit up to four semesters.

Special Topics Course

**MUS528 Orchestration**

Hours 3

A survey of instrumental strengths, abilities, and weaknesses. Special emphasis on the art and science of writing for larger ensembles. This course encourages work that overlaps with other programs of study; particularly composition, performance, audio engineering, and music production.

Prerequisite(s): MUS 525

**MUS532 Graduate Diction Review**

Hours 2

This course is an intensive review of undergraduate diction designed for graduate students who did not perform adequately on the Diction Diagnostic examination at matriculation. A grade of no lower than C must be earned in this course if the student is to satisfy the requirement for mediation.

Prerequisite(s): In order to register for this course, the student must have been accepted into the MM or DMA program in Vocal Performance.

**MUS534 Renaissance Proseminar**

Hours 3

An intensive study of the music, the composers, the diverse styles, genres, and techniques, the theoretical and aesthetic principles, and the performance practices associated with music of the Renaissance via reading, listening, and musical analysis.

**MUS535 Baroque Proseminar**

Hours 3

An intensive study of the music, the composers, the diverse styles, genres, and techniques, the theoretical and aesthetic principles, and the performance practices associated with Baroque music via reading, listening, and musical analysis.

**MUS536 Prosem Opera History Lit**

Hours 3

Survey of operatic styles from the 17th to the 20th centuries via discussion and analysis of selected works.

**MUS537 Analysis of 20th-Century Music**

Hours 3

Survey of a variety of technical approaches to composition in the 20th century and such organizing techniques as harmony, voice leading, textural design, form, and orchestration.

**MUS539 Special Topics in Lyric Diction**

SP

Hours 2

This course is a rotation of special topics in advanced lyric diction designed for graduate students demonstrating basic proficiency in International Phonetic Alphabet usage as applied to lyric diction.

Prerequisite(s): MUS 532

Special Topics Course

**MUS545 Graduate Vocal Pedagogy**

Hours 3

A detailed study of the historical and contemporary methods of pedagogy, and analysis of pedagogical problems.

**MUS550 Prosem Music Classic Era**

Hours 3

An intensive study of the music, the composers, the diverse styles and techniques, the theoretical and aesthetic principles, and the performance practices associated with music of the pre-classical and classical periods via reading, listening, and musical analysis.

**MUS552 Directed Studies Piano**

Hours 1-3

Independent research projects in piano pedagogy. Offered each semester.

**MUS553 Prosem Music Romantic Pd**

Hours 3

An intensive study of the music, the composers, the diverse styles and techniques, the theoretical and aesthetic principles, and the performance practices associated with music of the 19th century via reading, listening, and musical analysis.

**MUS554 Proseminar In Jazz**

Hours 3

A study of jazz history and performance practices as applied to the performing musician and educator via transcription, analysis and research. Offered spring semester.

**MUS558 Prosem Music 20th Century**

Hours 3

An intensive study of the music, the composers, the diverse styles and techniques, the theoretical and aesthetic principles, and the performance practices associated with music composed after 1900 via reading, listening, and musical analysis.

**MUS559 Spec Topics Musicology**

SP

Hours 3

Advanced study of a selected topic in musicology. Offered on demand.

Special Topics Course

**MUS561 Hy Wind Band Trad Lit**

Hours 3

Comprehensive study of band history from the Renaissance to the present, together with a survey of early and traditional wind works of Mozart, Mendelssohn, Berlioz, Holst, Grainger, Poulenc and others. Offered fall semesters and during the first summer terms of even-numbered years.

**MUS563 Projects In Wind Music**

Hours 3

Survey of rehearsal techniques and studies in wind performance practices and transcription. Offered fall and spring semesters and during the first summer term.

**MUS568 Sem Wind Lit-Chambr Form**

Hours 2

An analytical survey of the content and performance practices of selected wind ensemble literature for chamber groups.

**MUS571 Choral Literature 1450-1750**

Hours 2

In-depth survey of choral literature up to 1750. Offered spring semesters of odd-numbered years.

**MUS572 Choral Lit 1750-Present**

Hours 2

In-depth survey of choral literature since 1750. Offered spring semesters of even-numbered years.

**MUS574 Graduate Vocal Literature I**

Hours 2

In-depth survey of the performance criteria and historical significance of solo vocal literature of the United States, British Isles, Germany, Austria, France, Italy, Spain, and Central/South American. Offered in Alternate years.

Prerequisite(s): MUS 474 and MUS 475

**MUS577 Adv Organ Literature I**

Hours 3

A survey of the literature of the organ from the 15th to the 18th centuries. Offered fall semesters of even-numbered years.

**MUS591 Readings in Music History**

SP

Hours 3

Readings in Music History.

Special Topics Course

**MUS592 Adv Choral Conducting**

Hours 3

Representative literature from all periods is studied and conducted. Conducting techniques, rehearsal and vocal techniques, diction, performance practice, and score analysis are emphasized. Offered each semester. May be repeated for credit with varied repertoire.

**MUS594 Adv Instrumental Conduct**

Hours 3

Baton technique, score reading, analysis, interpretation, rehearsal techniques and instrumental problems in a few selected scores. Offered spring semester.

**MUS595 Graduate Theory Review**

Hours 3

This course is a review and recasting of classical concepts, including harmony, counterpoint, and form.

**MUS596 Comprehensive Examination**

Hours 0

All master of music students are required to register for this course at the beginning of the semester during which they take the comprehensive examination. A grade will be determined entirely by an assessment of the student's performance on the comprehensive examination and will either be pass or fail. The course may be repeated once and must be passed if the student is to graduate.

**MUS597 Oral Examination**

Hours 0

All master of music students are required to register for this course at the beginning of the semester during which they take the oral examination. A grade will be determined entirely by an assessment of the student's performance on the oral examination and will either be pass or fail. The course may be repeated once and must be passed if the student is to graduate.

**MUS598 Non-Thesis Research**

Hours 1-12

*No description available*

**MUS599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in music. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**MUS619 Adv Composition III**

Hours 4

*No description available*

**MUS620 Adv Composition IV**

Hours 4

*No description available*

**MUS622 Sem Medieval Renaiss Mus**

Hours 3

An intensive study of a specific topic associated with Medieval and/or Renaissance music. Topic varies.

**MUS625 Seminar Romantic Music**

Hours 3

An intensive study of a specific topic associated with 19th-century music. Topic varies.

**MUS626 Sem Twentieth Cent Music**

Hours 3

An intensive study of a specific topic associated with music written in the 20th century. Topic varies.

**MUS639 Special Topics in Lyric Diction**

SP

Hours 2

This course is a rotation of special topics in advanced lyric diction designed for graduate students demonstrating basic proficiency in International Phonetic Alphabet usage as applied to lyric diction.

Prerequisite(s): MUS 532

Special Topics Course

**MUS640 Opera Pedagogy and Stage Direction I**

Hours 3

This two-course sequence is designed for graduate students interested in teaching opera stage craft and in opera stage direction. Opera Pedagogy and Stage Direction I will primarily focus on administration and teaching within an Opera Workshop training and performing program.

Prerequisite(s): One semester each of MUA 560 (Opera Workshop) and MUA 561 (Opera Production) is required.

**MUS641 Opera Pedagogy and Stage Direction II**

Hours 3

This two-course sequence is designed for graduate students interested in teaching opera stage craft and in opera stage direction. Opera Pedagogy and Stage Direction II will primarily focus on stage direction and production administration.

Prerequisite(s): One semester each of MUA 560 and MUA 561 is required.

**MUS642 Vocal Pedagogy**

Hours 3

An analytical survey of voice teaching with emphasis on practical application. Offered on demand.

**MUS643 Brass Wind String Pedagogy**

Hours 3

Intended to teach doctoral students how to be successful in applied studio teaching at the collegiate and preparatory level. The focus of the course will be specific relative to the student's major instrument. Offered each semester.

**MUS644 Advanced Vocal Pedagogy II**

Hours 3

An advanced study of modern vocal pedagogy with special attention to recent acoustical research and technology, and its practical application in the voice studio.

Prerequisite(s): MUS 545 or MUS 642

**MUS650 Wind Conduct Pedagogy**

Hours 3

A practical and theoretical study of conducting instruction.

**MUS651 Choral Conduct Pedagogy**

Hours 3

A practical and theoretical study of conducting instruction.

**MUS652 Special Topics Vocal Lit I**

SP

Hours 2

In-depth survey of the performance criteria and historical significance of selected repertoire from the solo vocal literature.

Prerequisite(s): MUS 474 and MUS 475

Special Topics Course

**MUS653 Special Topics - Vocal Lit I**

SP

Hours 3

Students will acquire a basic working knowledge of standard solo art song by composers from Great Britain and France.

Special Topics Course

**MUS669 Sem in Wind Lit - Large**

Hours 2

The Seminar in Wind Literature, Large Forms, focuses on a particular genre, composer or style period within the wind band repertoire. The seminar for Spring 2014 will explore the music of David Maslanka. Mr. Maslanka is considered to be one of the most significant composer of wind music over the later portion of the 20th century to the present. The works to be studied were selected based on: an effort to include a representative sample of Maslanka's complete catalogue, an effort to include representative types of his works (e.g. concerti, symphonies, etc.), an effort to include the works considered to be most significant, and the works intrinsic value.

**MUS674 Topics Choral Literature**

SP

Hours 2

A thorough analysis and historical study of the repertoire for the lecture recital. May be repeated for credit.

Special Topics Course

**MUS677 Topics In Organ Lit**

SP

Hours 3

In-depth study of the organ literature of a specific period, its content and performance practice related to the organs of the period, and the performance of the literature. Offered each semester. May be repeated for credit if literature varies.

Special Topics Course

**MUS692 Adv Choral Conducting**

Hours 3

Advanced conducting techniques, score analysis and preparation, performance practice and interpretation, rehearsal, and vocal techniques and diction.

**MUS694 Adv Wind Conducting**

Hours 3

Advanced baton technique, score reading, interpretation, rehearsal techniques and instrumental problems in selected scores.



**MUS696 Comprehensive Examination**

Hours 0

All doctor of musical arts students are required to register for this course at the beginning of the semester during which they take the comprehensive examination. A grade will be determined entirely by an assessment of the student's performance on the comprehensive examination and will either be pass or fail. The course may be repeated once and must be passed if the student is to graduate.

**MUS697 Oral Examination**

Hours 0

All doctor of musical arts students are required to register for this course at the beginning of the semester during which they take the oral examination. A grade will be determined entirely by an assessment of the student's performance on the oral examination and will either be pass or fail. The course may be repeated once and must be passed if the student is to graduate.

**MUS698 Non-Dissertatn Research**

Hours 1-3

*No description available*

**MUS699 Document Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree in music. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**MUSM500 Museum Internship**

Hours 3

This course is normally taken near the end of the museum studies program after the majority of other required courses have been completed. For the internship, students will develop a project proposal for a 40-hour unpaid internship at a host museum of their choice. Once the proposal is approved by the MUSM Internship Coordinator and MUSM Chair, students will complete the internship at their chosen host museum and be evaluated by their host museum supervisor and MUSM Internship Coordinator.

Prerequisite(s): Enrollment in the MUSM program, completion of at least two of the required courses (MUSM 501, MUSM 502, and MUSM 503), Academic Advisor's approval of the internship proposal, and MUSM Administrator's approval of the internship proposal.

**MUSM501 Museum Administration**

Hours 3

This course utilizes case studies, analysis of timely topical issues, and problem-based learning exercises to explore many facets of museum studies relevant to administration and management in not-for-profit museums of various types (art, history, natural history, or science/technology). Intended for students considering a career in arts administration, or museums specifically, this course provides an inter-disciplinary introduction to museum work. Students will gain an understanding of the history and philosophy of museums, the role of museums in society, collecting policies, governance, strategic planning, budgeting, grant-writing, museum ethics, multicultural issues, and legal issues in museums. Behind-the-scenes visits to museums and guest speakers will be included.

**MUSM502 Museum Collections Management**

Hours 3

This course considers the intellectual, physical, legal, financial, social, and ethical challenges of preserving and providing access to museum collections. Through lectures, readings, hands-on activities, and field trips students explore the theory and practice of collections management and learn how to maximize available resources for collections care in any museum regardless of size.

Prerequisite(s): This course has no prerequisites. Students are expected only to have an interest in the course topic and content, a willingness to be active participants in the learning community that the course is designed to create, and the time and energy to complete the required in-class and out-of-class learning activities and assignments.

**MUSM503 Museum Education and Exhibition**

Hours 3

This course provides an overview of museum exhibition and education initiatives; two of the most important functions of all museums. The emphasis of the first part of the course will be on critiquing, designing and presenting museum exhibitions to various audiences. As exhibition and education are intricately linked in museums, the education component of this course will explore various ways to engage the visiting public through museum displays as well as other public outreach programs. Students should be prepared to not only design appealing museums displays but also successfully export their content in various formats to various publics that include schoolchildren.

Prerequisite(s): This course has no prerequisites. Students are expected only to have an interest in the course topic and content, a willingness to be active participants in the learning community that the course is designed to create, and the time and energy to complete the required in-class and out-of-class learning activities and assignments.

**MUSM505 Exhibit Design & Production**

Hours 3

This course introduces future museum professionals to an artistic perspective on exhibit design and production. We will learn to use modern tools to enhance a variety of design scenarios. Lighting, material, and manufacturing technologies will be explored. Digital design software training will establish a skill set with immediate practical applications that students can easily build upon. Student designers will refine strategies and techniques required to engage today's ever-changing audience, developing unique artistic responses to inspirational content selected from the vast collections of the University Museums. The class will visit sites for both display and manufacturing research. Hands-on exhibit development will help students to generate a portfolio of projects to assist with placement in the professional museum job market.

**PH501 Classical Dynamics**

Hours 3

Variational principles and Lagrange's equations; two-body central-force problems; kinematics of rigid-body motion; rigid-body equations of motion; special relativity; Hamilton's equations of motion; and canonical transformations.

**PH505 Physics For Science Teachers**

Hours 3

Selected topics in contemporary physics for high school and post-secondary science teachers.

**PH511 Biophysics**

Hours 3

Physics of biological systems: proteins, lipids, nucleic acids, supramolecular structures, and molecular motors; structure, function, energetics, thermodynamics, bionanotechnology. Emphasis on systems that are best understood in physical and molecular detail.

**PH512 Physics Pedagogy**

Hours 1

This is a course in teaching methodologies for introductory physics, based on recent results from physics education research.

Prerequisite(s): None

**PH523 Relativity**

Hours 3

Special relativity, equivalence principle, tensor analysis, gravitational effects, curvature, Einstein's field equations, action principle, classic tests of Einstein's theory.

**PH531 Electromagnetic Theory**

Hours 3

Electric and magnetic fields, Green's functions, and Maxwell's equations.

**PH532 Electromagnetic Theory**

Hours 3

Electromagnetic waves, relativity, and selected topics.

Prerequisite(s): PH 531

**PH534 Digtl Elect Comp Interfc**

Hours 3

Theory and practical application of digital integrated circuits, including gates, flip flops, counters, latches, and displays. Computer data acquisition and control using LabView, A/D and D/A fundamentals. Digital communications.

**PH541 Quantum Mechanics**

Hours 3

Solution of the Schroedinger equation, matrix methods, angular momentum, and approximation methods.

**PH542 Quantum Mechanics**

Hours 3

Time-dependent perturbation theory, scattering theory, radiation, identical particles, and spin.

Prerequisite(s): PH 541

**PH551 Machine Learning**

Hours 3

The course will cover a mixture of foundational and applied machine learning topics related to practical applications in analysis of large scientific data. Students will learn the theory behind various machine learning algorithms and tools and will learn how to apply them to real-world problems. This course will introduce the fundamentals of machine learning and classification theory based on statistical learning and describe classes of popular algorithms in depth: decision and rule-based methods (decision trees and rules, bagging and boosting, random forests), deep learning-based models (fully connected, convolutional, recurrent, recursive, Bayesian, geometric deep learning and graph neural networks) as well as other machine learning algorithms. The lectures will be augmented by active learning techniques to promote greater and deeper student engagement. There will be various in-class activities and small-group discussions and problem solving to allow students to build and reinforce connections with fellow students.

Prerequisite(s): Some familiarity object-oriented programming languages (eg. Python, C++) or numerical computing environments would be useful for completion of the practical exercises.

**PH561 Nuclear Particle Physics**

Hours 3

Structure and properties of nuclear and subnuclear matter; conservation laws; scattering and decay processes; and fundamental interactions.

**PH571 Statistical Physics**

Hours 3

Ensembles, partition function, quantum statistics, Bose and Fermi systems, phase transitions and critical phenomena, and applications.

**PH581 Solid State Physics**

Hours 3

Structure of simple crystals; thermal, electrical, and magnetic properties of solids; the free-electron model and the band approximation; and semiconductors.

**PH582 Topics Physics & Astronomy**

SP

Hours 1-3

May deal with any physics or astronomy topic not covered by existing courses. The course title is added at the time the course is taught. Repeat credit is allowed for different course titles.

Special Topics Course

**PH585 Magnetism: Fundamentals and Applications**

Hours 3

PH585 is the first course of series of graduate level courses on magnetism (PH585, PH586 - Advanced Magnetism: Magnetic Materials, Phenomena and Devices), magnetic phenomena, magnetic materials with examples of magnetic devices for physical science and engineering students. The course is based on a combination of physical principles (materials physics, condensed matter, physics of magnetism) and examples their applications. Lecture examples, lecture and home work problems throughout the course will be based on applications (see list of applications in the topics list) with emphasize on impact of fundamental magnetism for advances in particular technology.

**PH586 Advanced Magnetism: Phenomena, Materials, Devices**

Hours 3

PH586 a graduate level course in magnetism, magnetic phenomena, magnetic materials with examples of magnetic devices for physical science and engineering students. The course is based on a combination of physical principles (condensed matter and physics of magnetism) and examples their applications to magnetization process and magneto-transport phenomena. The course material will include the following topics: • Review Principles of Magnetism: Fundamental Magnetic Properties • Magnetic domains and domain walls • Thermal Effects • Micromagnetics • Magnetization Processes • Landau-Lifshitz-Gilbert Equation • Hard and Soft Magnetic Materials, Permanent magnet applications • Overview of modern magnetic recording: magnetic recording media • Ferromagnetic Resonance • Interlayer and Interfacial Exchange and Exchange Bias • Review Principles of Electronic structure and Electronic transport • Magneto-transport Phenomena • Anisotropic Magnetoresistance • Giant Magnetoresistance • Tunneling Magnetoresistance • Overview of MagnetoElectronic devices: HDD reader, MRAM • Special topics may be included, such as critical phenomena (Ising/Heisenberg model), magnetic and non-magnetic neutron scattering, or principles of VSM magnetometry, spin polarized electron characterization techniques.

**PH590 Research Techniques**

Hours 3

This course provides graduate students with domain-specific skills and knowledge in their research specialty. This training is expected to be undertaken in the context of active engagement by the student in an ongoing or semester-long research project. Alternatively, if formal preparation beyond the available courses is necessary for a student's success within their specialty, such formal preparation (reading, assignments, etc) will be performed under the direction and supervision of the instructor. Any combination of active research and additional specialty formal preparation may be specified by the instructor, as is necessary to advance the student's knowledge and skill toward that necessary to plan and perform successful research in their specialty.

Prerequisite(s): Permission of instructor is required. Core courses must be completed before taking this Research Techniques course.

**PH591 Advanced Laboratory**

Hours 3

Experimental work in modern physics at an advanced level.

**PH592 Precision Timing: Quantum Metrology and Applications**

Hours 3

Advanced topics in precision timing and quantum metrology, including the noise types, statistical analyses methods and tools for precision systems; microwave and optical atomic clocks principles and basics of frequency combs; and, ubiquitous ground and space applications of precision timing in our everyday lives, including the precise time and frequency transfer methods. The lectures will be augmented by active learning techniques to promote an involved student participation and develop ability for deeper understanding of the aspects in precision timing. Multiple in-class activities and small-group discussions will be adopted.

Prerequisite(s): Permission of Instructor is required. Prerequisite topics: student is expected to have a working knowledge of fundamental mathematical concepts including Calculus, statistical analysis, probability distributions, and random variables [MATH 125, MATH 126, MATH 355, MATH 227]. Basic physics knowledge of electricity and magnetism with calculus, modern physics, and quantum mechanics [PH 105, PH 106, PH 255, PH 441, PH 541] and knowledge of the fundamental electrical engineering is desirable [ECE 225, ECE 340, ECE 370, ECE 408, ECE 440 & ECE 462]. Student should also have the ability to effectively complete written assignments in English, and familiarity with the use of MATLAB and/or Python as an analysis tool.

**PH595 Independent Study**

SP

Hours 3

*No description available*

Special Topics Course

**PH597 Physics Seminar**

Hours 1

Required of all full-time physics graduate students each semester in residence. (Students specializing in astronomy must take AY 597.) Students are required to attend at least 10 department colloquia and/or specialty research seminars. Students in their second year and beyond are required to give one oral research presentation.

**PH598 Non-Thesis Research**

Hours 1-9

*No description available***PH599 Thesis Research**

Hours 1-9

*No description available***PH641 Relativistic Quantum Mechanics**

Hours 3

The Dirac equation, Lorentz covariance, free-particle solutions of the Dirac equation, Foldy-Wouthuysen transformation, propagator theory, and applications to quantum electrodynamics.

Prerequisite(s): PH 542

**PH642 Quantum Field Theory**

Hours 3

Classical field theory, quantization of free fields, interacting fields, the scattering matrix, Feynman rules and diagrams, evaluation of integrals and divergences, and electroweak and strong interactions. Offered according to demand.

Prerequisite(s): PH 641

**PH661 High Energy Physics**

Hours 3

Gauge invariance, non-Abelian gauge theories, hidden symmetries, electroweak interactions of leptons and quarks, strong interactions among quarks, string theories, and phenomenology of high-energy interactions. Offered according to demand.

Prerequisite(s): PH 642

**PH662 High Energy Physics II**

Hours 3

This course will review physics beyond the Standard Model, Grand Unified Theories, Supersymmetric Theories, Superstrings, and Exact Solutions in Quantum Field Theory.

Prerequisite(s): PH 661

**PH681 Adv Solid State Physics**

Hours 3

Computational methods in solid-state physics are explored in more detail than in PH 581. Band structure calculations, Green's functions, density-functional methods, superconductivity, and disordered materials. Offered according to demand.

Prerequisite(s): PH 581

**PH682 Selected Topics Physics**

SP

Hours 1-6

May deal with any physics topic not covered by existing courses. The course title is added at the time each course is taught. Repeat credit is allowed for different course titles.

Special Topics Course

**PH698 Non-Dissertat Research**

Hours 1-9

Because this is non-dissertation research, students may repeat this course each semester for up to 18 credit hours.

**PH699 Dissertation Research**

Hours 1-12

*No description available***PHL564 Mind, Language and Reality**

Hours 3

This course concerns the nature of meaning and its connection to metaphysics and epistemology. Students will study classic works by Gottlob Frege, Bertrand Russell, Saul Kripke, and others. Students will also study more recent work in philosophical semantics and its application to arguments in the philosophy of mind. This course concerns the nature of linguistic reference, meaning, and their connection to metaphysics, epistemology, and the philosophy of mind. Students will also study more recent works by David Chalmers, Amie Thomasson, Jennifer Saul, and others.

**PSC500 Departmental Seminar I**

Hours .5-1.5

This course covers information on teaching, research, and the profession of political science.

**PSC501 Departmental Seminar II**

Hours .5-1.5

This course covers information on teaching, research, and the profession of political science. A continuation of PSC 500.

**PSC511 Public Opinion**

Hours 3

The formation, distribution, structure, properties, and techniques of measuring public opinions in the United States.

**PSC515 US National Government Institutions**

Hours 3

A detailed analysis of the Constitutional design, evolution and development, current structure and functioning, and policy outputs of the US Congress, Presidency, and the Federal Bureaucracy. Key political science theories, current public controversies, and reform proposals concerning these Federal institutions will be discussed.

**PSC521 Research Design**

Hours 3

Includes but is not limited to the role of theory, development of hypotheses, modes of observation and analysis, and testing of hypotheses.

**PSC522 Quant Methods PSC I**

Hours 3

Introduction to statistical techniques, including univariate and bivariate descriptive statistics and their application within the field of political science.

**PSC542 Internatl Conflict**

Hours 3

An examination of the various kinds of violent conflict in which nation-states become involved.

**PSC552 American Political Thought**

Hours 3

Investigates the origin and direction of the U.S. political ideology, including liberalism, civic republicanism, and debates condemning American exceptionalism.

**PSC561 Administrative Regulatn**

Hours 3

The impact of legal powers and procedures of administrative agencies on public policy. Analysis of regulatory powers in American governments.

**PSC562 Public Personnel Admin**

Hours 3

A study of the American public personnel system, with an emphasis on the political setting of government employment, equal opportunity and affirmative action, and collective bargaining.

**PSC565 Foundations of Public Administration**

Hours 3

Introduction to the scope, theory, and substantive issues of public administration.

**PSC595 Dir Reading & Research**

SP

Hours 1-6

*No description available*

Special Topics Course

**PSC598 Dir Reading & Research**

SP

Hours 1-6

*No description available*

Special Topics Course

**PSC599 Thesis Research**

Hours 1-6

*No description available***PSC610 Core Seminar in American Politics**

Hours 3

This is a survey of classic or foundational research in most areas of American Politics, incorporating studies of the mass public, elites, and national-level institutions. The objectives are to help prepare students for their Comprehensive Exams in American Politics, and to provide introductions to various approaches and subject areas within American Politics that can be explored further in more advanced, focused graduate seminars. This course is required for all students taking American Politics as a graduate field.

**PSC611 Amer Polit Behavior**

Hours 3

Research and methodology in the areas of social and psychological factors related to voting, party preference, and ideology.

**PSC612 Judicial Politics**

Hours 3

Examines the role of the courts in political systems with primary emphasis on the United States Supreme Court.

**PSC613 State Politics and Policy**

Hours 3

In this course we will examine theories and related research on state government and the policymaking process in the U.S. states. The course is divided into three parts. For approximately the first third of the semester, we will examine a fairly representative set of readings which span a broad range of political institutions through which policy is made. These institutions include the office of the governor, the state legislature, the state judicial system, and the various practices of direct democracy across the states. Part two of the course will be spent studying theories of the state policy process. We will examine a variety of theories, reflecting a broad range of forces that are thought to play a significant role in shaping state policy outcomes. As we will see, despite the complex and seemingly idiosyncratic nature of the policymaking process, state politics scholars have identified many systematic relationships between various institutional and contextual variables, and state policy outcomes. The insights that have been generated from this literature not only contribute to our understanding of state policymaking, but in many cases they shed light on debates that are relevant to scholars of American (national) politics, or in some cases, comparative politics. In the final section of the course, we will examine research in several substantive policy areas which have traditionally been considered the domain of the states. Our emphasis in this section will be broadened to include not just studies of policy adoption, but studies of policy implementation and impact as well.



**PSC614 Race and American Politics**

Hours 3

Despite the passage of the Civil Rights Act (1964) and the Voting Rights Act (1965) fifty years ago, and the recent election of an African American president in 2008, racial inequality persists across many dimensions of American life, including earnings, wealth, educational and occupational attainment, health and longevity, and access to political power and influence. Despite claims of a "post-racial" America, the events in Ferguson, Missouri and the recent movement that they have sparked, serve to remind us that racial inequality and its impact on race relations continue to play a central role in American politics. Today, African Americans and Latinos comprise approximately a quarter of the U.S. population. In many cities and some states, white Anglo citizens actually comprise a minority of the population, and demographic projections over the next two decades suggest that the white share of the population will continue to decline. Thus, it seems clear that race relations will remain central to understanding American politics at all levels of government in the years to come. In this course we will examine theories and related research on the role of race relations and racial stratification in American politics. The course is divided into four major sections. The first section of the course examines theories of racial prejudice. In this section we will examine some of the most important debates in the literature, including the possible existence and precise definition of a "new racism," innovations regarding the measurement of prejudice to overcome social desirability bias, and the effects of increasing diversity on racial attitudes and race relations. In part two of the course we will examine the effects of racial attitudes on political behavior. We will examine the effects of race and prejudice on vote choice, the role of racial attitudes in the growth and success of the Republican Party in the South in recent decades, racial framing effects and the effects of the use of racial "code words" in campaigns and the mass media, and the role that racial attitudes have played in evaluations of and support for Barack Obama. In part three of the course, we turn our attention to the causes and consequences of the election of minority elected officials. What factors contribute to the success of black and Latino candidates in elections? And what difference does it make? In this section we will examine the debate over the importance of minority descriptive representation in advancing minority interests, as well as the effects of the increasing diversification of elected officials on other aspects of American politics. In the final section of the course, we will examine the importance of race in the policy process. We begin by examining theories and evidence of the influence of race relations in policy design and policy adoption. We then turn our attention to the importance of race in policy implementation and policy outcomes.

**PSC616 Topics In American Politics**

SP

Hours 3

An examination of selected problems in American politics. Content varies.

Special Topics Course

**PSC621 Quant Meth In PSC II**

Hours 3

Data analysis and statistical applications in political research, including data processing, inferential statistics, correlation and regression, multivariate analysis, and other multidimensional techniques.

**PSC631 Sem Comparative Politic**

Hours 3

A survey of the theoretical literature in the field of comparative politics.

**PSC632 Spec Topics Comparative Pol**

SP

Hours 3

An examination of selected problems in comparative politics.

Special Topics Course

**PSC641 Issues Internatl Rel**

SP

Hours 3

An examination of major problem areas in the international system and their effects. Content varies.

Special Topics Course

**PSC642 Core Seminar in International Relations**

SP

Hours 3

A survey of contemporary theoretical approaches to the study of international relations, providing an overview of traditional and behavioral orientations.

Special Topics Course

**PSC643 International Relations Theory (I): Realism**

Hours 3

This is the first of a series of two seminars on the core "traditions" of international theory. "Traditions" means a series of loosely connected ontological, epistemological and normative propositions: claims as to what the world is made of, how it can be understood, and what the work of scholarship could or should be. These propositions are interwoven in a variety of ways that make them hard to unravel. They are made even more so by the fact that they are intercut with a variety of different methodologies to form highly disparate research programs. Core concepts and testable propositions meld with background beliefs and lived experiences to structure our thinking in ways that can be hard to see.

**PSC645 International Relations Theory (II): IR-Liberalism**

Hours 3

This is the second of a series of seminars on the core "traditions" of international theory. "Traditions" means a series of loosely connected ontological, epistemological and normative propositions: claims as to what the world is made of, how it can be understood, and what the work of scholarship should be. These propositions are interwoven in a variety of ways that make them hard to unravel. They are made even more so by the fact that they are intercut with a variety of different methodologies to form highly disparate research programs. As a result, what we think of as 'IR-liberalism' cannot be studied as a series of simple and testable propositions, nor as simply the extension of a consensus body of philosophical or political principles into the field of world politics.



**PSC646 Civil Wars**

Hours 3

This course is an introduction to the advanced study of civil wars. We will explore: the impact, causes, duration, and outcome of civil war; the duration of peace after civil war; peacekeeping. Seminars will consist of Power Point lectures, student presentations, and discussion. Students are expected to write quality research papers that are theoretical, analytical and bring to bear empirical evidence.

**PSC647 Foreign Policy Decision Making**

Hours 3

This class is an overview of the key components of Foreign Policy Decision Making (FPDM). Learning goals include understanding theories and models pertaining to FPDM as evidenced by student presentations, an exam, and a term paper. Students are expected to participate in class discussions.

**PSC651 Political Theory Sem**

Hours 3

An examination of key political theorists from the 16th to the 19th centuries. Assigned works may vary but typically include those by Machiavelli, Hobbes, Locke, Rousseau, J. S. Mill, Marx, and Nietzsche.

**PSC653 Special Topics**

SP

Hours 3

An examination of selected political theorists. Content varies.

Special Topics Course

**PSC662 Organization Theory**

Hours 3

An analysis of the theories of organization and management that examines models, reviews current administrative philosophy, and presents contemporary trends in organization and management.

**PSC663 Sel Prob Public Admin**

SP

Hours 3

May be repeated up to a maximum of 12 hours of credit. In-depth analysis of a policy issue or administrative problem. Specific topics vary.

Special Topics Course

**PSC664 Public Policy Analysis**

Hours 3

Focuses on the analysis of public policy through techniques based on economics, systems theory, and political reasoning. Explores the role of policy analysis in democratic society and addresses applications of public policy analysis to contemporary policy issues.

**PSC665 Local Government Administration**

Hours 3

This course examines major local government issues and the administrative approaches to solving these problems. The focus will be on government managers and public-sector employees in localities. Topics will include the difficulties of providing human services through street level bureaucracies, local government policymaking, and how to achieve innovation. These topics will be examined in both an historical and contemporary context, with special emphasis on the impact of the political climate on the management of local government agencies. Using a case-study approach, students will learn what public managers actually do and will evaluate the effectiveness of their leadership and management strategies.

**PSC667 Public Budgeting**

Hours 3

Problems of financial management in governmental units: revenue sources, budgeting, financial management, and control.

**PSC668 Program Evaluation**

Hours 3

This course introduces students to the framework of evaluation, the development of plans to perform various types of evaluations, and the data collection tools for implementing evaluation. It focuses on various disciplines, including performance measurement, management, and data analysis. Additionally, we will explore the role of evaluators, program staff, and stakeholders in planning, implementing, and responding to program evaluation.

**PSC679 Internship & Research**

Hours 3-6

Field work and research opportunities to be supervised by departmental faculty.

**PSC699 Dissertation Research**

Hours 1-12

*No description available*

.

**PY581 Readings In Py Grad**

SP

Hours 1-3

Selected supervised readings.

Special Topics Course

**PY591 Seminar In Py Grad**

SP

Hours 3

In-depth examination of a selected contemporary psychological area. Different sections offered each semester. Section descriptions are available at registration.

Special Topics Course

**PY599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree [in your field]. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**PY602 Advanced Statistics I**

Hours 3

An applied course explaining how to use categorical predictor variables to explain continuous response variables. Covers t-tests, ANOVA, and nonparametric alternatives in between-, within-, and mixed-model designs.

**PY603 Advanced Statistics II**

Hours 3

An applied course explaining how to use continuous predictor variables to explain continuous response variables. Covers correlation, regression, and general linear models including both categorical and continuous predictor variables.

**PY607 Research Methods Psych**

Hours 3

Study and analysis of psychological methodology.

**PY608 Introduction To Ethics**

Hours 3

Introduction to ethical issues as they affect the practice of psychology.

**PY609 Psychologist Assessment I**

Hours 4

Principles of psychological evaluation; introduction to the clinical use of assessment techniques, with particular emphasis on intellectual assessment.

**PY610 Psychologist Assessment II**

Hours 3

The theory and application of projective techniques and personality inventories for adults.

**PY612 Psych Assessment III**

Hours 3

Principles of psychological evaluation, with particular emphasis on the assessment of children.

**PY614 Categorical Data Analysis**

Hours 3

Advanced graduate statistic course meant to educate about the statistical analysis tools for analyzing binary and categorical data.

Prerequisite(s): PY 602 and PY 603 and PY 607

**PY615 Structural Equation Modeling**

Hours 3

This course will provide you with an introduction to the theory and application of structural equation models. Structural equation models are a class of statistical techniques that incorporate regression analysis, path analysis, confirmatory factor analysis, and full scale models incorporating both measurement and structural components. These techniques are useful for both experimental and non-experimental data; for cross-sectional datasets; for multiple-group comparisons; and for longitudinal datasets, including the modeling of growth curves.

Prerequisite(s): PY 602 and PY 603 or any equivalent course Some knowledge on ANOVA, Multiple Regression, and Multivariate Data Analysis

**PY616 Multilevel Modeling**

Hours 3

Given the nature of the nesting data structure in social science including psychology (e.g., patients are nested within the clinicians), it is crucial to know how to handle the data dependency when analyzing this kind of nesting structured data. This course is designed to teach students the concept of MLM and the statistical technique to analyze the data appropriately.

Prerequisite(s): Students are expected to have taken: PY 602 and PY 603 or any equivalent courses. Students are expected to have some knowledge in ANOVA and Multiple Regression. Students who have not taken the required courses have to meet with me before they register for this course.

**PY617 Supervision, Consultation and Interprofessional Skills**

Hours 3

This course is designed to expose students to the current body of research on clinical supervision and professional consultation in clinical Psychology in order to prepare them for the role of supervisor.

Prerequisite(s): 2nd year clinical psychology graduate student.

**PY618 Statistical Consulting**

Hours 3

Students in this course will be introduced to statistical consulting techniques useful for work with researchers and policy makers in university and/or industry. This course is especially designed to improve student's real-world problem solving skills through experiential learning opportunities. Students are expected to have some knowledge in ANOVA, Multiple Regression, Multilevel Modeling, and Structural Equation Modeling.

Prerequisite(s): PY 602 and PY 603

**PY619 Prin Of Psychotherapy**

Hours 3

The study of psychotherapeutic processes, outcomes, and systems, with particular attention given to the operations common to all approaches.

**PY621 Psychotherapy Laboratory**

Hours 1

A skills-building seminar emphasizing interview and communications techniques. Introduction to practicum.

**PY625 Contemp Issues Research**

Hours 1

Current issues relating to research in cognitive and individual differences are presented and discussed.

**PY629 Biological Bases of Behavior**

Hours 3

The study of brain mechanisms of perception and thought through a variety of methodological approaches (e.g., lesions, brain imaging, and normal subject experiments).

**PY630 Affective Neurophysiology**

Hours 3

This course will provide an overview of the principles, theory, and applications of human affective neurophysiology. The course will provide an introduction to theory and research in major areas of affective neuroscience, including cross-level integration of anatomical, affect, and physiology data. The course will provide an introduction to laboratory techniques and methodological principles in human affective neurophysiological methods. Readings will come from the texts as well as relevant selections from the current literature. The course will involve a combination of lecture, discussion, demonstrations, and laboratory exercises.

Prerequisite(s): PY 629

**PY631 Practicum In Psych I**

Hours 1-3

Supervised experience in psychotherapeutic procedures in an approved clinical facility; seminars and case conferences.

**PY632 Advanced Health Practicum**

Hours 1-3

This course is an advanced clinical practicum course designed to provide specialized training in Clinical Health Psychology. Practicum involves providing assessment and treatment for clients with overlapping health concerns (e.g., pain, sleep, cancer) and/or who could benefit from Clinical Health interventions such as stress management, lifestyle behavior change, excessive illness behavior, treatment and prescription adherence/optimization, etc. Clients may be seen through the clinic and/or through an external placement in the community. Students who have previously successfully completed Health Practicum (e.g., 4th year students who have met the performance criteria below) may choose to serve as peer consultants for third year students who are currently completing the practicum. All practicum activities are supervised by the practicum instructor.

Prerequisite(s): Successful completion of PY 631 Basic Practicum and good standing in the Department of Psychology at the third year of graduate study or above.

**PY633 Pract In Psych III**

Hours 3

Supervised experience in psychotherapy in groups.

**PY639 Practicum In Psych IX**

Hours 1-3

Intensive experience with a variety of child and family disorders and therapy techniques. Exposure to interdisciplinary treatment settings and personnel.

**PY641 Adv Clinical Placement**

Hours 1-3

Supervised experience in an approved setting. Primary clinical supervision by faculty or licensed psychologist at a placement facility.

**PY642 Practicum Psychology XI**

Hours 1-3

Supervised experience in clinical geropsychology.

**PY647 Social and Emotional Development**

Hours 3

The field of children's social development is rich in its theoretical foundations, history, methodology, and connections to applied and policy issues. The purpose of this graduate course is to provide an overview of current theory and research on social and emotional development. The emphasis will be on issues and questions that have dominated the field over time and that continue to provide impetus for research. The goal is to provide a foundation for your later coursework and research by introducing you to a broad range of topics, theories, and studies rather than to give in-depth coverage of any area.

**PY648 Cognitive Development**

Hours 3

The goal of this course is to facilitate intelligent discussion of the most influential and current research in the field of cognitive development. Students will read peer-reviewed empirical articles, intelligently discuss the implications of the science in informing the public's knowledge of cognitive development, and conduct their own study into one specific area of cognitive development. Students will advance their writing and critical thinking skills by writing a research proposal to further explore an area of cognitive development.

**PY650 Cognition And Learning**

Hours 3

Contemporary approaches to cognition and learning. A broad survey, with in-depth looks at selected topics including attention and memory.

**PY652 Affect and Lifespan Development Psychology**

Hours 3

This course will provide an overview of theories and empirical research on a range of different topics in life-span developmental psychology. In the first part of the course, we will discuss various theories of developmental psychology. Theories of Developmental Psychology (6th Edition) along with additional readings made available via Blackboard will be the text for this first section of the course. In the second part of the course, we will explore empirical findings related to cognitive, affective, and social bases of behavior across the lifespan.

**PY654 Seminar in Developmental Psychology**

SP

Hours 3

Course will provide an overview of current theory and research on social and emotional development.

Prerequisite(s): Graduate student in Psychology doctoral program.

Permission of department.

Special Topics Course

**PY655 Seminar in Cognitive Psychology**

SP

Hours 3

Course provides in-depth coverage of current research in the area of cognitive Psychology.

Special Topics Course

**PY656 Seminar in Social Psychology**

SP

Hours 3

Course will provide an overview of issues in the scientific study of emotions, with a focus on neuroscience, social, and cognitive approaches.

Prerequisite(s): Graduate student in Psychology doctoral program. Permission of department.

Special Topics Course

**PY658 Psychopathology**

Hours 3

A survey of manifestations of abnormal behavior, and the diagnosis of abnormal behavior and mental disorders.

**PY664 Seminar in Psychometrics**

SP

Hours 1

Overview of Psychometric principles used to evaluate psychological test instruments.

Special Topics Course

**PY666 Child Psychopathlg Treat**

Hours 3

Examines diagnosis and treatment of childhood disorders from empirical, theoretical, and practical standpoints.

**PY669 Sem Clinic Child Psych**

Hours 1

Issues in research and practice of clinical child psychology.

**PY670 Perception And Action**

Hours 3

An introduction to issues and concepts in the study of perception. Fundamental theoretical and empirical controversies are analyzed.

**PY671 History/Systems In Psych**

Hours 3

Systematic points of view placed in historical perspective.

**PY672 Adv Social Psychology**

Hours 3

Major aspects of social psychology including attitude change, attribution theory, aggression, altruism, prejudice, interpersonal relations, and group dynamics.

**PY676 Criminal Forensic Assessment**

Hours 3

Familiarizes students with relevant issues in criminal forensic assessment and introduces them to current forensic assessment instruments.

**PY678 Forensic Psychology**

Hours 3

The application of clinical psychology to forensic and legal issues. Competency to stand trial, criminal responsibility, testamentary capacity, jury decision making and dynamics, jury selection, and expert witness testimony.

**PY679 Sem In Psychology-Law**

Hours 1

Issues in research and practice of psychology as related to the law.

**PY687 Clinical Psychology Of Aging**

Hours 3

A survey of clinical geropsychology including review of major disorders experienced by older adults, assessment issues, and treatments used in work with older adults.

**PY688 Sem Adult Clinic Psych**

Hours 1

Issues in research and practice related to adult clinical psychology.

**PY690 Cultural Competency**

Hours 3

This seminar emphasizes the role of ethnicity, class, culture, gender, sexual orientation, and disability in mental health, and the impact of these factors on assessment, diagnosis, and treatment.

**PY693 Seminar:Adv General Py**

SP

Hours 1-3

Seminar:Advanced General Psychology.

Special Topics Course

**PY694 Behavioral Medicine**

Hours 3

This course intended to provide foundational knowledge in Behavioral Medicine. The course will focus on scientific knowledge of the interrelationships among behavioral, emotional, cognitive, social and biological components in health and disease as they relate to the promotion and maintenance of health and the prevention, treatment and rehabilitation of illness and disability. The course will examine the typical populations that are the focus in Behavioral Medicine research and intervention. Thus, assessment of and intervention with chronic disease (HIV/AIDS, cancer, heart disease, chronic pain, diabetes etc.) as well as acute health problems will be covered.

**PY695 Teaching Of Psychology**

Hours 3

Principles of teaching and supervised experience.

**PY698 Graduate Research**

Hours 1-6

Independent research by the advanced graduate student.

**PY699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree [or Ph.D. degree in your field]. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**REL501 Social Theory and Religious Studies**

Hours 3

This three credit hour graduate seminar introduces students to terms and ideas from social theory and their relevance to the academic study of religion. Throughout the course, students will apply theories to analyze examples relevant in Religious Studies, both ancient and modern. Each student will also select an important work in their chosen field of study in consultation with their advisor and analyze that work in depth in relation to the various issues discussed in the course.

Prerequisite(s): None, except admission to degree program

**REL502 Public Humanities and Religious Studies**

Hours 3

This graduate seminar introduces students to public humanities and digital humanities approaches to the study of religion. Students learn methods and tools for conducting digital research and explore ways to communicate theoretical and religious studies research to public audiences through digital media. Students are introduced to a number of digital tools for research, scholarly communication, and public engagement and will work to apply those tools to their individual research interests and goals.

Prerequisite(s): None, except admission to degree program

**REL503 Methods for the Digital Study of Religion**

Hours 1

This graduate seminar introduces students to methods for the digital study of religion with a focus on the interfaces that enable computationally mediated scholarship. Students will tackle two core issues in digital scholarship: the development of computational research questions and the design and creation of digital text. Each student will develop a proof of concept for a computation-driven research question in their chosen field of study and a web page that introduces their project idea. The course is structured around a series of intensive, hands-on and collaborative workshops, the first focused on questions of computation and the second on web development.

**REL504 Special Topics in Religion in Culture**

SP

Hours 3

To illustrate the gains of applying social theory to the study of religion, this course will draw upon current examples to study in light of the skills gained in the social theory foundations course. Specific content will be determined by faculty responsible for the course each semester. This course may be repeated for a maximum of 9 hours for differing topics.

Prerequisite(s): None, except admission to degree program

Special Topics Course

**REL511 History of Religious Studies**

Hours 3

This graduate seminar surveys the origins, objects of study, and pivotal thinkers that scholars often highlight when outlining the historical development/current shape of Religious Studies. By course end, each student will narrate the study of religion in light of their own research interests.

**REL512 Debates in Method and Theory**

Hours 3

This graduate seminar will acquaint students with contemporary debates and authors, emphasizing the work of a newer generation of scholars, in order to consider more closely the tools that scholars use to study religion, the various contexts in which they carry out their work, and some of their wider implications.

**REL521 Self & Society**

Hours 3

This graduate seminar introduces students to terms and ideas related to constructions of the self and society and their relevance to the academic study of religion. Towards the end of the semester, a specific case study will serve as a site where students will apply theories discussed to analyze examples relevant in Religious Studies. Each student will also select an important work or issue in their chosen field of study in consultation with their advisor and analyze that work in depth in relation to the various issues discussed in the course.

**REL522 Power & Persuasion**

Hours 3

This graduate seminar introduces students to terms and ideas related to expressions of power and persuasion and their relevance to the academic study of religion. Throughout the course, a specific case study will serve as a site where students will apply theories discussed to analyze examples relevant in Religious Studies. Each student will also select an important work or issue in their chosen field of study in consultation with their advisor and analyze that work in depth in relation to the various issues discussed in the course.

**REL523 Discourse & Practice**

Hours 3

This graduate seminar introduces students to terms and ideas related to discourse and practice and their relevance to the academic study of religion. Throughout the course, students will apply theories to analyze examples relevant in Religious Studies, both ancient and modern. Each student will also select an important work in their chosen field of study in consultation with their advisor and analyze that work in depth in relation to the various issues discussed in the course.

**REL524 Past & Present**

Hours 3

This graduate seminar introduces students to terms and ideas related to the construction of the past and its relation to the present and their relevance to the academic study of religion. Throughout the course, students will apply theories to analyze examples relevant in Religious Studies, both ancient and modern. Each student will also select an important work in their chosen field of study in consultation with their advisor and analyze that work in depth in relation to the various issues discussed in the course.

**REL525 Identity & Place**

Hours 3

This graduate seminar introduces students to terms and ideas related to issues of identification and place and their relevance to the academic study of religion. Throughout the course, a specific case study will serve as a site where students will apply theories discussed to analyze examples relevant in Religious Studies. Each student will also select an important work or issue in their chosen field of study in consultation with their advisor and analyze that work in depth in relation to the various issues discussed in the course.



**REL560 Independent Study in Social Theory in Religious Studies**  
*SP*

Hours 1-9

This variable credit hour graduate course provides students with the opportunity to pursue a topic of their choosing in relation to social theory and its relevance to the academic study of religion. Throughout the course, students will meet with the professor to select and discuss readings and writing assignments.

Prerequisite(s): None, except admission to degree program

Special Topics Course

**REL561 Independent Study in Social Theory in Religious Studies**  
*SP*

Hours 1-9

This variable credit hour graduate course provides students with the opportunity to pursue a topic of their choosing in relation to social theory and its relevance to the academic study of religion. Throughout the course, students will meet with the professor to select and discuss readings and writing assignments.

Prerequisite(s): None, except for admission to degree program

Special Topics Course

**REL565 Religion in Culture Applied**

Hours 1-9

This course reflects the Department's aim to help prepare students with a wide variety of research and professional interests for futures beyond their M.A. To that end, the Department has established relationships with a variety of offices on- and off-campus whose workplaces rely on the kinds of skills students learn in the M.A. degree program. When students sign up for this course, they will be assigned to a supervisor working in one of these professional settings. This assignment will consist of participating in at least five hours per week of hands-on training, while also applying the analytical and digital skills gained in their M.A. coursework. Various projects will be determined by the supervisor overseeing the graduate student's work, in conversation with the Graduate Director. By the end of the semester, the student will have not only completed a number of site-specific tasks but also written at least one blog post for the Department's website synthesizing their take-aways from the experience.

**REL580 Academic Writing in the Study of Religion**

Hours 3

The purpose of this seminar is to shape a piece of each student's critical writing into publishable form. To this end the class will be run as a workshop, with the students' own writing as the primary material. On days when there is focus on a single student's essay, another class member will be assigned to present that essay to the class, by identifying its thesis, describing its situation in a larger critical field of religious studies, and outlining its argument. At other times students will be asked to bring in pieces of their essays for more intense focus. At the end of the class each student will submit their essay to a refereed journal in the academic study of religion.

**REL590 Capstone Seminar in Social Theory in Religious Studies**  
Hours 3

In this culmination class experience, normally enrolled in final Spring semester, students will present their ongoing original thesis research for the purposes of soliciting feedback from the instructor and classmates. In light of the feedback, students will respond and revise their work. Having begun the degree with two common foundations courses (one on social theory and one on public humanities digital skills), students in this course will integrate and apply the skills learned throughout the degree.

Prerequisite(s): None, except admission to degree program

**REL599 Religious Studies Masters Thesis**

Hours 1-9

This independent research course which partially fulfills required master's-level thesis hours for students completing a formal thesis project as part of their degree program. The course is conducted under the guidance of the student's thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field. Research projects will result in the production of an article length essay or equivalent digital project (as approved by the thesis advisor), as well as an oral presentation of the research. Students will meet regularly with the thesis advisor throughout the semester during which the course is undertaken.

**RL514 Qualitative Methods in Applied Linguistics Research**

Hours 3

In this course, students will explore procedures commonly used within a qualitative research framework in applied linguistics and second language studies. Students will examine a range of qualitative research methodologies, such as case study, narrative inquiry, participant observation, interviews, questionnaires, discourse analysis and experience collecting data through selected methods. We will discuss the Institutional Review Board process, the general organization of a research report and how qualitative research evidence can be evaluated. Critically examination of published research will enable students to reflect on the connection between research questions, data collection instruments, and analysis procedures. Students will develop their own research proposal using one of the qualitative research methodologies discussed in the course.

**RL515 Topics in Second Language Acquisition***SP*

Hours 3

Topics vary. Analysis of major issues, theories, research findings and their implications for teaching. Examples: second language reading, emotions in second language acquisition. May be repeated for credit.

Special Topics Course

**RL518 Historical Linguistics**

Hours 3

Advanced introduction to various levels of historical language change. Variety of language families used for examples.



**RL523 Quantitative Methods in Linguistics Research**

Hours 3

In this course students are introduced to statistical methods that are commonly used in quantitative linguistics research, with examples drawn from a variety of languages and dialects. In doing so, they will gain an understanding of the types of computations involved, as well as a familiarity with some of the software currently used in statistical analysis. Students will also gain experience in how to interpret and explain statistical findings in relation to data sets. The goals of this course are to prepare students to be conversant in basic statistical methods in order to understand published research findings in linguistics, to discuss research design with statistical consultants, and to conduct their own field research projects, targeting any language or dialect, according to common data collection techniques. The course is repeatable for credit when curriculum varies.

**RL524 Bilingualism Research Methods**

Hours 3

A critical component of any research is making sure that it is centered upon a sound methodological base. When it comes to studying languages and the speakers of those languages, there are many challenges that are specific to researching bilingualism, and it is important to take into account all the unique considerations. This course serves as a general overview of common issues and best practices in bilingualism research, and it also provides hands-on training for how to go about designing an experimental study on bilingualism, collecting quantitative data, and analyzing the results both descriptively and using statistical tests.

**RL557 Critical Theory**

Hours 3

Study and critical application of literary theory.

**RL570 Graduate Seminar**

Hours 3

Topics may be in literature, linguistics, civilization, or a combination. Topics may pertain solely to one or more of the Romance Languages or to an array of languages including one or more of the Romance Languages. May be repeated for credit.

**RL580 Special Topics**

SP

Hours 3

Topics may be in literature, linguistics, civilization, or a combination. Topics may pertain solely to one or more of the Romance Languages or to an array of languages including one or more of the Romance Languages. May be repeated for credit.

Special Topics Course

**RL586 Pragmatics**

Hours 3

Broadly defined, pragmatics is the study of the use of language in context, including interlocutors, the time, place, and topic of the communication situation, and shared community rules for performing in an appropriate way according to the above parameters. During this graduate level introduction to pragmatics, some of the typical topics explore main theories around relating to others in socially and contextually appropriate ways, politeness, relevance, cooperation and taking turns in conversation, and cross-cultural and sociocultural variation.

**RL587 Bilingualism**

Hours 3

The majority of the world speaks more than one language. This linguistics course explores the myths and realities of being bilingual. Areas of study include how to define the term, bilingual first language acquisition, and other cognitive and/or psycholinguistic aspects regarding individuals who speak more than one language. This course also touches upon the best methods for conducting research on bilingualism.

**RL598 Non-Thesis Research**

Hours 1-12

Non-thesis research.

**RL599 Thesis Research**

Hours 1-12

Thesis research.

**RL680 Special Topics**

SP

Hours 3

Topics may be interdisciplinary or language-specific. Topics may include literature, linguistics, culture or a combination. A special topics course in Italian or Italian studies is offered on occasion. May be repeated for credit.

Special Topics Course

**RL698 Non-Dissertation Doctoral Research**

Hours 1-9

This independent study course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of an advisor, leading to the production of a prospectus for the doctoral dissertation. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field. Credit hours may vary in accordance with a number of factors, but typically the doctoral candidate must be enrolled in a minimum of 3 credit hours every fall and spring semester until the dissertation has been successfully defended and submitted to the Office of the Graduate School.

Prerequisite(s): There are no specific course prerequisites. However, the enrollee must have completed or nearly completed all required coursework and must be engaged with the creation of the dissertation prospectus.

**RL699 Dissertation Research**

Hours 1-15

Dissertation research.

**SP502 Practicum in Applied Linguistics**

Hours 3

In-depth analysis of fundamental concepts in foreign language learning and teaching. Topics include grammar and vocabulary acquisition, classroom discourse, reading and listening comprehension, writing and principles of language testing.

**SP503 Reading Proficiency in Spanish I**

Hours 3

Introduction to Spanish grammar and vocabulary, with emphasis on developing basic reading and translation skills.

**SP515 Spanish American Colonial Texts**

Hours 3

In-depth study of texts from the colonial period, with emphasis on colonialism and the role of writing in colonization and decolonization. Readings may vary. May be repeated for credit when the content varies substantially.

**SP516 19th-Century Spanish American Literature**

Hours 3

In-depth study of major literary works of the period, with emphasis on Romanticism, social Romanticism, and Romantic realism. Readings may vary. May be repeated for credit.

**SP521 19th-Century Spanish Prose**

Hours 3

Reading and discussion of complete texts representative of the literary movements of the period; lectures and reports.

**SP523 Quantitative Methods Span Ling**

Hours 3

In this course students are introduced to statistical methods that are commonly used in quantitative linguistics research, including Hispanic linguistics. In doing so, they will gain an understanding of the types of computations involved, as well as a familiarity with some of the software currently used in statistical analysis. Students will also gain experience in how to interpret and explain statistical findings in relation to data sets. The goals of this course are to prepare students to be conversant in basic statistical methods in order to understand published research findings in linguistics, to discuss research design with statistical consultants, and to conduct their own field research projects focusing on Hispanic linguistics according to common data collection techniques. The course is repeatable for credit when curriculum varies.

**SP524 Bilingualism Research Methods**

Hours 3

A critical component of any research is making sure that it is centered upon a sound methodological base. When it comes to studying languages and the speakers of those languages, there are many challenges that are specific to researching bilingualism, and it is important to take into account all the unique considerations. This course serves as a general overview of common issues and best practices in bilingualism research, and it also provides hands-on training for how to go about designing an experimental study on bilingualism, collecting quantitative data, and analyzing the results both descriptively and using statistical tests.

**SP526 20th-Century Spanish Novel Post Civil War**

Hours 3

Reading and discussion of texts representative of the literary movements of the period. Lectures, discussions, and reports. May be repeated for credit.

**SP527 Spanish Women Authors**

Hours 3

This course explores texts that were created from a female perspective. A selection of short stories, novels, plays, films, and poems by Spanish women writers, artists and filmmakers are covered throughout the semester. Students will discuss representative women authors and analyze how their works represent changes in feminine preoccupations. Repeatable for credit when subject matter varies.

**SP528 Historical Memory in Spain**

Hours 3

In-depth study of the relationship between history, memory, fiction and identity in Spain. This seminar will explore the reconstruction of the Spanish Civil War and dictatorship as depicted in literature and film.

**SP530 Contemporary Iberian Culture**

Hours 3

Topics will include: National Identity, Immigration, Social Changes, Economic Crisis and Family Dynamics. May be repeated for credit when topics vary.

**SP537 Gender in Hispanic Works**

Hours 3

This course offers a critical approach to Hispanic works by analyzing significant trends in cultural understandings and representations of gender in society. Repeatable for credit when topics vary.

**SP538 Spanish American Short Story**

Hours 3

This course offers a critical approach to an extensive corpus of representative texts belonging to the Latin American short story genre. It seeks to provide a theoretical model that understands central aspects of the genre within the context of the formation of national States, for which literature, and literary genres and movements (Romanticism, Realism, and Naturalism) become agents for social change. Repeatable for credit when topics vary.

Prerequisite(s): This course is needed to fill out offerings in the area of Latin American literature.

**SP540 Honor Codes in Hispanic Societies**

Hours 3

This course is a graduate seminar on Spanish literature. This interdisciplinary course examines the origins and evolution of honor in Spain throughout history, as well as the courtly archetype of masculinity that was its center. Students will discuss some of the most representative authors who write about honor issues and analyze how their work represents the creation of a societal honor code, the requisites it demands of Spaniards as well as the effects of its fulfillment – and unfulfillment – for men and women. Through these canonical works students will assess both the rigidity as well as fragility of said code, revealing how easily it may be broken, paradoxically, by following its own precepts.

**SP556 Introduction to Spanish Linguistics**

Hours 3

Linguistic theory applied to the analysis of the Spanish language. Topics include phonology, morphology, syntax, semantics, and language change and variation.

**SP570 Special Topics Spanish Ling**

SP

Hours 3

Students are to examine various topics related to Spanish linguistics. Specific topics may be primarily theoretical, applied or descriptive in nature, or a combination, and may be narrowly focused or may pertain to a wide variety of dialects. Weekly in-class discussions based on readings and other assigned activities prepare students for the final project, which is typically both oral and written and which involves the application of the various theoretical, critical and methodological approaches acquired in the seminar.

Special Topics Course

**SP571 Spanishes in the Public Sphere**

Hours 3

Students are to examine various topics related to Spanish language use in public spaces and in media, and related language attitudes. Ideologies about dialect variation, globalization, and standardization are explored. Specific topics may be primarily theoretical or descriptive in nature, or a combination, and may be narrowly focused or may pertain to a wide variety of dialects. Weekly in-class discussions based on readings and other assigned activities prepare students for the final project, which is typically both oral and written and which involves the application of the various theoretical, critical and methodological approaches acquired in the course. Repeatable for credit when topics vary.

**SP572 Spanish in Contact**

Hours 3

In this course, the development of the Spanish language in a variety of contexts is considered from the perspective of language contact. That is, theoretical and methodological approaches to Spanish language contact are examined according to different geographical regions (Spain, Latin America, United States), to different languages in contact (Indoeuropean languages, autochthonous languages, indigenous languages, other language families), and to different types of outcomes of contact (regional variants, mixed languages, creoles). Both foundational research on language contact and more recent research are reviewed. Examination of internal and external factors that contribute to Spanish language variation and change are discussed.

**SP580 Seminar Spanish Linguistics**

Hours 3

Students are to examine various topics related to Spanish linguistics, theoretical or applied. Weekly in-class discussions based on readings and other assigned activities prepare students for the final project, which is typically both oral and written and which involves the application of the various theoretical, critical and methodological approaches acquired in the seminar.

**SP581 Topics in Second Language Acquisition**

SP

Hours 3

Analysis of major issues, theories, research findings, and their implications for teaching. Examples: second language reading, classroom language acquisition, input/output, acquisition of pragmatics. May be repeated for credit.

Special Topics Course

**SP582 Syntax**

Hours 3

This seminar serves an introduction the linguistic discipline of theoretical syntax. The objective will be to present the basic notions of a generative grammar. This will be accomplished by studying universal linguistic principles, while also understanding linguistic variation via the systematic options provided by such principles. Specifically, the course will cover the elementary syntactic aspects of phrase structure, the lexicon, Case theory, and movement; it will also include more advanced topics, such as covert movement, locality conditions, control, auxiliaries, ellipsis, and so on.

**SP584 Phonetics and Dialectology**

Hours 3

Detailed examination of Spanish phonetics including dialectal variations.

**SP585 History of the Spanish Language**

Hours 3

This course provides students with an examination of the evolution of Spanish from Latin to modern Spanish. Both internal and external factors will be addressed, including sound change, word formation, syntax and vocabulary, as well as influence from other languages. In doing so, students will be able to observe how variation in earlier forms of Spanish has led to the creation of different dialects found in modern Spanish. Students will also have the opportunity to analyze medieval and classical Spanish texts in order to trace the development of Spanish along different levels of linguistic analysis. The role of orthography at the various stages of evolution will also be addressed. Taught in Spanish.

**SP586 Pragmatics**

Hours 3

Pragmatics is the study of the use of language in context, including interlocutors, the time, place, and topic of the communication situation, and shared community rules for performing in an appropriate way according to the above parameters. During this introduction to pragmatics, some of the typical topics explore main theories around relating to others in socially and contextually appropriate ways, politeness, relevance, cooperation and taking turns in conversation, and cross-cultural and sociocultural variation.

**SP587 Bilingualism**

Hours 3

The majority of the world speaks more than one language. This linguistics course explores the myths and realities of being bilingual. Areas of study include how to define the term, bilingual first language acquisition, and other cognitive and/or psycholinguistic aspects regarding individuals who speak more than one language. This course also touches upon the best methods for conducting research on bilingualism.

**SP588 Dialectology**

Hours 3

In this course, variation in Spanish is studied from a dialectal perspective, which incorporates examination of geographic differences in Spanish at the lexical, phonological, and morphosyntactic levels. Related sociopolitical contexts in which the dialects have developed are considered. The role of dialectology in the broader analysis of language variation and change is also addressed. Research methodology in dialectology is discussed in relation to language use in the regions of origin and among the Spanish-speaking diaspora. Taught in Spanish.

**SP589 Sociolinguistics**

Hours 3

In this course, the use of Spanish in the Spanish-speaking world is explored from a variety of perspectives within the field of sociolinguistics. Spanish language variation and change is examined at the sound, word, and phrase levels, along with the social factors that contribute to this change (e.g., age, education, gender, and language attitudes). The specific role of languages in contact and bilingualism within the Spanish-speaking world is also addressed. Taught in Spanish.

**SP590 Open Topics**

SP

Hours 3

Special topics courses, with variable subject matter, relating to any area of Spanish language, literature, culture or linguistics/ Repeatable for credit because topics vary.

Special Topics Course

**SP591 Cervantes**

Hours 3

Works of Cervantes.

**SP593 16th-Century Peninsular Literature**

Hours 3

Reading and discussion of selected works of the period.

**SP594 17th-Century Peninsular Literature**

Hours 3

Reading and discussion of selected works of the period.

**SP598 Non-Thesis Research**

Hours 1-6

*No description available***SP599 Thesis Research**

Hours 1-9

*No description available***SP600 Research / Directed Readings**

SP

Hours 1-6

May take the form of either a graduate seminar or individual research, as circumstances warrant.

Special Topics Course

**SP689 Seminar on Spanish American Literature**

Hours 3

Seminar on Spanish American Literature.

**SP698 Non-Dissertation Doctoral Research**

Hours 1-9

This independent study course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of an advisor, leading to the production of a prospectus for the doctoral dissertation. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field. Credit hours may vary in accordance with a number of factors, but typically the doctoral candidate must be enrolled in a minimum of 3 credit hours every fall and spring semester until the dissertation has been successfully defended and submitted to the Office of the Graduate School.

Prerequisite(s): There are no specific course prerequisites. However, the enrollee must have completed or nearly completed all required coursework and must be engaged with the creation of the dissertation prospectus.

**SP699 Dissertation Research**

Hours 1-15

*No description available***TH515 Properties Construction**

Hours 3

A studio course which allows exploration into woodworking, metal working/welding, foam sculpting, casting, upholstery, Photoshop and any other process required to create stage props. Lab fee, \$25.00.

**TH516 Rigging Fundamentals for Theatre**

Hours 3

This course covers the theories and analysis of rigging systems, their design and engineering as well as practical implementation and operation. This course is intended for the student that already has been exposed to standard theatrical production concepts and methodologies. Furthermore, a large portion of the subject matter of the class deals in scientific theory and computations so competency in basic mathematics, algebra, and basic physics are essential.

**TH519 Electricity and Electronics for the Stage**

Hours 3

This course provides study and studio work in aspects of electricity and electronics with reference to understanding, usage, and design of systems for theatrical production. This course will cover the essential concepts of electrical theory for both AC and DC systems. The student will not only be exposed to theory, but will also have hands-on experience. As a large portion of the subject matter of the class deals in scientific theory and computations, competency in basic mathematics and algebra is essential.

**TH520 Technical Direction**

Hours 3

This course will provide students with an overview of the technical design, construction techniques, and the administrative and management functions that are a part of the field of technical direction.

**TH521 Period Decor**

Hours 3

A survey of period architecture, ornament, and furniture as applied in the stage designer's research.

**TH523 Drafting For Theatre**

Hours 3

A studio course concentrating on traditional technical drafting techniques as applied to the theatre. Skills learned will include orthographic and isometric projections, ground plans, sections, perspective drawing, and layout.

**TH525 Scene Painting**

Hours 3

A studio art course in the materials and techniques of painting and carving surfaces for stage scenery. Lab fee: \$25.

**TH526 Sound Prod Tech Th Dn**

Hours 3

A course providing a working knowledge of sound production, with an emphasis on the creation of sound files for theatre and dance and the setup and maintenance of sound reproduction and modification equipment. Lab fee, \$25.00.

**TH527 Computer Drafting For Theatre**

Hours 3

A studio course exploring the creation of technical drawings through Computer Aided Drafting. Skills learned will include commands for drawing, layout of information, and other CAD techniques.

**TH528 Drawing and Rendering**

Hours 3

A studio course in drawing and painting architectural and natural environments appropriate for a variety of stage settings. Exploration of media to render light, color, and texture.

**TH530 Hy Costume For Stage**

Hours 3

A historical study of civil costume in relation to costuming for the stage.

**TH531 Costume Construction I**

Hours 3

A studio course in patterning, cutting, and constructing costumes for the stage. Additional hours in related theatre activities are required. This course has a \$20 lab fee to cover materials ordered by the professor for use in the classroom as well as to help cover maintenance fees for equipment used.

**TH532 Costume Draping & Drafting Techniques**

Hours 3

Bodice, skirt, sleeve, and torso slopers will be created and manipulated through drafting techniques. Patterns will be created from muslin draping techniques. Examination of designer sketches, fashion/movie/theatre photos and research images to determine how they should be patterned as well as the fabric yardage needed for each garment.

Prerequisite(s): TH 531

**TH533 Basic Problems in Costume Design**

Hours 3

A studio course in costume design principles and presentation for stage costumes.

**TH535 Presentation for Designers**

Hours 3

The study and development of professional presentations for theatre artists. This includes, but is not limited to, "hard" portfolios, digital portfolios, exhibits and personal presentations.

**TH536 Fabric Modification**

Hours 3

This course explores and introduces a variety of techniques in which to modify the original appearance and/or intent of fibres and fabrics. This is done through the use of various dyes/techniques, surface treatment, use of non-traditional materials and restructuring of fabrics.

**TH537 Drawing for Stage Designs**

Hours 3

A studio course for drawing the human figure in a variety of stage settings and period garments. Exploration of a variety of media to render light, shadow, and textures for all types of fabrics and hard surfaces.

**TH538 Problems in Theatre Arts: Costume Crafts**

SP

Hours 3

In this course the student will be pursuing a particular area of Costume Crafts as assigned by the sponsoring faculty member. The subject matter for the course will require the student to do research, experimentation, analysis or other academic pursuit to fulfill the goals that are proposed for the specific course instance for the particular student. The particular course offering will focus on design and fabrication practices needed to produce articles within the particular area such as wigs, millinery, fabric painting and dyeing, jewelry making, or other associated processes within Costume Crafts.

Special Topics Course

**TH540 Stage Movemnt Phys Acting**

Hours 3

An advanced course in Alexander Technique, body awareness, alignment, breathing techniques, physicalization, and physical characterization. May be repeated once for a maximum of 6 credit hours.

**TH541 Advanced Scene Study**

Hours 3

Advanced course in specific methodologies for character conception and projection. This course may be repeated twice for credit for a total of 6 hours, due to rotating theatrical material studied.

**TH542 Careers In Prof Theatre**

Hours 3

A course focusing on audition and interview techniques, unions, resumé writing, and other skills required to apply for positions in the academic and professional theatre.

**TH543 Script Analysis Interptn**

Hours 3

Theory and methodology of the textual analysis of playscripts for production. Offered every three years.

**TH544 Period Acting Styles I**

Hours 3

Study and practice of period acting styles.



**TH545 Period Acting Styles II**

Hours 3

A continuation of TH 544, usually focusing on verse drama, especially Shakespeare. This class may be repeated once for credit, as the material performed will rotate through period and style.

**TH546 Adv Voice Speech Perform**

Hours 3

This course will examine vocal anatomy and physiology, and vocal health and care for the performer's voice. Various methods and approaches to voice work using breath, text, speech work and study of the International Phonetic Alphabet. Students will explore their vocal development through exercises, drills, performance and use of heightened text language.

**TH547 Stage Dialects**

Hours 3

An advanced voice and speech course studying the phonetics of various dialects and accents used by actors needed to create certain roles. Students will apply the dialect/accent work to exercises, drills, and acting/performance projects.

**TH548 Rehearsal Process**

Hours 3

Acting course in which students analyze and participate in the rehearsal process with both unpublished and published scripts. May be repeated once for a maximum of 6 credit hours.

**TH551 Hist Of The Theatre I**

Hours 3

Beginnings to the Restoration. Offered every fall semester.

**TH552 Hist Of The Theatre II**

Hours 3

Restoration to the present. Offered every spring semester.

**TH554 Seminar Contemp Theatr**

Hours 3

An examination of trends and developments in the theatre and drama since the Vietnam Era. Offered every three years.

**TH555 Seminar Th Hy: Classic**

Hours 3

The theatre and drama of ancient Greece and Rome.

**TH558 American Feminist Theatre**

Hours 3

A seminar/survey of 20th century american feminist texts, critical essays and videos tracking the shifting focus of feminists theory, concerns and performance.

Prerequisite(s): TH 120

**TH561 Advanced Directing**

Hours 3

Through research, class discussions and presentations of various styles, theories and approaches to the craft and art of directing, students will apply new ideas and concepts in a practical, hands-on studio setting. This studio work will be augmented with the direction (selecting, proposing, casting and rehearsing) of a 10-minute play with minimal, "bare-bones" production value at the end of the semester.

Prerequisite(s): Graduate students must be in good standing and seek out the permission of both their individual program's director and the course's professor.

**TH570 Theatre Management**

Hours 3

Principles of management applied to the fields of theatre operation and production, with emphasis on marketing, development, budgeting, and organizational structure.

**TH575 The Singing Voice**

Hours 2

This class is designed to introduce students to basic concepts of vocal technique and musicianship through practical application.

**TH576 The Singing Voice - Intermediate**

Hours 2

This class is designed to further students' understanding of basic concepts of vocal technique and musicianship through practical application. Students will discuss various topics related to singing and will further explore those topics through performance. Students will give four solo performances over the course of the semester.

Prerequisite(s): TH 575

**TH582 Playwriting I Seminar**

Hours 3

A graduate level course in writing for the stage, from dramatic conception to finished full length script, with an emphasis on the identification and development of a writer's "voice." In subsequent semesters, students can explore other script forms (full length plays, one person shows, etc), so the class may be repeated for a maximum of six credits.

**TH583 Playwriting II Seminar***SP*

Hours 3

Advanced level seminar on writing for the stage, from dramatic conception to finished one act script, with a particular emphasis on the continuing development of a writer's voice and personal approach to story composition. Course can be retaken for credit to further develop scripts composed within this course; or study alternate forms of dramatic writing, including full length plays, screenplays and teleplays.

Prerequisite(s): TH 582

Special Topics Course



**TH585 Collaborative Theatre Practices**

Hours 1-3

In this course the student will be pursuing study in subject matters involving the collaborative theatre process. The specifics of a particular course offering will be assigned by the sponsoring faculty member. The subject matter for the course will require the student to do research, experimentation, analysis or other academic pursuit to fulfill the goals that are proposed for the specific course instance. The particular course offering will focus on a topic that will expose the student to specific collaborative methods found in the production of theatre.

**TH600 Advanced Practicum I**

SP

Hours 1-3

This course provides for participation in productions by graduate level students within Acting, Arts Management, Costume Design and Production, Design and Technical Production, Directing, Stage Management, or other areas.

Special Topics Course

**TH601 Advanced Practicum II**

SP

Hours 1-3

This course provides for participation in productions by graduate level students within Acting, Arts Management, Costume Design and Production, Design and Technical Production, Directing, Stage Management, or other areas.

Special Topics Course

**TH602 Internship**

Hours 1-10

Professional, practical application of various theatre specialities in conjunction with professional/commercial theatre companies.

**TH603 Advanced Practicum III**

SP

Hours 1-3

This course provides for participation in productions by graduate level students within Acting, Arts Management, Costume Design and Production, Design and Technical Production, Directing, Stage Management, or other areas.

Special Topics Course

**TH606 Stage Management I**

Hours 3

Advanced theory and practical application of stage management techniques and responsibilities.

Prerequisite(s): Permission of Instructor.

**TH615 Lighting Technology**

Hours 3

A thorough study of the technical aspects of stage lighting, including electricity, optics, color, control theory; implementation and maintenance of lighting fixtures, cables, and control equipment; and a thorough understanding of stage lighting science, terminology, technique, and professionalism.

**TH616 Lighting Design**

Hours 3

An advanced course covering the theory and practice of lighting design for the theatre, with an emphasis on the design process and execution.

**TH617 Projection Design**

Hours 3

Provide the graduate level design and technical student an in-depth understanding of the design methods of stage projection, including workflow; generation/acquisition of imagery; visual effects; video production; video systems; hardware; surfaces; and control.

**TH618 Lighting Design III**

Hours 1-3

A seminar involving the presentation of designs for various productions and preparation of problem-related demonstrations. May be repeated.

**TH620 Structural Design for Theatre**

Hours 3

This course will concentrate on mathematical problem solving, the study of structural design and its application to theatrical structures and an investigation of why we build scenery the way we do.

**TH621 History of Stage Design**

Hours 3

A survey of the history of stage design and the development of stage technology, suitable for all MFA design and technical students. Includes several historically related design and research projects.

**TH622 Scene Design I**

Hours 3

A studio course in scenic design for theatre. Students will design three or more plays learning analysis, drafting, drawing, painting, and building models.

**TH623 Scene Design II**

Hours 3

A studio course in scenic design building on the techniques learned in TH622. Emphasis on complete design drafting and the building of models.

**TH628 Prob Th Arts: Design**

Hours 1-3

An intensive study of the designer's responsibility involving design for varied forms of staging and design drafting.

**TH631 Costume Construction for Dance**

SP

Hours 3

A studio course in construction methods for making men's and women's classical ballet and other costumes specifically designed for dance. This class will cover topics in the patterning, fit, and construction of garments, including tutus, bodices, or other costume pieces.

Special Topics Course

**TH632 Costume Construction II**

Hours 3

A studio course in advanced costume construction and costume crafts. Included topics are tailoring, corsetry, millinery, armor, wigs, masks, and jewelry, both period and modern. May be repeated. Lab fee, \$25.00.

Prerequisite(s): TH 531

**TH633 Advanced Costume Draping & Drafting Techniques**

Hours 3

Male and Female torso body blocks will be created and manipulated through draping and drafting techniques. Patterns will be created from muslin drapes as well as drafting. Examination of professional designer sketches, Movie/theatre costume photos, period research, commercial patterns will be examined and evaluated to learn how to assess and interpret costumes. As topics may shift this course may be repeated.

Prerequisite(s): TH 531 and TH 532 or consent of instructor

**TH634 Costume Design for Music**

Hours 3

Course projects include costume designs for theatrical musicals, opera and dance. May be repeated.

Prerequisite(s): Instructor approval.

**TH635 Projects in Costume Design**

Hours 3

Projects focus on analysis, research and designs for personality and characters.

Prerequisite(s): none

**TH636 Costume Design through the Ages**

Hours 3

The student will be able to analyze a script and apply the principles of design to character appropriate costumes. Projects will include scripts representing time periods prior to 1900. May be repeated for credit.

Prerequisite(s): TH 635

**TH637 Period Costume Construction**

SP

Hours 3

A studio course in the patterning, fit, and construction of garments popular prior to the 20th century. Different periods of fashion will be covered in each course offering. Each course offering will allow for full development of patterning, fit, and construction for costume projects for a particular time period.

Prerequisite(s): TH 531 or TH 432 or TH 632

Special Topics Course

**TH638 Advanced Tailoring Techniques**

Hours 3

A studio course in both hand and machine tailoring techniques needed to produce high quality custom tailored garments for the stage. This includes, but is not limited to hand padding, machine padding, decorative and couture techniques.

**TH639 Prob Th Art: Costuming**

Hours 1-3

Study and studio work in a specialized area of costume design or technology.

**TH640 Prob Stage Move Phys Act**

Hours 3

Advanced theory and practice in stage movement topics such as Anatomy/Alexander Technique, Clowning, Mask, Laban Movement Analysis, Stage combat, Mime, etc. May be repeated for credit for up to 6 credit hours as topics differ.

**TH641 Alexander Technique Directed Study**

Hours 3

Private instruction in graduate level Alexander Technique. This course is designed to provide advanced, specialized work on movement re-education for the performer. Topics include, but are not limited to, alignment, balance, psychophysical coordination, and applied work.

Prerequisite(s): TH 540, or permission of the Instructor.

**TH642 Teaching Acting**

Hours 3

A course to provide practical experience in teaching and coaching actors, and developing methods and various approaches in teaching acting.

**TH643 Teaching Practicum**

Hours 1-3

A course covering the practical aspects of teaching, including syllabi preparation, course planning, and classroom experience.

Prerequisite(s): Permission of the Instructor.

**TH644 Advanced Teaching Practicum**

Hours 1-3

This course provides comprehensive training and experience in aspects of teaching courses in theatre. The subject matter will include course planning, course development, course presentation, and course evaluations.

Prerequisite(s): Permission of the Instructor

**TH649 Probs Th Arts: Perform**

Hours 3

Advanced theory and practical application of performance techniques.

**TH658 Probs Th Arts: Technology**

Hours 3

This course provides study and studio work in aspects of theatre technology. The subject matter will include a variety of aspects of theatre technology including electronics and electricity, physics and motion, automation and programming, or other state-of-the-art techniques.

**TH662 History of Directing and Stage Management**

Hours 3

Advanced theory and exploration of the history of modern Directing and Stage Management.

**TH663 Graduate Directing Studio I**

Hours 3

Advanced theory and practical application of directing techniques. As topics vary, this course is repeatable up to 9 credit hours.

Prerequisite(s): Permission of Instructor

**TH664 Graduate Directing Studio II**

Hours 3

Advanced theory and practical application of directing techniques. As topics vary, this course is repeatable up to 9 credit hours.

Prerequisite(s): Permission of Instructor

**TH669 Probs Th Arts: Directg**

Hours 1-3

Advanced theory and practical application of directing techniques.

**TH670 Fundraising and Development for Arts Managers**

Hours 3

Students will learn and subsequently apply the theories and practices to successfully acquire unearned revenue through annual and major gifts, corporate and foundation support, planned giving, capital campaigns and grant writing.

**TH671 Leadership in the Arts**

Hours 3

Students will develop and understanding of leadership theory and effective management practices and the ability to model and adapt their leadership, management styles and behaviors as situations change in arts organizations. Students will also develop perspective and coaching on how to apply the course materials to their current work situation and future work environment scenarios.

**TH672 Venue and Event Management**

Hours 3

Public assembly venue management represents one of the fastest growth areas in the sports, entertainment, meeting, and convention industries. With the construction of new arenas, stadiums, theaters, convention centers, and other venues, there are numerous job opportunities for properly trained individuals. This course will review and examine the principles and practices associated with managing a public assembly venue and the nature of the venue business. This is a comprehensive course designed to cover applied versus theoretical knowledge with an emphasis on assisting the student in understanding the concepts related to this professional field. In addition, this course will cover the process undertaken by event managers to plan all types of events from fundraising galas to conventions.

**TH673 Financial Management in the Arts**

Hours 3

There are two parts to this class. First, a study of the application and principles of microeconomics to the arts. The topics include supply, demand, cost, pricing, margin and the arts organization as a business entity. Second, the class will deal with the principles and practices of financial management applied to the arts enterprise. Analysis of financial statements and financial management function as it is applied to the arts will be examined.

**TH674 Public Policy In Arts**

Hours 3

A study of the history and manifestation of public arts policy in the United States, with emphasis placed on arts advocacy and public relations tactics and campaigns.

**TH675 Business Legal Issues In Arts**

Hours 3

An examination of legal requirements of nonprofit arts organizations, specifically addressing tax exemption, reporting of contributions, development considerations, and contemporary legal issues affecting artists.

**TH676 Marketing The Arts**

Hours 3

A study of contemporary marketing practices and how they are applied to the nonprofit arts organization. Special emphasis on marketing audits, forecasting, analysis, and campaigns.

**TH678 Board Relations and Planning in the Arts**

Hours 3

This course is an in depth study of the role and impact of a board of directors and the planning process in the operation of an arts organization. Specific topics covered will include board and staff interaction, board duties and responsibilities, fundraising, governance models, the strategic planning process, parliamentary procedures, board committee structures and developing bylaws and articles of incorporation.

Prerequisite(s): TH 570

**TH679 Probs Th Arts: Managmt**

Hours 1-3

Directed studies in specific arts management techniques and theoretical development of theatre projects. May be repeated for credit when the topic differs.

**TH690 Independent Study***SP*

Hours 1-6

Independent Study of topic found within theatre.

Special Topics Course

**TH695 Capstone Experience in Theatre**

Hours 3-6

This course is designed for an MFA student in Theatre to demonstrate their accumulated training and experience within their particular area of concentration. Areas of concentration are Acting, Arts Management, Costume Design and Production, Design and Technical Production, Directing, and Stage Management.

**TH698 Research Not Related to Thesis**

Hours 3

Research Not Related to Thesis.

**THMT574 Musical Theatre Voice (Graduate)**

Hours 1

Private Instruction. This class is designed to work on vocal technique, including but not limited to, breathing, resonance, coordination of vocal registers, and musical theatre repertoire.

Prerequisite(s): Permission of instructor.

**THMT674 Musical Theatre Voice (Graduate)**

Hours 1

Private Instruction. This class is designed to work on vocal technique, including but not limited to, breathing, resonance, coordination of vocal registers, and musical theatre repertoire.

Prerequisite(s): Permission of instructor.

**WS500 Independent Study**

SP

Hours 1-6

Independent study on any subject pertaining to women. Projects are conducted under the supervision of a professor in the chosen field and must be approved in advance by the program director.

Special Topics Course

**WS503 Teaching Gender & Race**

Hours 3

This course explores pedagogical theories and practices advanced by feminist and cultural studies scholars and teachers. Students read pedagogical works, attend sections of WS 200 and AAST 201, develop teaching modules and pedagogical philosophies, perform teaching demonstrations, and construct syllabi for courses. Meetings with other discussion leaders and supervisors are required in addition to written work.

**WS509 Memory, Identity and Politics: History, Gender, and Race**

Hours 3

Course Description: This interdisciplinary graduate seminar explores the ways in which memory and the past construct political identities and the interplay of race, class, gender, and ethnicity in its social construction through readings, discussion, and student research. Reading selections include core theoretical texts on memory studies and specific case studies on topics, including not but exclusive to the American Civil War memory, U.S. South, slavery, and Reconstruction. Issues and questions are: how memories are constructed, translated into identities and political action; bases of shared memories and contested memories; political memorialization and the effects of collective amnesia; and how "communities of memory" are developed, sustained, and dissolved.

**WS510 Special Topics**

SP

Hours 3

Seminar format. The course offers an interdisciplinary approach to topics, which vary by semester. Active student engagement, such as conducting an interview, is required. Sample topic: women in the world.

Special Topics Course

**WS518 Concepts in Social Theory: Approaches to the Study of Race**

SP

Hours 3

This course offers students an introduction to the main approaches to the study of race. Students begin by exploring the early approaches to sociology, both that of DuBois and the Chicago school. Students then develop an understanding of the work done by scholars in the Harlem Renaissance, the 1960s, and the contemporary period. The goal of the course is to provide students with the foundation for further research in the field of critical race theory.

Prerequisite(s): none.

Special Topics Course

**WS525 Feminist Theory Maj Text**

Hours 3

Seminar consists of close readings in feminist theory, with an emphasis on primary texts. Intellectual, cultural, and political theory.

**WS530 Feminist Theory-Contemp**

Hours 3

Considers major economic, social, psychological, and philosophical approaches to the study of women. Emphasis is on the formulation of theories and mastery of primary works in the field.

**WS532 Iss Prob Women Std Res**

Hours 3

This seminar focuses on interdisciplinary research and problems in methodology in Gender and Race Studies.

**WS535 Black Feminism**

Hours 3

This upper level undergraduate/graduate seminar exposes students to the key figures texts and concepts that constitute black feminist thought.

**WS540 Seminar Women Studies**

Hours 3-9

Topics vary each semester. Graduate students are required to conduct original research. The courses focus on such topics as language and gender, Southern women's culture.

**WS550 Introductory Seminar in Women's Studies**

Hours 3

The course provides students with an understanding of the important research interests within the discipline of Women's Studies. Concepts and problems in Women's Studies are addressed, with the goal of providing students with a history of the discipline as well as knowledge of contemporary debates in the field. The course is considered an overview and introduction for first year MA students.

**WS570 Transnational Feminisms**

Hours 3

Transnational Feminisms is a contemporary paradigm of study that moves beyond international conceptions of feminism to think across national borders by interrogating the intersections of nationality, race, gender, class, and sexuality in the context of global capitalism. This field works to decolonize the contested terrain of knowledge production upon gendered subjectivities are constituted and reconstituted within global relations of power and privilege. While globalization relies upon the heightened mobility of bodies, capital, commodities, technologies, and conceptual imaginaries across borders, it simultaneously requires the reconfiguration and reconstitution of the state, its bordering practices, and colonial and national hierarchies of social-spatial relations and their attendant binaries—self-other, first world-third world, traditional-modern, private-public, citizen-noncitizen. While a richly theoretical field, transnational feminisms provocatively engages with a feminist politics and practice attentive to feminism as both a liberatory formation and one with longstanding ties to colonialism, racism and imperialism. As such, it resists utopic ideas about "global sisterhood" while simultaneously working to lay the groundwork for more productive and equitable social relations among women across borders and cultural contexts.

**WS585 Special Seminar in the Study of Race, Gender, and Sexuality**

SP

Hours 3

This seminar is designed for the advanced study of race, gender, sexuality, and class. Students should expect to read the most complex of theoretical texts, a basic knowledge of some of the following: Hegel, Foucault, Marx, Liberal theory, Black feminist thought, feminist theory, psychoanalysis, and literary criticism is expected of each participant. The course will offer students the opportunity to develop their training in the topical area of choice by the professor.

Special Topics Course

**WS599 Thesis Research**

Hours 1-6

The focus of this research may involve traditional or community-related research on the student's approved thesis topic in Gender and Race Studies.

**Culverhouse College of Business Courses****AC501 Basic Acctg Managrl Finan Cont**

Hours 3

Study of the fundamentals of financial accounting. Attention is given to the interpretation and uses of information contained in financial statements.

**AC502 Acctng Management Decisions**

Hours 3

Study of the fundamentals of managerial accounting. Attention is given to the use of accounting by business managers.

Prerequisite(s): AC 501

**AC506 Concepts Financial Managrl Acc**

Hours 3

Basic accounting concepts and procedures with an emphasis on the use of accounting information by business managers.

**AC512 Adv Financial Reporting/Analys**

Hours 3

Advanced topics in financial accounting and reporting considered from a practical and theoretical perspective.

**AC515 Current Issues in the Accounting Profession**

Hours 3

This course is for accounting students who are returning from a spring internship.

**AC523 Business Valuatn Perform Measm**

Hours 3

The analysis of accounting information for purposes of valuing businesses for investment, credit, and related decisions.

**AC532 Corp Governance Risk Assessmt**

Hours 3

Advanced study of standards, concepts, procedures, and professional ethics underlying governance and the provision of assurance services.

**AC534 Fraud & Ethics Risk Management**

Hours 3

Advanced study of the forensic accounting profession, fraud prevention, detection, and investigation, and the character needed to manage ethical challenges.

**AC544 Financial Statement Analysis**

Hours 3

Discussion of a common framework for the analysis of general purpose financial statement information. Includes discussions of the accounting process and availability of financial information, selected intermediate and advanced accounting concepts, required disclosures, modeling & valuation implications, and various analytical techniques available to the investment professional.

**AC547 Data Analytics for Accounting**

Hours 3

A study of applied data analysis with an emphasis on accounting and business settings. The course will focus on tools and techniques used to draw insights from and solve problems with data.

**AC548 Financial Statement Analysis**

Hours 3

Discussion and application of a common framework for the analysis of general purpose financial statement information for a variety of contexts. Includes discussions of the accounting process, availability and relevance of financial information, analytical implications of selected intermediate and advanced accounting concepts, required disclosures, and various analytical techniques available to the accounting or finance professional.

Prerequisite(s): Admission to Master of Accountancy (MAcc) program or permission of the instructor.

**AC556 Governmental Nonprofit Account**

Hours 3

Special features of budgetary and fund accounting as applied to municipalities, other governmental units, and institutions such as schools and hospitals.

**AC561 Accounting Business Management**

Hours 3

Concepts and procedures employed in developing and using accounting information for management decisions.

**AC568 Accounting for Income Taxes**

Hours 3

A course to prepare tax preparers and auditors to accurately determine a company's income tax provision, related deferred tax account balances and income tax footnote.

**AC575 Taxn Corp Shareholders**

Hours 3

A study of federal income tax problems of corporations and the relationships of these problems to the tax problems of the corporate shareholder.

**AC576 Adv Corporate Taxation**

Hours 3

A study of the tax accounting problems relating to corporate organizations, commonly controlled corporations, and consolidated tax returns.

Prerequisite(s): AC 471

**AC578 Partnership Taxation**

Hours 3

Designed to explore, in depth, the taxation of the formation, operation, and disposition of partnerships and LLCs. In addition, a brief review of the taxation of S corporations is presented.

**AC582 State And Local Taxation**

Hours 3

This course is designed to provide an overview of the key state and local tax considerations for individuals, partnerships, and corporations. With the significant changes enacted in a number of states as a result of the Tax Cuts and Jobs Act of 2017 and the CARES Act and the Supreme Court Wayfair decision, tax professionals need the skills which will enable them to competently gather facts, locate applicable state and local tax law, analyze the facts in light of the relevant law, and present the findings both orally and in writing.

**AC589 Systems Analysis & Control**

Hours 3

Examination of information systems development and control issues from the perspective of ensuring relevance, reliability, and security of business systems and information.

**AC592 Accounting Internship**

Hours 3

*No description available*

**AC593 Res & Communicatn Taxation**

Hours 3

A study of tax research procedures, documentation of research, and presentation of research findings.

**AC597 Special Topics In Accounting**

SP

Hours 1-6

*No description available*

Special Topics Course

**AC610 Intro Accounting Res I**

Hours 3

Study of the production of accounting research, with specific focus on the scientific method. Intensive focus on problem identification and communication, and theory and hypothesis development.

**AC620 Acctg Research Sem I**

Hours 3

Study of advanced research methods with intensive focus on design and method development, data analysis, and interpretation of results.

**AC630 Archival Acctg Research**

Hours 3

Study of the archival accounting research literature.

**AC640 Experimental Acctg Research**

Hours 3

Study of the experimental accounting research literature.

**AC650 Directed Research**

SP

Hours 3

Examination of the literature and methodology associated with a specific research topic. Directed focus on development of second-year paper.

Special Topics Course

**AC691 Research Practicum I**

Hours 3

Development of a first year project under the supervision of a faculty member. Resulting papers are presented at a departmental research workshop.

**AC692 Research Practicum II**

Hours 3

Development of a second-year research project under the supervision of a faculty member. Resulting papers are presented at a departmental research workshop.

**AC698 Research Colloquium Series**

Hours 1

Participation in a research colloquium series involving scholars from top academic institutions.

**AC699 Dissertation Research**

Hours 1-15

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. Under the guidance of their dissertation advisor, students conduct research toward the completion of their doctoral dissertation. Employing various research techniques and methodologies, students work on theoretical and/or applied research topics with the aim of making a novel contribution to the field.



**EC500 Managerial Economics**

Hours 3

An introduction to the foundations of both micro- and macroeconomic analysis, including consumer demand, production and cost analysis, price determination, and macroeconomic theory and policy. Emphasis is on the theory of the firm.

**EC508 Microeconomic Theory**

Hours 3

An examination of the theory of resource allocation. Topics include demand theory, production and cost functions, theory of markets, general equilibrium analysis, and welfare theory.

**EC509 Macroeconomic Theory/Policy**

Hours 3

This overview of modern macroeconomic theory and its implications for the conduct of stabilization policies is intended to provide a solid background in macroeconomics for master's students. The course also considers the microeconomic foundations of aggregate economic analysis.

**EC510 Law and Economics**

W

Hours 3

This course is for master's students in Economics or Finance. It provides students with tools of economic analysis and analytical methods to analyze legal issues and explore some of the intersections between the law and economics. Writing proficiency within this discipline is required for a student to receive a passing grade in this course. A student who does not write with the skill normally required of an upper division student in the discipline will not be given a passing grade, no matter how well the student performs other course requirements.

Prerequisite(s): EC 308 (Grade of C- or better) or EC 310 (Grade of C- or better) or EC 508

Writing

**EC512 Indust Org Public Policy**

Hours 3

The theoretical and empirical study of large industrial firms in a market economy. The focus is on corporate and governmental policies affecting markets.

Prerequisite(s): EC 308 (Grade of C- or better) or EC 310 (Grade of C- or better) or EC 508

**EC513 Economic Forecastg Analysis**

C

Hours 3

A survey of the analytical techniques used by economists to forecast the macro- and micro-levels of economic activity and the effects of public policy on the economy. Computing proficiency is required for a passing grade in this course.

Prerequisite(s): EC 413 (Grade of C- or better) or EC 471 (Grade of C- or better) or EC 571

Computer Science

**EC516 Monetary Theory & Policy**

Hours 3

Theoretical and empirical analysis of the money supply process, the demand for money, the impact of money on the economy, and the implementation of monetary policy.

Prerequisite(s): EC 308 (Grade of C- or better) or EC 310 (Grade of C- or better) or EC 508; and EC 309 (Grade of C- or better) or EC 311 (Grade of C- or better) or EC 509

**EC530 International Trade**

Hours 3

Analysis and policy implications relating to the international movement of goods, resources, and financial assets.

Prerequisite(s): EC 308 (Grade of C- or better) or EC 310 (Grade of C- or better) or EC 508

**EC531 International Finance**

Hours 3

An examination of the foreign exchange market, exchange rate determination, international financial institutions, and the management of the risks associated with international business.

Prerequisite(s): EC 308 (Grade of C- or better) or EC 310 (Grade of C- or better) or EC 508; and EC 309 (Grade of C- or better) or EC 311 (Grade of C- or better) or EC 509

**EC570 Mathematical Economics**

Hours 3

An introduction to mathematical tools commonly used in advanced economic theory and econometrics.

**EC571 Econometrics**

Hours 3

A quantitative analysis of actual economic phenomena based on the current development of theory and observation, related by appropriate methods of inference.

**EC572 Financial Econometrics**

Hours 3

This course is for master's students in Economics or Finance. It provides students with analytical methods and programming skills for solving issues in financial economics, asset pricing, and risk management.

Prerequisite(s): EC 413 (Grade of C- or better) or EC 513; and EC 471 (Grade of C- or better) or EC 571

**EC573 Games and Decisions**

Hours 3

An introduction to game theory with emphasis on application. Game theory is a toolbox for analyzing situations where decision makers influence one another.

**EC591 Independent Study**

SP

Hours 1-6

*No description available*

Special Topics Course

**EC592 Internship**

Hours 3

*No description available***EC596 Capstone Project**

Hours 1-3

This course requires the student to apply his/her knowledge of the field of Economics to recognize operational problems in the field. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem, describe the analysis performed and organize this material effectively for both a written report and corresponding oral presentation.

**EC597 Special Topics In Economics**

SP

Hours 1-6

None.

Special Topics Course

**EC598 Intro To Econ Research**

Hours 1-3

Economics Research.

**EC599 Thesis Research**

Hours 1-15

Thesis Research.

**EC600 Advanced Mathematical Economics**

Hours 3

This is a course for incoming Ph.D. students in Economics, Finance, and Accounting. It aims to provide students with advanced mathematical tools needed to understand other Ph.D. courses in Economics and Econometrics. Topics include linear algebra, single/multivariable calculus, unconstrained/constrained optimization, and basic differential/difference equations.

**EC610 Seminar In Microeconomic Theor**

Hours 3

An advanced study of the modern theory of value and price. The seminar includes demand and supply analysis, marginal analysis, and the monopolistic and competitive structure of markets.

**EC611 Seminar in Macroeconomic Theory**

Hours 3

Selected topics in contemporary macroeconomic theory, with emphasis on dynamic analysis of cyclical fluctuations, stabilization policies, and growth.

**EC612 Sem Industrial Organizat**

Hours 3

A survey of selected topics in industrial organization. Both theoretical and applied topics are examined, with special emphasis on recent developments.

**EC613 Empirical Industrial Organization**

Hours 3

This course is a field course for Ph.D. students in Economics. The course provides a discussion of the topics and methods of Empirical Industrial Organization (IO). It is designed to provide a broad introduction to topics and industries that current researchers are studying as well as to expose students to a wide variety of techniques. It will start the process of preparing economics Ph.D. students to conduct thesis research in the area, and may also be of interest to doctoral students in other fields.

**EC614 Behavioral Economics**

Hours 3

This course is a field course for Ph.D. students in Economics. This course introduces students to the study of human behavior in individual choices, social interactions, and markets, to explain real world phenomena, not easily explained by standard models of rational decision-making.

**EC616 Sem Monetary Economics**

Hours 3

Selected topics in contemporary monetary theory, with emphasis on determination of the value of money and the effectiveness of monetary policies.

**EC624 Political Economy**

Hours 3

A survey of selected topics in the field of political economy with an emphasis on voting theory, collective action and rent seeking.

Prerequisite(s): EC 610

**EC660 Game Theory**

Hours 3

An introduction to non-cooperative game theory. Emphasis on applications in microeconomics and macroeconomics.

Prerequisite(s): EC 610

**EC661 Macroeconomic Theory II**

Hours 3

This course is the second course in the first year course sequence for Ph.D. students in Economics. It provides the tools needed for the analysis of dynamic stochastic general equilibrium (DSGE) models in Macroeconomics.

**EC670 Econometrics**

Hours 3

Introduction to methods of analyzing economic data. Topics include linear and non-linear least squares, maximum likelihood estimation, statistical inference, and methods for handling data problems.

**EC671 Seminar : Econometrics**

Hours 3

A study of selected topics and problems in econometrics emphasizing methodology for economic research measurements.

**EC672 Financial Econometric Modeling**

Hours 3

The application of econometric time-series methods to financial data. GARCH, nonlinear and cointegration models will be emphasized.

Prerequisite(s): EC 571 or EC 670

**EC673 Nonparametric Econometrics**

Hours 3

This course will discuss the principles of nonparametric methods. It will provide intuitive explanations of theoretical concepts and empirical examples of nonparametric techniques.

**EC674 Experimental Economics**

Hours 3

This course introduces PhD students to the field of experimental economics. The course covers methodological issues with designing and conducting experiments and interpreting the results.

**EC691 Independent Study**

SP

Hours 3

This course allows students to explore subjects in depth and/or investigate areas not covered through the regular curriculum under the guidance of an individual faculty member.

Special Topics Course

**EC698 Research In Economics**

Hours 3

Consists of supervised study and investigation of specific problems in economics and academics. Only open to graduate students beyond first year.

**EC699 Dissertation Research**

Hours 1-15

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. Under the guidance of their dissertation advisor, students conduct research toward the completion of their doctoral dissertation. Employing various research techniques and methodologies, students work on theoretical and/or applied research topics with the aim of making a novel contribution to the field.

**FI504 Financial Management for MBA**

Hours 1-4

Corporate financial planning and decision making; working capital management, capital budgeting, financing, risk-return analysis, valuation, and dividend policy.

**FI505 Corporate Valuation**

Hours 3

A case study course that focuses on the valuation of publicly held firms.

**FI506 Mergers & Acquisitions**

Hours 3

An examination of corporate acquisitions, including firm valuation, bidding contests, and defense managers, as well as the corporate tax and legal environment.

**FI510 Financial Management**

Hours 3

A course concerned with the management of corporate capital. Emphasis is on analysis of problems.

**FI512 Money And Capital Mkts**

Hours 3

A detailed analysis of the role of money and capital markets in the financial process and of the influence outside forces have on these markets.

**FI514 Investments**

Hours 3

An overview of the investment decision process. Areas covered are financial statement analysis, risk measures, stock-price valuation models, and portfolio management.

**FI515 Quantitative Investment Analy**

Hours 3

Acquaints the student with the quantitative approaches used in modern portfolio theory and investment analysis.

**FI516 Monetary Theory & Policy**

Hours 3

Theoretical and empirical analysis of the money supply process, the demand for money, the impact of money on the economy, and the implementation of monetary policy.

**FI519 Financial Engineering**

Hours 3

Advanced quantitative analysis designed to improve managing financial risks such as adverse stock price movements, adverse interest rate changes and adverse commodity price changes, with specific attention given to employing futures, options and swap contracts.

**FI520 Financial Risk Management**

Hours 3

Advanced methodologies of valuing and managing financial derivative contracts are introduced, including numerical integration, lattice approaches and simulation. A particular emphasis is given to implementing these methodologies as computer programs.

**FI522 Bank Administration**

Hours 3

A case course examining various aspects of managing a commercial bank in a dynamic environment.

**FI531 International Finance**

Hours 3

An examination of the foreign exchange market, exchange rate determination, international financial institutions, and the management of the risks associated with international business.

Prerequisite(s): EC 308 (Grade of C- or better) or EC 310 (Grade of C- or better) or EC 508; and EC 309 (Grade of C- or better) or EC 311 (Grade of C- or better) or EC 509

**FI534 Seminar In Real Estate**

Hours 3

A survey of the major topics and issues in real estate, including real estate investment, alternative financing arrangements, law and agency theory, appraisal, market analysis, taxation, and brokerage.

**FI535 Real Estate Invest & Developmnt**

Hours 3

A study of the concepts and principles of real property valuation and the analysis of real estate investments.

**FI572 Financial Econometrics**

Hours 3

This course is for master's students in Economics and Finance. It provides students with analytical methods and programming skills for solving issues in financial economics, asset pricing, and risk management.

**FI591 Independent Study**

SP

Hours 1-6

*No description available*

Special Topics Course

**FI592 Internship**

Hours 3

*No description available***FI596 Capstone Project**

Hours 1-3

This course requires the student to apply his/her knowledge of the field of Finance to recognize operational problems in the field. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem, describe the analysis performed and organize this material effectively for both a written report and corresponding oral presentation.

**FI597 Special Topics: Finance**

SP

Hours 1-6

*No description available*

Special Topics Course

**FI601 Finance Theory I**

Hours 3

Advanced practices of financial management and their application to decision making in the business firm.

**FI602 Finance Theory II**

Hours 3

An extension of the content of previous courses to summarize modern developments in financial theory.

**FI610 Seminar In Finan Mgt**

Hours 3

Advanced management theory and techniques in the finance area. Emphasis is on current publications in the academic finance literature.

**FI614 Seminar In Investments**

Hours 3

Provides an understanding of theoretical and functional aspects of professional investment management theory.

**FI624 Financial Markets**

Hours 3

This seminar provides for a deep understanding of the monetary and financial system, required of finance specialists in corporate finance, banking, and investments.

**FI691 Independent Study**

SP

Hours 3

The course allows students to explore subjects in depth and/or investigate areas not covered through the regular curriculum under the guidance of an individual faculty member.

Special Topics Course

**FI698 Research In Finance**

Hours 3

Consists of supervised study and investigation of specific problems in finance and academics. Only open to graduate students beyond first year.

**FI699 Dissertation Research**

Hours 1-15

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. Under the guidance of their dissertation advisor, students conduct research toward the completion of their doctoral dissertation. Employing various research techniques and methodologies, students work on theoretical and/or applied research topics with the aim of making a novel contribution to the field.

**GBA515 Effective Negotiations**

Hours 3

This course will employ negotiations exercises, expert guest speakers and additional readings to help students master negotiation skills.

**GBA525 Business Policy**

Hours 3

An integrative study of the manager's role as chief strategy maker and chief strategy implementer, using case analysis and management simulation techniques.

**GBA526 Competitive Strategy**

Hours 3

Examines conceptual tools for the in-depth analysis of industries and competitors; how to build and defend competitive advantages and how to formulate a successful competitive strategy. Usually offered spring semester.

**GBA571 STEM Business Honors VII**

UH

Hours 1.5

This course is the seventh in a series of eight STEM Business Honors courses that students take in the STEM Path to the MBA. It is intended to be taken in the fall semester of the students' senior year. It will focus on a year-long (two semester) project.

Prerequisite(s): GBA 371 and GBA 372

University Honors

**GBA572 STEM Business Honors VIII**

Hours 1.5

This course is the last in a series of eight STEM Business Honors courses that students take in the STEM Path to the MBA. It is intended to be taken in the spring semester of the students' senior year. It will focus on a year-long (two semester) project.

Prerequisite(s): GBA 371, GBA 372, and GBA 571

**GBA591 Independent Study**

SP

Hours 1-3

Open to all graduate students on an elective basis. This course offers students an opportunity to pursue a course of study that they design according to their own interests. Students may also work on a faculty-directed research project and receive credit.

Special Topics Course

**GBA592 Managerial Internship**

Hours 3

Open to all graduate students on an elective basis. Through the cooperation of participating organizations, students are exposed to actual management situations and are given an opportunity to apply classroom knowledge to practical decision problems.

**GBA596 Capstone Project**

Hours 1-3

The course requires the student to apply his/her knowledge of the field of General Business to recognize operational problems in the field. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem, describe the analysis performed and organize this material effectively for both a written report and corresponding oral presentation.

**IBA550 Global Business**

Hours 1-3

A seminar emphasizing the environmental factors affecting international business operations, and studying different economic, social, cultural, legal, and other environmental conditions and their influence on both the formulation and execution of business policy of firms engaged in multinational business.

**IBA555 Global Market Management**

Hours 3

The object of this course is to investigate the effects of cultural similarities and differences on marketing practices worldwide. Also examined are the effects of market idiosyncrasies on globally oriented products, promotion, pricing, and distribution strategies.

**IBA560 Advanced Import/Export Strategy**

Hours 3

This course will provide a detailed overview of marketing, management, and logistics issues relative to setting up and operating an import/export firm or engaging in these activities in an existing firm.

**IBA596 Capstone Project**

Hours 1-3

This course requires the student to apply his/her knowledge of the field of International Business Administration to recognize operational problems in the field. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem, describe the analysis performed and organize this material effectively for both a written report and corresponding oral presentation.

**IBA597 Special Topics: Independent Study**

SP

Hours 3

This course offers faculty a chance to present topics of interest to themselves and to students with interests in international business.

Special Topics Course

**MGT512 Management Presentations**

Hours 3

Instruction and practice of information presentation in a business environment. Topics include conference room presentations, media briefings, team presentations, television interviews and audiovisual development.

**MGT517 Leadership & Ethics**

Hours 3

This course is an overview of leadership theory and models including discussions of ethical issues that corporate decision makers face.

**MGT520 Change Management**

Hours 3

The major objective of the course is to introduce students to the most recent thinking about strategic change, its drivers, and the techniques that are currently used for its management.

**MGT522 Leadership Communication**

Hours 3

Analysis of the role of communication in effective leadership for all management situations.

**MGT523 Effective Negotiations**

Hours 3

This course will employ negotiation exercises, expert guest speakers and additional readings to help students master negotiation.

**MGT526 Strategic Analytics**

Hours 3

Students learn to design and execute data analysis methods and solutions to support managers in developing organizational strategies grounded in evidence-driven decision-making.

**MGT531 Employee Recruitment, Selection, and Placement**

Hours 3

A course designed to acquaint the student with a scientific approach to the selection, training, and placement of employees. Validation of selection practices and evaluation of training programs are emphasized.



**MGT534 Training and Development**

Hours 3

This course examines how organizations expend considerable sums to attract talented employees. Students learn how Training and Development helps employers to motivate employees and tailor their skills sets to organizational needs. The course will focus less on basic training methods and more on advanced topics in workforce development as well as making the case to skeptical executives on the value of these methods.

Prerequisite(s): MGT 301

**MGT537 Strategic Human Resources Management**

Hours 3

An analysis of methods and techniques used in the management of human resources.

**MGT539 Work Flow Analytics**

Hours 3

An analysis of the application of advanced data analytic tools to help address human resources concerns.

Prerequisite(s) with concurrency: ST 560

**MGT542 Management Communication**

Hours 3

Methodology for understanding both written and oral presentations. Students develop a language to use to manage written and oral verbal skills in specific business environments.

**MGT552 Project Management and Consulting**

Hours 3

Demonstrate communication effectiveness in a business context by completing a team project for a client, using written, oral, visual and interpersonal skills.

**MGT556 Data Visualization**

Hours 3

This course is designed to teach students the principles behind analyzing data and communicating it visually with Tableau software.

Prerequisite(s): GBA 300

**MGT582 New Venture Development**

Hours 3

This course provides an opportunity to develop a business plan for a new venture or for expansion of an existing company. Students are expected to acquire skills in evaluating business ventures; to learn alternative financing sources; to develop ideas for differentiating products; and to develop an understanding of what is required to harvest the profits of a growing business.

**MGT586 Small Business Consulting**

Hours 3

This course is designed to offer education and training in the art of management consulting as it applies to smaller firms. The overall purpose of the course is the acquisition of knowledge and skills that will enable students to provide management advice to entrepreneurs and businesspersons to improve the performance of smaller organizations.

**MGT591 Independent Study**

SP

Hours 1-6

Open to all graduate students on an elective basis. This course offers students an opportunity to pursue a course of study that they design according to their own interests. Students may also work on a faculty-directed research project and receive credit.

Special Topics Course

**MGT592 Internship In Human Resources Management**

Hours 3

Open to graduate students with the approval of the chairperson of the human resources management program. Graduate students receive on-the-job experience in human resources management in actual organizational settings, under the joint guidance of the cooperating organizational officials and faculty members.

**MGT596 Capstone Project**

Hours 1-3

This course requires the student to apply his/her knowledge of the field of Management to recognize operational problems in the field. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem, describe the analysis performed and organize this material effectively for both a written report and corresponding oral presentation.

**MGT597 Special Topics**

SP

Hours 3

This course is devoted to the study of current topics of interest in management.

Special Topics Course

**MGT598 Research In Management**

Hours 3

A supervised study of specific issues and problems in management. The course is open to students in their final semester of coursework leading to the completion of a master's degree in management.

**MGT599 Thesis Research**

Hours 1-6

Thesis Research.

**MGT610 Professional Development I**

Hours 1

Provides doctoral students with an introduction to the academic community.

**MGT611 Professional Development II**

Hours 1

Provides doctoral students with an introduction to the academic community.

**MGT612 Professional Development III**

Hours 1

Provides doctoral students with an introduction to the academic community.

**MGT613 Professional Development IV**

Hours 1

Provides doctoral students with an introduction to the academic community.

**MGT620 Organizational Behavior**

Hours 3

A course designed to develop thorough understanding of individual behavior within formal organizations. Consideration is given to a number of important behavioral processes, including learning, perception, attitudinal structuring, conflict, motivation, and social reinforcement. Attention is devoted to the individual's effect on the organization and the way behavior affects the achievement of organizational goals.

**MGT621 Organ Behav Group Perf**

Hours 3

A study of human interaction and interpersonal behavior within working relationships. Emphasis is given to findings of the behavioral sciences as related to management problems. Theoretical and empirical approaches to issues such as communication, socialization, and role theory are presented.

**MGT622 Current Topics in Human Resources Management**

Hours 3

A course that gives special attention to the human aspects of problems that arise in technical, social, and organizational arenas faced with the need to change. The course includes detailed analyses of organizations as systems and of organizational leadership, change, and development.

**MGT623 Contemporary Issues in Organizational Theory**

Hours 3

This course deals with the definition and grouping of work units, the relationships between work units, and the assignment of decision-making authority to units within a contingency framework. Special emphasis is placed on the influence of the external environment on the structure and design of the organization.

**MGT625 Foundations of Strategic Management**

Hours 3

This seminar provides students with the theoretical foundation necessary to conduct empirical research in strategic management through the study of seminal works and current literature.

**MGT633 Entrepreneurship Research**

Hours 3

This course offers a systematic overview of the research literature on entrepreneurship. As is the case with the academic field of entrepreneurship, the course takes an interdisciplinary approach, building on research in economics, sociology, psychology, geography, and other academic disciplines.

**MGT690 Research Methods I**

Hours 3

The purpose of this class is to build skills in the design, conduct and evaluation of research. Students are introduced to the basics of designing studies to test hypotheses and research.

**MGT691 Research Methods II**

Hours 3

Research Methods II.

**MGT698 Research in Management**

Hours 3

A supervised study and investigation of specific problems in management. Open to students nearing the completion of coursework for the PhD.

**MGT699 Dissertation Research**

Hours 1-15

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. Under the guidance of their dissertation advisor, students conduct research toward the completion of their doctoral dissertation. Employing various research techniques and methodologies, students work on theoretical and/or applied research topics with the aim of making a novel contribution to the field.

**MIS501 Application Development for the Data-Driven Organization**

Hours 3

This course will highlight one or more core programming languages (e.g., Java, Python) used within modern, data-driven organizations for the purpose of data collection, manipulation, and analysis. The first portion of the course will focus on essential programming knowledge and practices. The second portion of the course will emphasize the development of programmatic solutions, which will acquire data (e.g., web content, social media data, geospatial data, sensor-based data) through the integration of APIs and/or web services as well as ethical scraping techniques and then store the data in a modern backend database.

**MIS502 Database Design and Management in the Data-Driven Organization**

Hours 3

This course will cover the essentials of database design and management in modern, data-driven organizations. The first portion of the course will focus on relational database design as well as SQL for the storage and access of structured data. The focus of the second portion of the course will highlight modern database structures/systems (e.g., Apache Hadoop, graph databases) as well as their query languages for storing, accessing, and analyzing more unstructured data or data having relationships not easily queried by traditional databases. Additional topics may include data cleansing, query optimization, and extract-transform-load (ETL) processes.

**MIS505 Enterprise Networking and Security**

Hours 3

Data communications and networks; impact on business enterprises and issues pertaining to design and implementation. Security and operational requirements evaluated in multiple network architectural configurations.

**MIS511 Management Information Systems**

Hours 1-3

Motivation for, construction of, and application of MIS. Topics include IS strategic alignment, information intensive business processes, and decision making. Business analysis techniques are emphasized for systems such as TPS, e-business, management reporting systems, and data warehouses.

**MIS515 Intro to Application Development**

Hours 3

This bridge course intends to introduce students into the basics of application development using Python programming language. Students will gain a fundamental understanding of contemporary application development using Python as the programming language. Students will gain proficiency in creating functional Python scripts to build variety of applications in the area of system development. Python provides a simple and versatile development environment suitable for projects ranging from simple scripting applications to large-scale enterprise applications. In addition to core programming fundamentals, the course will also incorporate system development best practices such as team collaboration, version management, documentations, unit testing, styles and standards. In the process, students will explore the multitude of standard libraries available in the Python development ecosystem to accomplish various problem-solving tasks.

**MIS520 Systems Analysis And Design**

Hours 3

Techniques and methodologies of systems analysis and design are introduced, including conducting project scoping, requirements elicitation, requirements definition, and operations specifications.

**MIS521 Enterprise Application Development**

Hours 3

The study, application, and analysis of advanced software engineering, application patterns, and file structures. Students design, construct and test software structures for effective information management.

Prerequisite(s): Admission into the MSMIS program. MIS 321 Business Programming II and MIS 330 Database Administration

**MIS525 Informatn Systems Project Mgt**

Hours 3

Techniques and methodologies of project level scoping, staffing, planning, scheduling, monitoring, and controlling the development of value-added information technology business solutions on time and within budget.

**MIS527 Emerging Info Technologies Sem**

Hours 3

Course covers fundamental purchasing systems applications, supplier relations and evaluation, strategic planning in purchasing, purchasing techniques, value analysis and cost analysis.

**MIS530 Sys Development/Implementation**

Hours 3

Techniques and methodologies of project-level systems development and delivery are introduced including interface design, platform constraints, application architecture, testing, quality control, security, and performance evaluation.

Prerequisite(s): MIS 520

**MIS531 Health IT**

Hours 3

The fragmented healthcare environment is going through a profound shift in its approach to delivering better healthcare services through the implementation of healthcare IT (HIT). This course provides an overview of the healthcare environment and the role of HIT in enabling service delivery capabilities. Specifically, this course is designed to provide students with the knowledge and skill to understand the role of HIT in creating and managing the cross-continuum systems of care. Furthermore, the course prepares students with the knowledge and skills essential to managing HIT and its assimilation in the complex domain of healthcare.

**MIS535 Information Systems Consulting**

Hours 3

Techniques and methodologies in client relationship management, proposal development, scope negotiation, component-based costing, knowledge management, software module and deliverable integration, systems deployment, and change management.

Prerequisite(s): MIS 520

**MIS540 Dbase Design/Construction/Oper**

Hours 3

Emphasizes commercial business application of relational DBMS. Topics include semantic data modeling, normalization, process triggers, enterprise integrated, ODBC, n-tier architecture, e-business application, and performance tuning.

**MIS541 Business Analytic Support Sys**

Hours 3

System level concepts, methods, tools and techniques for model-driven, data-intensive decision making. Topics include: structuring data, information and knowledge in data warehouses and data marts, and analytic procedures.

**MIS560 Enterprise Integration Methods**

Hours 3

Introduction to techniques and methodologies of enterprise-level governance, architecture, analysis, design, procurement, integration and deployment.

**MIS561 Applied Cyber Security**

Hours 3

This course examines management issues and practical implications related to securing information systems. This course focuses on the Threat Environment, security Policy and Planning, Cryptography, Secure Networks, Access Control, Firewalls, Host Hardening, Application Security, Data Protection, Incident Response, and Networking and Review of TCP/IP. A clear theoretical understanding supports a large practical component where students learn to use contemporary security software to secure and assess information systems and network infrastructure using a hands-on approach.

**MIS563 Behavioral Cyber Security**

Hours 3

This course provides students with a solid foundation of information security management, with an emphasis on its human element. As part of this understanding, we will explore how humans, as employees of an organization and consumers of organizational products and services, perceive threats to themselves, their digital assets, their privacy, and to their organizational affiliations. We also explore how these perceptions are operationalized in their behaviors as organizational insiders, serving to either undermine or facilitate security management practices.

**MIS564 Organizational Security Management**

Hours 3

The course is intended to teach students how to develop and apply an information security management plan to an organization. Topics include governance and security policy, threat and vulnerability management, incident management, risk management, information leakage, crisis management and business continuity, compliance management, and security awareness and security implementation considerations.

Students will also be exposed to the national and international policy and legal considerations related to cybersecurity and cyberspace such as privacy, intellectual property, and cybercrime.

**MIS566 Introduction to Cybercrime and Digital Forensics**

Hours 3

This course introduces the topics of cybercrime and digital forensics. Students will learn different aspects of cybercrime and methods to uncover, protect and analyze digital evidence. They will be exposed to different types of software and hardware tools and use them to perform rudimentary investigations. Cybercrime and digital forensics are increasingly important areas of study. Students will also gain an understanding of evidentiary law from the perspective of first responders. Tools are becoming more powerful and attacks more sophisticated. Consequently, there is a growing need for graduates with the skills to investigate these crimes.

**MIS591 Independent Study Mgt Info Sys**

SP

Hours 3

*No description available*

Special Topics Course

**MIS592 Internship In Mgt Info Systems**

Hours 3

*No description available***MIS597 Spec Top Mgt Info Systems**

SP

Hours 1-6

*No description available*

Special Topics Course

**MIS598 Res In Management Info Systems**

Hours 1-6

Open to students nearing completion of coursework for the master's degree. A supervised study and investigation of specific problems in management and management information systems.

**MIS670 MIS Behavioral and Organizational Theory and Design Research Seminar**

Hours 3

The exploration of IS development and delivery research issues. Emphasis is placed on exploring the scientific method, theory building research, and methods of inquiry. Provides a framework for undertaking and evaluating MIS research.

**MIS680 Research Seminar II**

Hours 3

This doctoral research seminar will provide students with a strong foundation in the theoretical and methodological knowledge required to conduct rigorous security and privacy research projects that lead to manuscripts suitable for publication in leading journals. This knowledge is what we term "procedural knowledge" and, just as you cannot learn how to ride a bike by reading about it, students must engage in actual research activities to learn the requisite knowledge. In this course, students will first critically review security and privacy research publications from the leading MIS journals and then, based on those studies, conceive a full research project, including a relevant set of research questions and a research design appropriate to the questions.

Prerequisite(s): MIS 670 or Instructor Approval

**MIS685 MIS Research Design Seminar**

Hours 3

This course is an examination of the process of designing and conducting research projects on information systems phenomena. Students will gain an appreciation for the challenges and issues associated with the application of different research methodologies to MIS phenomena.

**MIS690 Research Methods Seminar**

Hours 3

This seminar is a discussion of the basis and principles of systems modeling and the methods of social science research. The seminar also nurtures the motivation to become a contributor to the organizational sciences and information systems research communities by examining research processes, methodologies, and strategies, the information systems research context, concepts, theories, the application of systems modeling, and the nature of MIS research.

**MIS699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. Under the guidance of their dissertation advisor, students conduct research toward the completion of their doctoral dissertation. Employing various research techniques and methodologies, students work on theoretical and/or applied research topics with the aim of making a novel contribution to the field.

**MKT510 Product Design Marketing Strategy**

Hours 3

An intensive investigation of the process of new product development, including its role in the organization, analysis of market opportunities, creative idea generation, concept screening, design, forecasting, manufacturing, and launch. Teaching emphasis is on processes, tools, and techniques. A group project provides real-world product development experience.

**MKT511 Supply Chain Management**

Hours 3

MKT 511 is a graduate (master's) level counterpart to MKT 411 Supply Chain Management. Its focus is on providing a managerial perspective of best practice supply chain management. The course encompasses the collaborative strategies and planning processes needed to build and manage supply chains for systemic effectiveness and efficiency. It will be offered coterminously with MKT 411 during each spring semester. The target students for MKT 511 are MBA's with marketing concentrations and master of arts (MA) and master of science (MSC) students in marketing. Graduate students in other degree programs may also enroll as an elective for graduate credit.

Prerequisite(s): MKT 518

**MKT518 Marketing Management & Decision Making**

Hours 3

A combination of lectures and cases is used to examine and analyze the marketing process. Emphasis is on decision making: the refinement of skills needed to recognize and solve marketing problems, and to effectively communicate recommendations both within and without the organization. The following components of the marketing mix are examined: product management, pricing, promotion, personal selling, buyer behavior, marketing channels, distribution, and segmentation.

**MKT530 Advanced Marketing Analysis**

Hours 3

This course for Master of Science in Marketing and second-year MBA students concerns the generation of marketing research results to help make marketing decisions. The course is designed to complement and build on the skills acquired in Marketing 518, the Survey of Marketing course. The core of Marketing 530 is decision-relevant data; planning its acquisition; getting it from a variety of internal, secondary and primary sources; analyzing it; and using it as the basis of decisions. The course also provides students with marketing analytics-centered skills (ANOVA, regression, factor and cluster analysis). Knowledge developed in the courses can be applied in the fields of market management, product management and project management. This course also helps prepare students to successfully complete team-based projects (Marketing 581) in the spring semester.

**MKT531 Consumer Insights**

Hours 3

An examination of how service firms achieve and maintain marketing excellence via customer insights. This course will help students become astute discoverers of business-relevant consumer insights through the use of framework, concepts, tools, and techniques to understand the hearts, minds, and motives of consumers.

**MKT537 Personal Selling**

Hours 3

To understand the basic concepts and principles surrounding personal selling including the sales process and emerging advanced sales topics.

**MKT538 Sales Management**

Hours 3

The Sales Management course builds on the basic sales process taught in Professional Sales by focusing on Account Management and Team Management.

Prerequisite(s) with concurrency: MKT 537

**MKT539 Customer Relationship Management**

Hours 3

This course focuses on key account management from a foundations, technology, and real world perspective. The course will provide students a deep dive into how to best manage customer relationships to drive ongoing "customer success" with products that keeps customer buying and using products.

Prerequisite(s): MKT 537

**MKT540 Intro to Digital/Social Media**

Hours 3

This course will address the distinct needs of digital and social media in the area of marketing. Opportunities for application of these skills to real-world business situations will be given to students. The course covers theory along with the tactical elements of creating and branding digital and social media content for companies and organizations.

Prerequisite(s): Master's

**MKT542 Digital and Social Media Analytics**

Hours 3

This course will give students experience and exposure to advertising analytics in digital and social media. Special focus will be placed on Google AdWords and Google Analytics – the premiere digital advertising and analytics program online at this time. Students will analyze current professional literature on digital and social media analytics and focus on return on investment of online advertising and analytics for businesses and organizations.

Prerequisite(s): Master's

Prerequisite(s) with concurrency: MKT 540 or MKT 543

**MKT543 Advanced Digital and Social Media Projects and Studies**

Hours 3

This course will give students real world experience in using social media professionally. Students will work in teams on live social media projects with a professional organization while learning Return on Investment strategies and analytical skills.

Prerequisite(s): Masters, MKT 540

**MKT587 Advanced Market Strategies**

Hours 3

An in-depth examination and evaluation of strategic thinking behind marketing decisions. This course focuses on utilizing market intelligence in problem identification, analysis, solving, and communication in order to plan effective and customized tactics constructing a company's marketing strategy. This course uses a combination of cases and marketplace simulation to deeply examine and analyze strategic marketing problems. The course is designed to be completed in small teams with heavy emphasis on applied learning.



**MKT591 Independent Study**

SP

Hours 1-6

This course allows students to work one-on-one with faculty on a topic mutually agreed on by the faculty and student.

Special Topics Course

**MKT592 Internship**

Hours 3

Students work for an organization in an approved business or public sector setting. The internship is administered through the Master of Science in Marketing program.

**MKT595 Client-Based Mkt Consult Proj**

Hours 3

This course is devoted entirely to the completion of real-world marketing projects for specific organizational clients. Teams are created based on skills and interests as well as the needs of the clients. The scope of each project is determined by the needs of the client, but it typically is based in decision-making insights from marketing research and involves one or more of such marketing-oriented tasks as: market segmentation and target marketing activities associated with a proposed new product, service, or strategic initiative; the gathering and application of marketing research pertinent to an important GO/NO GO decision by the firm; gauging specific reaction from the potential customer market regarding a proposed new initiative by the client; evaluating the potential competitive advantage of a strategic or tactical move by the firm; creation of and implementation of a plan for research, promotion, launch, pricing, and/or distribution for some aspect of the firm's business. This course is unique. It allows students to use the skills and knowledge that they have acquired in graduate marketing courses as well as build new skills in marketing analysis, project management, client relationship building/maintenance skills, communications, decision-making, and leadership.

**MKT596 Capstone Project**

Hours 1-3

This course requires the student to apply his/her knowledge of the field of Marketing to recognize operational problems in the field. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem, describe the analysis performed and organize this material effectively for both a written report and corresponding oral presentation.

**MKT597 Special Topics In Marketing**

SP

Hours 1-6

This course offers faculty a chance to present topics of interest to themselves and to marketing students.

Special Topics Course

**MKT599 Thesis Research**

Hours 1-6

A course designed to focus on student's independent research projects.

**MKT613 Consumer Behavior**

Hours 3

This course will focus on exposing PhD students to academic research related to understanding how and why people consider, choose, use, and evaluate goods and services. Offered spring semester, every other year.

**MKT674 Measurement & Structural Equation Modeling**

Hours 3

A course that covers measurement theory and how it is applied in scientific research. Students learn to construct effective questionnaires, to develop psychometrically-sound measures of constructs, and to assess measure reliability and validity. Quantitative methods, including exploratory factor analysis, confirmatory factor analysis, and structural equation modeling, are emphasized. Offered fall semester.

**MKT688 Quantitative Modeling in Marketing**

Hours 3

This course covers multiple approaches to quantitative analysis of marketing data. Modeling skills are developed through analysis of actual data and examination of published applications. Analysis approaches include both dependence models, such as multiple regression and MANOVA, and interdependence models, such as factor analysis. Offered fall semester.

**MKT690 Theory Development and Use**

Hours 3

This course provides an overview of the role of theory in academic research. The course begins with an introduction of philosophy of science concepts and follows with discussions of what constitutes theory and the importance and role of theory in academic research. To provide students with an appropriate background, various theories are discussed in-depth throughout the semester along with applications of those theories in the literature. Offered every fall semester.

**MKT691 Graduate Seminar In Mkt**

Hours 3

Through the reading of this course, we will explore in depth several specific areas that are informed by strategic marketing thought. We will not only trace the development of theory in marketing strategy, but chart several courses for future research.

**MKT697 Marketing- Special Topics**

SP

Hours 3

This course offers faculty a chance to present contemporary research and practice topics of interest to marketing students.

Special Topics Course

**MKT698 Research In Marketing**

Hours 1-6

A course designed to focus on students' independent research projects.

**MKT699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. Under the guidance of their dissertation advisor, students conduct research toward the completion of their doctoral dissertation. Employing various research techniques and methodologies, students work on theoretical and/or applied research topics with the aim of making a novel contribution to the field.

**OM500 MGT Science & Spreadsheet Mod**

Hours 3

This course provides Operations Management concepts and applications in data-driven decision making. Emphasis is on data clean-up, data analysis, problem formulation, and interpretation of results using spreadsheet-based modeling and solution procedures including optimization and simulation approaches.

Prerequisite(s) with concurrency: ST 509 or ST 560

**OM501 Advanced Applied Modeling and Analysis**

Hours 3

Building on the foundations of spreadsheet modeling analysis, this course provides a deeper understanding of optimization and simulation. Course topics include discrete optimization, duality and sensitivity, large scale optimization, multi-objective optimization, dynamic programming, and Monte Carlo and process simulations with an emphasis on practical applications. In addition to spreadsheets, the students will learn specialty optimization and simulation software, including heuristic methods and algorithms. Extensive use of software.

Prerequisite(s): OM 500

**OM506 Business Spreadsheet Analytics**

Hours 1-3

This course provides Operations Management concepts and applications in data-driven decision making. Emphasis is on data clean-up, data analysis, problem formulation, and interpretation of results using spreadsheet-based modeling and solution procedures including optimization and simulation approaches.

Prerequisite(s) with concurrency: ST 509 or ST 560

**OM516 Operations Management**

Hours 3

This course will address the important concepts and issues related to the design and management of business operations including manufacturing, distribution, logistics, transportation, and service operations. The course will demonstrate how certain quantitative methods can be applied to the analysis and solution of problems that arise in operations management.

**OM517 Supply Chain Modeling & Analy**

Hours 3

This course provides a framework and quantitative methods for designing, managing, and analyzing the supply chain operations needed to support a firm's business strategy. Students will study the structure of supply chain operations in terms of six supply chain drivers (facilities, inventory, transportation, information, sourcing, and pricing). Students will develop analytical models and analyze the relationship between supply chain structure and performance through case studies and examples.

Prerequisite(s) with concurrency: OM 500 or OM 506

**OM522 Operations Scheduling Problems**

Hours 3

A broad investigation of a variety of scheduling activities in production, logistics or service environment are discussed. Typical topics include project scheduling, job-shop scheduling, routing related problems and manpower scheduling.

Prerequisite(s): OM 500 or OM 506

**OM523 Inventory Management**

Hours 3

Principles, models, and techniques for planning, analyzing, and controlling inventory systems are discussed. Topics include in depth analysis of deterministic and stochastic inventory models and their applications. The limitations and usefulness of these models in practice are addressed.

Prerequisite(s): ST 509 or ST 550 or ST 560

**OM524 Mfg Sched & Control Systems**

Hours 3

An in-depth, analytical study of the systems used in manufacturing planning and control are covered. Alternative approaches used in practice (such as MRP and JIT) are studied.

Prerequisite(s): OM 500 or OM 506; and ST 509 or ST 550 or ST 560

**OM525 Effective Quality Management**

Hours 3

Provide participants with a broad understanding of philosophies and methods used to enhance organizational effectiveness in a wide range of organizational settings.

**OM527 Purchasing and Sourcing**

Hours 3

Course covers fundamental purchasing concepts and quantitative techniques for analyzing procurement practices, selecting suppliers, managing supply risk, and improving operational procurement decisions.

Prerequisite(s): OM 500 or OM 506

**OM540 Systems Simulation**

C

Hours 3

A study of the management applications of stochastic and deterministic mathematical and computer models in systems design and analysis. Computing proficiency is required for a passing grade in this course.

Prerequisite(s): ST 509 or ST 550 or ST 560

Computer Science

**OM592 Internship**

Hours 3

*No description available***OM596 Capstone Project**

Hours 3

This course requires the student to apply his/her knowledge of the field of Operations Management to recognize and model operational problems and/or processes targeted for improvement. Further, the student must provide evidence of his/her abilities to communicate understanding of the problem or process, describe the analysis performed, and organize this material effectively for both a written report and corresponding oral presentation.

**OM597 Special Topics in OM**

SP

Hours 1-6

*No description available*

Special Topics Course

**OM598 Research**

Hours 1-6

Open to students nearing completion of coursework for the master's degree. A supervised study and investigation of specific problems in management and operations management.

**OM600 Linear Program: Theory & Appli**

Hours 3

The theory and application of linear programming are rigorously studied. Software tools such as AMPL and OPL Studio for solving linear programs are introduced.

**OM601 Stochastic Decision Models**

Hours 3

Probabilistic models in the decision-making process are discussed. Attention is given to the assumptions, development, and administrative implications of dynamic programming, queuing analysis, and decision analysis.

Prerequisite(s): MATH 557

**OM602 Nonlinear Modeling and Optimization**

Hours 3

Theoretical and applied aspects of nonlinear modeling and optimization such as unconstrained and constrained optimization, duality, barrier and interior point methods, and large-scale optimization.

Prerequisite(s): OM 600

**OM603 Integer Modeling and Optimization**

Hours 3

Theoretical and applied aspects of integer and discrete modeling and optimization such as valid inequalities, transformations, branch and bound, column generation, and branch and cut.

Prerequisite(s): OM 600

**OM620 Production Management Models**

Hours 3

A quantitative study of models and procedures used in various decision problems addressed by production and operations managers is completed in this course. Mathematical modeling and optimization software packages are used in solving these models.

Prerequisite(s): OM 500

**OM695 Operations Management Seminar**

Hours 1

A learning environment designed to expose Ph.D. students to a wide array of issues and topics related to operations management research.

**OM697 Special Topics**

SP

Hours 1-6

Special Topics.

Special Topics Course

**OM699 Dissertation Research**

Hours 1-12

*No description available***ST509 Stat For Business Appl**

Hours 3

A broad introduction to statistical and probabilistic methods useful for managerial decision making. Topics include graphical displays, numerical summaries, basic probability models, confidence intervals, hypothesis testing, and regression analysis.

**ST521 Statistical Data Management**

Hours 3

Introduction to the management of data using SAS. The collection and management of data from business or scientific research projects are emphasized.

**ST522 Adv Statistical Data Mgt**

Hours 3

This course provides students with insight and understanding into the advanced aspects of data management. Emphasis will be placed on computer techniques for the preparing and cleaning of data from scientific research projects as well as for business-oriented projects in order to conduct advanced level analyses. Techniques for detecting, quantifying, and correcting data quality will be covered.

Prerequisite(s): ST 521

**ST531 Data Mining I**

Hours 3

Data mining is the process of selecting, exploring, and modeling large amounts of data to uncover previously unknown patterns of data. Techniques for accomplishing these tasks in a business setting will be discussed.

Prerequisite(s): ST 550 or ST 560 or ST 509

**ST532 Advanced Data Mining**

Hours 3

A detailed study of data mining techniques including logistic regression, neural networks, decision trees, general classifier theory, and unsupervised learning methods. Mathematical details and computer techniques are examined. The SAS programming language and SAS's Enterprise Miner will be used to accomplish these tasks. Other packages may also be used.

Prerequisite(s): ST 531

**ST540 Statistical Programming and Computing with R**

Hours 3

This course explores the syntax of the R language and its capabilities for statistical data analysis, computing, and graphics.

Prerequisite(s): ST 260

**ST541 Applied Statistical Modeling for Analytics I**

Hours 3

Emphasis is on practical methods of statistical data analysis and their interpretation. Topics include simple and multiple linear regression, regression model interpretation, regression diagnostics, transformations on dependent and independent variables, qualitative independent variables, regression inference, strategies for model building, methods for forecasting time series data. Extensive use of statistical software.

Prerequisite(s): ST 560

**ST542 Applied Statistical Modeling for Analytics II**

Hours 3

Emphasis is on practical methods of statistical data analysis and their interpretation. Topics include design and analysis of experiments (completely randomized design, randomized block design, factorial designs,  $2^{k-p}$  fractional factorial designs, response surface optimization), multivariate inference, dimension reduction, classification, and clustering. Extensive use of statistical software.

Prerequisite(s): ST 541- Applied Statistical Modeling for Analytics I (or equivalent)

**ST545 Introduction to Statistical Learning and Data Mining**

Hours 3

This course offers an introduction to the field of statistical learning, an essential toolkit for making sense of vast and complex data sets.

Prerequisite(s): ST 452 or ST 552 or ST 560

**ST547 Data Visualization and Analytics in R**

Hours 3

Data visualization is one of powerful tools to explore and understand data. This course is intended to introduce students to useful visualization techniques for data exploration and presentation using the free and open-source R computer programming. Basic syntax and capabilities of the R language are also covered.

Prerequisite(s): ST 550 or ST 560 or ST 509

**ST550 Stat Methods In Res I**

Hours 3

Development of fundamental concepts of organizing, exploring, and summarizing data; probability; common probability distributions; sampling and sampling distributions; estimation and hypothesis testing for means, proportions, and variances using parametric and nonparametric procedures; power analysis; goodness of fit; contingency tables. Statistical software packages are used extensively to facilitate valid analysis and interpretation of results. Emphasis is on methods and on selecting proper statistical techniques for analyzing real situations.

**ST552 Applied Regression Analy**

Hours 3

Modeling issues for multiple linear regression are discussed in the context of data analysis. These include the use of residual plots, transformations, hypothesis tests, outlier diagnostics, analysis of covariance, variable selection techniques, weighted least squares and collinearity. The uses of multiple logistic regression are similarly discussed for dealing with binary-valued dependent variables.

Prerequisite(s): ST 450 or ST 550 or ST 560 or ST 509

**ST553 Appld Multivariate Analy**

Hours 3

Methods and business applications of multivariate analysis, discriminant analysis, canonical correlation, factor analysis, cluster analysis, and principal components.

Prerequisite(s): ST 554

**ST554 Math Statistics I**

Hours 3

The course introduces probability theory. It covers fundamental concepts and theorems, such as probability distribution; random variable; mathematical expectation, variance, moments, independence, and transformations of random variables; multivariate distributions, sampling distributions, central limit theorem and law of large numbers.

Prerequisite(s): MATH 227

**ST555 Math Statistics II**

Hours 3

Theory of order statistics, point estimation, interval estimation, and hypothesis testing.

Prerequisite(s): ST 554

**ST560 Statistical Methods**

Hours 3

Statistical methods for summarizing data; probability; common probability distributions; sampling and sampling distributions; estimation and hypothesis testing for means, proportions, and variances using parametric and nonparametric procedures; power analysis; goodness of fit; contingency tables; and simple regression and one-way analysis of variance.

**ST561 Applied Design Expermnts**

Hours 3

An introduction to the design and analysis of experiments. Topics include factorial, fractional factorial, block, incomplete block, and nested designs. Other methods discussed include Taguchi Methods, response surface methods, and analysis of covariance.

Prerequisite(s): GES 400 or GES 500 or BER 540 or POPH 422 or POPH 522 or ST 509 or ST 550 or ST 560

**ST580 Analytics Capstone I**

Hours 3

The study and application of advanced analytics applications. Students design, construct, test, and present applications to solve real-world analytics problems.

Prerequisite(s): Admission into the Masters of Science in Business Analytics (MSBA) program. MIS 501 and MIS 502

**ST581 Analytics Capstone II**

Hours 3

The study and application of advanced analytics application. Students design, construct, test, and present applications to solve real-world analytics problems.

Prerequisite(s): ST 580

**ST591 Independent Study**

SP

Hours 3

*No description available*

Special Topics Course

**ST592 Internship**

Hours 3

*No description available***ST597 Special Topics**

SP

Hours 1-6

*No description available*

Special Topics Course

**ST603 Advanced Inference**

Hours 3

A continuation of ST 555, with emphasis on the general theory of estimation and hypothesis testing and large sample distribution theory.

Prerequisite(s): ST 555

**ST610 Linear Models**

Hours 3

Gauss-Markov Theorem, solution of linear systems of less than full rank, generalized inverse of matrices, distributions of quadratic forms, and theory for estimation and inference for the general linear model.

Prerequisite(s): ST 555

**ST615 Theory Of Regression**

Hours 3

Theory of the general linear regression models and inference procedures, variable selection procedures, and alternate estimation methods including principal components regression, robust regression methods, ridge regression, and nonlinear regression.

Prerequisite(s): ST 610

**ST635 Nonparametric Statistics**

Hours 3

Theory and applications of various nonparametric statistical methods are covered for one-sample, two-sample, and multi-sample problems. Goodness of fit techniques such as Chi-square and the Kolmogorov-Smirnov test are covered along with graphical analysis based on P-P and Q-Q plots. Computer software such as MINITAB, SAS, and STATXACT are used.

Prerequisite(s): ST 555 and ST 560

**ST640 Statistical Computing**

Hours 3

Topics include a survey of current statistical software, numerical methods for statistical computations, nonlinear optimization, statistical simulation, and recent advances in computer-intensive statistical methods.

Prerequisite(s): ST 540 and ST 555

**ST645 Advanced Statistical Learning**

Hours 3

This course offers theory, methodology and applications of modern statistical learning tools.

Prerequisite(s): ST 552, ST 553, and ST 554 Matrix algebra, Multivariate calculus, Statistical methods, Applied Multivariate Methods or permission of instructor.

**ST697 Special Topics**

SP

Hours 1-6

Special topics in statistics.

Special Topics Course

**ST698 Research In Statistics**

Hours 1-6

Open only to graduate students nearing completion of coursework. Independent study and investigation of specific problems for advanced students of statistics.

**ST699 Dissertation Research**

Hours 1-12

*No description available*

## College of Communication & Information Sciences Courses

**APR522 Media Strategy and Analytics**

Hours 3

This course is designed to provide students with the knowledge and skills to use research to select appropriate media channels to communicate to stakeholders. Students will learn to create media briefings and plans for persuasive communication campaigns that include data-driven recommendations. Students will also learn how to retrieve, assess and visualize social media and web analytics.

**APR523 Media Relations**

Hours 3

This course is designed to provide students with the knowledge and skills to manage relationships with media gatekeepers in order to facilitate communication through their channels, including media selection, build relationships with gatekeepers, and interacting with the media through interviews and press conferences. Students will also learn how to track and analyze media coverage and sentiment using online tools.

**APR524 Reputation Communication Strategy**

Hours 3

This course is designed to introduce students to the practice of managing integrated communication to build, maintain and repair an organization's reputation. Emphasis will be placed on issues and risk management, corporate social responsibility, cause-related marketing, advocacy advertising and crisis communication.



**APR525 Brand Communication Strategy**

Hours 3

This course is designed to provide students with an introduction to branding from a marketing perspective, and how integrated communication is used to communicate a brand's identity to build, manage and protect brand equity. Emphasis will be placed on brand assessment, brand positioning, audience selection and the marketing promotional mix.

**APR526 Advanced Media Research and Strategy**

Hours 3

Students develop optimal media strategies to reach consumers in a complex media landscape, using advanced media and audience analytic techniques. Students complete sophisticated, research-driven media plans.

**APR531 Creative Workshop I: Concepting**

Hours 4

Students develop ideation skills and professional identities as either art directors or writers. Students acquire techniques and develop personal discipline inherent to the generation of novel, sophisticated creative work.

**APR532 Creative Leadership**

Hours 3

This seminar course is devoted to the exploration of leadership theories, strategies, and practices as they relate to supporting and enhancing the creative process within the advertising industry.

**APR533 Creative Workshop II: Copywriting**

Hours 3

For aspiring writers, this course offers an intensive exploration of the craft across a variety of genres. Students gain an understanding of the power of words and the use of distinctive voices, with implications for strategic advertising copywriting. Students are also expected to research and write creative briefs.

**APR534 Creative Workshop II: Art Direction**

Hours 3

For aspiring art directors, this course offers an in-depth examination of formal graphic design principles and their application in advertising via lectures, reading assignments and projects. Topics include color theory, typography, and layout as well as applied skills associated with an art director's daily work.

**APR535 Portfolio I**

Hours 4

This workshop course is devoted to the development and execution of portfolio pieces reflecting the pursuit of sound strategic and conceptual thinking. Student work is reviewed by a jury of creative professionals at an end-of-semester critique.

**APR536 Portfolio II**

Hours 4

This workshop course is devoted to the continued development and professional-level execution of a complete advertising portfolio reflecting mastery of strategic and conceptual thinking. The course also covers job search strategies and personal branding.

**APR541 Digital Communication Strategy**

Hours 3

This course introduces students to the core theoretical and practical approaches to managing social and digital media. Students will begin learning a skill set based on the demands of current industry practice that will allow them to strategically manage digital communications for organizations.

**APR542 Writing for Digital Communication**

Hours 3

This course is designed to provide students with skills and concepts to effectively create content across digital media platforms. Students will be introduced to frameworks and practices on content creation and strategy, along with tools on how to drive the development of future content through analytics. Emphasis will be placed on creating engaging content for target audiences that is written clearly and accurately.

**APR543 Advanced Digital Marketing**

Hours 3

This workshop-style course is designed to provide students with advanced practical, theoretical and analytical knowledge and skills required to successfully develop, monitor, and execute digital communication campaigns. Students will build upon their already-acquired skill set based on the demands of current industry practice. This course is a combination of lectures and exercises where strategic thinking, attention to detail and creative problem solving are crucial.

**APR550 Analysis and Insights**

Hours 3

This course is designed to provide students with the knowledge and skills necessary to plan and analyze secondary, qualitative and quantitative data to draw meaningful academic and/or industry conclusions, monitor and measure outcomes of communication efforts, and present and visualize data proficiently.

**APR551 Foundations of Integrated Communication**

Hours 3

This course is designed to provide students with an understanding of the fundamental theories and concepts that drive the research and practice of advertising and public relations and how to apply those theories and concepts for academic and industry inquiry.

**APR552 Quantitative Research Methods**

Hours 3

This course exposes students to the main quantitative research methods required for analysis in social scientific research, whether academic or applied. Students learn the main quantitative methodological approaches from the field of communications, and also provides essential skills required for analyzing and tackling major research issues.

**APR570 Ethics and Professional Leadership**

Hours 3

This course is designed to acquaint students with the ethical and professional practice of advertising and public relations. Students will prepare for the job and internship search by creating resumes, CVs, cover letters and portfolios that will make them viable on the job market. Students will also discuss networking, job etiquette, building relationships with stakeholders and clients, creating presentation-ready documents using Microsoft Office and Adobe Creative Suite, and presentation and pitching skills.

**APR582 APR Management**

Hours 3

Problems and decision-making processes involved in the management of advertising and public relations programs and organizations.

**APR583 Analysis and Insights II**

Hours 3

This course is the second part of a two semester course designed to provide students with the knowledge and skills necessary to plan and analyze secondary, qualitative and quantitative data to draw meaningful academic and/or industry conclusions, monitor and measure outcomes of communication efforts, and present and visualize data proficiently. This course includes an introduction to social and digital media analytics.

Prerequisite(s): APR 550

**APR584 Computational Research Methods**

Hours 3

This course is designed to provide students with exposure to and the ability to enact computational approaches to research. It will introduce students to methods of data collection, management, analysis, and visualization using Python, arguably the most widely used general programming language for computational research, and R, a dedicated interface for computational data analysis. These two resources jointly represent the state of the art for computational research today.

**APR590 Special Topics***SP*

Hours 3

The practice of developing ideas and creative strategies for professional evaluations about design and its application. Each student prepares a portfolio.

Special Topics Course

**APR593 Global Communication Management**

Hours 3

This industry-driven course is designed to provide students with the skills necessary to lead persuasive communication departments and agencies effectively on an international scale. Emphasis is placed on understanding how to use critical thinking and problem solving to make ethical, cultural, financial and personnel decisions that affect multi-market organizations.

**APR594 Comprehensive Exam Preparation**

Hours 3

This course is designed for graduate students who have chosen to complete the comprehensive examination as their capstone experience for the degree.

**APR596 Independent Study Research***SP*

Hours 1-3

This independent study course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of an advisor. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field.

Special Topics Course

**APR597 Campaign Research and Planning**

Hours 3

Research and planning to develop an integrated communication campaign for a specific organization. This is the preparation stage for the campaign planbook prepared by the student for APR 598.

**APR598 Industry Project**

Hours 1-12

Development and presentation of an integrated communication plan or applied research project for a specific organization under the supervision of an instructor of record or committee. Integration of theory, concepts, and techniques in a complete communication program.

**APR599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in advertising and public relations. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**BA501 Materials and Techniques of Bookbinding**

Hours 3

This course is an introduction to the fundamental materials and techniques of traditional bookbinding, with an emphasis on equipment, material properties, and the development of strong foundational hand skills. Through readings and hands-on assignments, students will gain an understanding of the properties inherent in common bookbinding materials and how to use them for high quality work. Several book structures, decorative paper, and fabric techniques will be covered. In addition to the development of good hand skills and proper use of materials, students will look at aesthetic issues concerning book construction.

**BA502 Beyond Letterpress: Print processes for Book Arts**

Hours 3

This studio course will serve as an introduction to the theories, conceptual concerns, and processes used in contemporary printmaking. Students will gain hands-on experience with processes that are pervasive in twenty-first century print media and book objects, including drypoint etching, monotype, collagraph, screenprinting, and waterless lithography. The goal is to develop knowledge of analog printmaking methods that still permeate visual culture through the production of fine art objects, books, clothing, and advertisements to name a few. At the conclusion of this course, students will have developed a small portfolio of prints and acquired sufficient knowledge to continue practicing the processes that will be surveyed.

**BA510 The Whole Book: An Introduction to Letterpress and Bookbinding**

Hours 3

This course is an introduction to the fundamentals of bookbinding and letterpress printing, with an emphasis on the unique conceptual and narrative potentials of the book form. Content generation and design will be explored alongside instruction about studio equipment, studio practice, and the fundamental techniques and materials used in hand book work. Through readings and studio assignments, students will learn about type setting, registration, imposition, and press operation. A variety of book structures that support the creation of artist books will be explored.

**BA520 Elements of Letterpress Printing**

Hours 3

This course is devoted to the fundamentals of letterpress. Students will develop fine craft skills in a studio environment. Through hands on assignments, students will be introduced to hand setting type, press operation, and image making techniques. They will learn fundamental terminology, gain an understanding of the interaction of type, ink, and paper, and develop familiarity with the equipment. The emphasis is on fine printing and relief image making.

**BA521 Letterpress and the Printed Book**

Hours 3

Students in this course will build on their skills on the press through the production of two assignments, culminating in the design and production of a book project. This course is focused on typographic design, the intersection of text and image, and press work. Readings and discussions in this course will focus on typography and the hierarchy of information in the book format.

Prerequisite(s): BA 520

**BA522 Advanced Projects in Letterpress**

Hours 1-6

This course is devoted to book production. Students in this course will produce and refine a series of mockups before embarking on the production of an ambitious book project. Readings, discussions, and visits to special collections will help direct the course. Individual projects will be a catalyst for the refinement of skills on the press, including the production and use of polymer plates, setting type, press operation, and maintenance. A minimum of 3 credit hours is required when taken for the first time. After the initial 3 credits the course can be taken for variable credit and will contain unique content not covered in the initial 3 credit hours.

Prerequisite(s): BA 520 and BA 521

**BA523 Artist Book and Fine Press Publishing**

Hours 1-6

Students in the course will design and produce an ambitious, letterpress-printed book project. Students will refine their skills on the press as well as develop tactics for disseminating their work. A book produced in this course can be a stepping stone towards a career in book arts. Discussion and critique are foundational to this course. Class time will be spent on troubleshooting project issues, creating budgets for book projects, and developing an online presence for the marketing of books. A minimum of 3 credit hours is required when taken for the first time. After the initial 3 credits the course can be taken for variable credit and will contain unique content not covered in the initial 3 credit hours.

Prerequisite(s): BA 520, BA 521, BA 522

**BA524 Artist Books**

Hours 3

This course is devoted to the history, context, and production of artist books. It is also an opportunity to develop a habit of creativity. We will use the power of sequence and innovative book structure to complicate and deepen our creative work. Since the end of the 19th century, a wide spectrum of artists enlisted the form of the book as a means of creative expression. In this course, we will engage in creative mark-making, writing assignments, content-generation exercises, and bookbinding to facilitate the creation of a series of artist book projects. Our book production will be supplemented by readings and visits from guest artists and special collections librarians in order to provide a broad context for artist books. Books are interdisciplinary by nature, and this course can complement a wide range of interests, including photography, printmaking, painting, creative writing, architecture, libraries, graphic design, art history, zines, graphic novels, and many other topics.

**BA530 Elements of Bookbinding**

Hours 3

Drawing upon both the historic and contemporary Western bookbinding traditions, this course is an initiation into fundamental binding forms, techniques, materials, and design. Through the construction of a series of cloth and paper structures, students will gain an understanding of the properties inherent to the materials and how they work in the context of bookbinding. In addition to the development of good hand skills and proper use of materials, aesthetic and design issues concerning book construction will be addressed.

Prerequisite(s) with concurrency: BA 501

**BA531 Fundamentals of Case Binding and Edition Work**

Hours 3

An introduction to the materials and techniques of case bookbinding. Students will continue to refine the fundamental binding skills acquired in BA 530, while being introduced to more advanced materials techniques. Case bookbinding and custom built enclosures will be constructed using paper, cloth, and leather. Students will gain a comprehensive understanding of these skills necessary for completing both one-of-a-kind and edition work.

Prerequisite(s): BA 530

**BA532 Leather Bound Books**

Hours 1-6

An introduction to the materials and techniques of leather bookbinding along with the principles of conservation treatments as they relate to the processes of rebinding. Students will study the methods of production of animal skins for book making, the qualities of these skins, and their identification. Instruction in the use of leather-working tools, advanced case binding techniques, and in-board binding construction will be introduced. A strong emphasis will be placed on paper mending, forwarding techniques and leather preparation. A minimum of 3 credit hours is required when taken for the first time. After the initial 3 credits the course can be taken for variable credit and will contain unique content not covered in the initial 3 credit hours.

Prerequisite(s): BA 530 and BA 531

**BA533 Advanced Specializations in Bookbinding**

SP

Hours 1-6

This course is devoted to advanced techniques in hand bookbinding. Students will refine their binding skills while exploring methods for fine and design work. Readings and discussions will focus on sound binding practices, and the examination of both historic and contemporary book construction and design. An advanced final project will allow students to demonstrate their mastery of the materials and techniques presented in the binding I-IV course sequence. After the initial 3 credits the course can be taken for variable credit and will contain unique content not covered in the initial 3 credit hours.

Prerequisite(s): BA 530, BA 531

Special Topics Course

**BA534 Boxmaking**

Hours 3

An exploration of traditional and experimental forms of boxes and other protective enclosures for books. Boxes serve both aesthetic and functional purposes: they house, protect, and present their contents. Students will learn box making techniques such as measuring, fitting, covering, and casing; these will be considered also in connection with more complex components like partitioning and layering. We will discuss aesthetics in the context of overall design as well as selection of materials and structures appropriate for specific applications.

Prerequisite(s): BA 530

**BA541 History and Techniques of Hand Papermaking**

Hours 1-3

Provides hands-on experience in the fundamentals of making traditional Western-style handmade papers using a variety of fibers. The objective is to produce reference samples of various kinds of sheets, as well as edition sheets of papers for book or art-making purposes. After the initial 3 credits the course can be taken for variable credit and will contain unique content not covered in the initial 3 credit hours.

**BA542 Contemporary Topics in Hand Papermaking**

Hours 1-6

This course will focus on creative processes unique to hand papermaking that stemmed from developments and innovations in the field since the 1950s. Through lectures, readings, and projects, students will gain an understanding of paper as an activated entity that can stand alone or be integrated with other media in meaningful ways. Students will refine and expand on Western sheet formation skills through hands-on experience with processes such as pigmenting, pulp painting, and blowout. After the initial 3 credits the course can be taken for variable credit and will contain unique content not covered in the initial 3 credit hours.

Prerequisite(s): BA 541

**BA592 Graduate Seminar**

Hours 2,3

Through brainstorming, discussion, and writing, students in this course will develop the concept of and proposal for their Creative Thesis Project for the MFA Book Arts degree. This course will also guide students through the development of CVs, artist statements, workshop proposals, and a digital portfolio. A significant portion of the course will involve speaking to individuals practicing in the field and developing strategies for the business side of working as an artist. This course may be repeated for a maximum of six credit hours.

**BA593 Workshops In Book Arts**

SP

Hours 1-3

Workshops covering all subjects in the book arts, held both on and off campus.

Special Topics Course

**BA594 Pract Teaching Book Arts**

SP

Hours 1-3

Practical experience teaching introductory courses in printing, binding, and other appropriate book arts.

Special Topics Course

**BA595 Independent Project**

SP

Hours 1-6

Provides an opportunity for the student to pursue independently a project in the book arts.

Special Topics Course

**BA596 Dir Research Book Arts**

SP

Hours 1-6

Provides an opportunity for an intensive investigation of both historical and technical studies of a book-arts craft.

Special Topics Course

**BA597 Internship**

Hours 1-6

A direct learning experience in a studio of a professional book artist.

**BA599 Creative Thesis Project**

Hours 1-12

The capping experience of the MFA in the book arts program is the creative project, thesis, and exhibition. Working with a faculty advisor, the candidate develops a project that demonstrates a deep understanding of the craft and the aesthetic, historic, and critical contexts of the book; to establish technical expertise; and to work independently.

**CIS601 Proseminar In Pedagogy**

Hours 1

This proseminar helps doctoral students explore methods and effective practices of teaching at the university level. Students examine how to employ different teaching modalities in an effort to engage students. Students discuss the varying teaching demands associated with class design (small classes, large lectures, and online courses). Students learn how to clearly communicate course expectations, deal with potential conflict, and construct and maintain a high level of professionalism. This one-hour proseminar builds on and extends the coverage of pedagogy provided in CIS 610 Foundations of Doctoral Study. It is recommended only for students who have completed CIS 610.

**CIS603 Quantitative Research Methods**

Hours 3

The course provides detailed study of quantitative research methods appropriate to the various areas of study in communication and information sciences.

**CIS604 Mass Communication Theory**

Hours 3

This course is a survey of the foundational theories of mass communication and media processes and effects.

**CIS605 Cultural and Critical Theory in Communication**

Hours 3

Survey of foundational cultural and critical theories in communication.

**CIS606 Knowledge & Information Theory**

Hours 3

This course offers a survey of theoretical developments in the study of knowledge and information.

**CIS607 Theory Constructn Epistemolgy**

Hours 3

This course provides detailed study of the philosophical foundations of theory construction and current issues in theories of the nature of knowledge.

**CIS608 Qualitative Research Methods**

Hours 3

This course is an introduction to qualitative research methods in communication, yet with a doctoral level of sophistication and expectations. The aim is to introduce students to all primary forms of qualitative methodologies from a social science perspective; however, each method or approach described could easily be the subject of a course itself.

**CIS609 Humanistic Research Methods**

Hours 3

Founded on a logical conceptualization of knowledge creation, this course surveys eight modes of knowing in the humanities: philological interpretation, phenomenological interpretation, explanatory history, narrative history, aesthetic/technical criticism, cultural criticism, theoretical analysis, and theoretical synthesis. Treatment of modes includes investigation of theories and examination of applications. The course is designed to support disciplinary research and publication by participants.

**CIS610 Foundations of Doctoral Study in Communication & Information Sciences**

Hours 3

Students develop familiarity with college graduate faculty members, their professional lives, teaching specialties, research interests, and service involvements. Students become familiar with the norms of doctoral life. Students develop their own unique approach to research, teaching, and service in the context of their area of expertise.

**CIS650 Seminar: Communication & Information Sciences**

SP

Hours 3

Topics vary. Course supports research in areas appropriate for advanced study and original research in communication and information sciences. Depending on the interests of participants and on the topic of the seminar, students may conduct research individually or may work together on research projects. May be repeated.

Special Topics Course

**CIS651 Interpersonal Approaches to Health Communication**

Hours 3

This graduate seminar explores the major interpersonal issues related to health communication, focusing on both classical and contemporary perspectives.

**CIS652 Sem Culture Criti Rhetor Stdy**

SP

Hours 3

The examination of a wide range of mediated texts through the intersecting perspectives of cultural, critical and rhetorical analysis.

Special Topics Course

**CIS656 Electronic and Contemporary Publishing**

Hours 3

Focuses on both scholarly and commercial networked digital publishing within the context of the information cycle and information chain from the vantages of contemporary publishing and communication. The course is concerned with the numerous and varied problems/opportunities of electronic publishing and the accompanying paradigm shifts.



**CIS657 Communication and Culture**

Hours 3

This course provides an overview of foundational theoretical and research perspectives focusing on communication and culture from functionalist (post-positivist), interpretive, and critical perspectives. Students study intercultural communication theories addressing the relationship between culture and communication, including theories related to identity (including race, gender, nationality, etc.), face negotiation, transitions and adjustment, pedagogy, and intercultural alliances.

**CIS659 Health Information Seeking**

Hours 3

Explores the major theories and issues related to health information seeking, focusing on the roles of mediated and interpersonal communication in seeking, understanding, and sharing health information.

**CIS660 Interpersonal Communication Theory**

Hours 3

This graduate course presents a focused investigation of communication in close personal relationships, with primary emphasis on foundational theories and concepts of relational communication.

**CIS662 Mediated Interpersonal Communication**

Hours 3

This graduate seminar provides an overview of research in foundational and contemporary mediated interpersonal communication relations, reviewing modern conceptions of interpersonal relationships, communication, and mediated communication from a wide breadth of disciplines.

**CIS663 Deception**

Hours 3

This course is designed to introduce students to research in interpersonal deception and to acquaint students with deceptive verbal and nonverbal behaviors and their motives and consequences, as well as with the research that has explored deception detection strategies.

**CIS664 Health Communication Campaigns**

Hours 3

This course covers the process of promoting health by disseminating messages through mass media, emergent media, and interpersonal communication. It covers the role of campaign designers in assessing consumer health needs and communication behaviors and in planning, implementing, and assessing campaigns.

**CIS665 Seminar in Communication Message Analysis***SP*

Hours 3

Topics may vary. Study and analysis of the development and management of communication institutions and their place in society. May be repeated.

Special Topics Course

**CIS666 Information Policy**

Hours 3

Theoretical and research perspectives on information policy, the set of interrelated principles, laws, and regulations guiding the oversight and management of the information lifecycle through its production, collection, distribution, use, and preservation.

**CIS667 Persuasive Communication**

Hours 3

Study and analysis of the persuasive function of communication through theoretical and/or strategic approaches. May be repeated.

**CIS668 Social Justice and Inclusion Advocacy**

Hours 3

Theoretical and research perspectives in social justice and advocacy in information studies and related information disciplines. This course explores information structures, contexts, technologies, institutions, and policies as structures and sites of power that shape inequalities. Students investigate what socially-just outcomes and interventions might look like for communities, institutions, and individuals in the information studies context.

**CIS669 Seminar in Visual Communication***SP*

Hours 3

Study and analysis of visual communication in its various forms, intended uses, and potential effects. May be repeated.

Special Topics Course

**CIS670 Health and Mass Media**

Hours 3

This course covers basic concepts of health communication within a mass communication and communications context. It covers methods and theories used to study health communication, the effects of health messages in the media, the content of health messages in the media, influences on conceptions of health and illness, and crisis communication in a health context.

**CIS671 Public Opinion**

Hours 3

Study and analysis of the formation and expression of public opinion and its relation to communication. May be repeated.

**CIS672 Media History**

Hours 3

Historical investigations of communication through descriptive, evaluative, critical, and/or archival approaches.

**CIS673 Political Communication**

Hours 3

This course examines the content, processes, and effects of communication within the American political system with a focus on the roles of human communication and media production and use. Students will learn about foundational theories and research central to political communication and consider normative theories of deliberative systems, the political economy of media and politics, and the complex relationship between media content and individual attitudes and behaviors. Students will critically examine the role of communication technologies in shaping political communication and civic life within today's hybrid media system.

**CIS674 Sports Media**

Hours 3

Surveys the history and present landscape of sports media research. Students will read and critique existing published research while also learning how to conduct and advance original research in the topic area.

**CIS675 Community-Engaged Scholarship**

Hours 3

This course introduces students to theoretical and applied community-based frameworks and approaches from the social sciences and allied disciplines to transform the “ivory tower” image of the academy. Students apply the philosophy and practice of community-engaged scholarship in community-based projects and gain experience collaborating with external constituencies. Students pursue opportunities to disseminate their research in professional venues of peer-reviewed publications and presentations.

**CIS677 Media Sociology**

Hours 3

Theoretical and research approaches to the sociological study of media production. Students explore and analyze the many contexts that shape media practices and media content, including: political and economic systems and institutions; media organizations, professions and technologies; and human cultures and communities.

**CIS679 Computational Research Methods**

Hours 3

This course introduces basic computational approaches for social scientific research, emphasizing the use of R and Python to collect, organize, and analyze data. Students will learn how to create and manipulate variables, use conditional statements and functions, obtain descriptive statistics, develop a variety of visualizations, and perform both quantitative and qualitative analyses.

**CIS680 Seminar in Media Processes and Effects**

SP

Hours 3

Covers widely used and emerging theories employed to understand media processes and effects. Considers the implications of theory in designing and conducting research in media processes and effects. Topics vary depending on the interest of the participants and on the topic of the seminar. This course may be repeated.

Special Topics Course

**CIS681 Advanced Quantitative Research Methods**

Hours 3

Provides students an opportunity to understand and use advanced quantitative research methods widely used in the communication and information science disciplines.

**CIS682 Seminar in Applied Communication**

SP

Hours 3

Covers widely used and emerging theories employed in the study of applied communication. Considers the implication of theory in designing and conducting research in applied communication. Topics vary depending on the interest of the participants and on the topic of the seminar. This course may be repeated.

Special Topics Course

**CIS683 Advanced Topics in Media Processes and Effects**

SP

Hours 3

Covers topics especially relevant in the current academic study of media processes and effects, typically focusing on a single theoretical or contextual issue. Topics vary depending on the interest of the participants and on the topic of the course. This course may be repeated.

Special Topics Course

**CIS684 Advanced Topics in Applied Communication**

SP

Hours 3

This seminar covers specific topics relevant to the current academic study of Applied Communication, typically focusing in-depth on one theoretical or contextual aspect. Topics will vary by semester.

Special Topics Course

**CIS697 Directed Research**

SP

Hours 1-3

This independent study course is designed to allow doctoral students to pursue independent exploration of a particular field or topical area, under the guidance of an advisor. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field.

Special Topics Course

**CIS699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the Ph.D. degree in Communication and Information Sciences. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a preexisting topic in the field.

**COM500 Introduction to Graduate Studies**

Hours 1,3

This course is an introduction to graduate level learning in the discipline of Communication Studies. The primary goal is to provide new graduate students with an orientation to the discipline and the department. This course provides a broad introduction to the various topics and approaches of studying communication, including the metatheoretical principles guiding knowledge production. As such, students will be introduced to theories and concepts of Communication, as well as how these can be applied to understand phenomena across various contexts. Another goal of the course is to prepare students for success in graduate studies by reinforcing skills such as critical reading, writing, information gathering, syntheses, and presentation. The course covers program requirements, degree completion options, and professional development within and outside academia.

**COM501 Introduction to Teaching Public Speaking**

Hours 1

The primary goal of this course is to facilitate the instruction of COM 123 Public Speaking. Graduate students enrolled in this course will provide lesson plans for their classes and discuss options for improving classroom learning.

**COM505 Introduction to Teaching in Communication Studies**

Hours 1

The primary goal of this course is to facilitate the instruction of general education courses in Communication Studies. Graduate students enrolled in this course will provide lesson plans for their classes and discuss options for improving classroom learning.

**COM510 Comprehensive Examination Preparation**

Hours 3

This course is designed for graduate students in their final semester of study who have chosen to complete the comprehensive examination as their capstone experience for the degree.

Prerequisite(s): COM 550, COM 548, OR ADVISOR APPROVED ALTERNATIVE METHODS COURSE

**COM513 Communication & Diversity**

Hours 3

Study and analysis of issues of diversity as they relate to groups in society and in communication fields. Emphasis is on the media's treatment of various groups in society. Approved as a communication and culture elective.

**COM515 African American Rhetoric**

Hours 3

A historical-critical investigation of African American public discourse from the Revolutionary era to the present, exploring rhetorical strategies for social change and building community.

**COM522 Communication and the Law**

Hours 3

This course introduces ancient rhetorical origins shared by communication and the practice of law and examines how contemporary communication theory informs the way legal systems work today. Students are given the opportunity to investigate a specific legal practice or phenomenon through the application of communication theory.

**COM524 Communication & Forensics Pedagogy**

Hours 3

This class explores the relationship between forensics and academia, investigating the placement of competitive forensic activities within specific academic departments, the development of strong, competitive programs through responsible coaching, and the application of forensics experience beyond the competitive environment.

**COM525 Gender & Political Communication**

Hours 3

Study of the impact of gender on political communication activities. Topics include gender differences in political messages and voter orientation, masculine ideals of leadership, women's roles and advancement in the political sphere, and media representations.

**COM536 Independent Study**

SP

Hours 1-3

Individualized research under graduate faculty supervision. Students who want to include this course in their Plans of Study to complete degree requirements must secure official approval from their faculty advisor and the department. No more than three hours of independent study may be applied toward degree requirements for the M.A. in Communication Studies.

Special Topics Course

**COM541 Contemporary Rhetorical Theory**

Hours 3

A survey of major contributions to rhetorical theory from the 20th century up to the present.

**COM545 Classical Rhetorical Theory**

Hours 3

A systematic inquiry into the development of Greek and Roman rhetorical theory during the classical period (ca. 480 B.C.E. 400 C.E.).

**COM548 Seminar in Rhetorical Criticism**

Hours 3

An examination of various methodological perspectives of rhetorical criticism. Specifically, the course aims to familiarize students with both traditional and alternative critical methods and to encourage students to perceive the rhetorical dimensions of all manner of public discourse, ranging from speeches, advertising, film, popular music to discursive forms in new media and the Internet.

**COM550 Qualitative Research Methods in Communication**

Hours 3

An introduction to qualitative research methods in communication, including data collection and analysis. The goals of the course are to provide exposure to a broad array of qualitative methods, help students learn to use some of these methods, and to help them to understand the role of research in our field. The course is designed to help student actually conduct research, resulting in two conference-worthy papers.

**COM551 Instructional Communication: Theories & Practice**

Hours 3

This course explores the theories, research, and practice that identify communication skills and competencies in the educational setting.

**COM555 Conflict and Negotiation**

Hours 3

Negotiation is fundamentally a communicative activity. The main objective of this course is to understand processes of formal conflict management in mixed motive settings. Students will apply negotiation theory and skills to simulated negotiation cases that include buyer-seller transactions, negotiating through an agent or mediator, salary negotiations, deal making, resolution of workplace disputes, multiparty negotiations, international and intercultural negotiations, and ethical decision making and communication in negotiation. The skills and theory introduced in this course will help students manage integrative and distributive aspects of the negotiation process to achieve individual and collective goals.

**COM560 Group Leadership**

Hours 3

An advanced study of small-group behavior, examining in detail theories of leadership as they relate to problem solving in group situations.

**COM561 Human Communication Theory**

Hours 3

A detailed review of selected theories of speech communication with a focus on the critical examination of the foundation of social scientific theories.

**COM563 Relational Communication**

Hours 3

Focused investigation of communication in close personal relationships, with primary emphasis on contemporary concepts and theories of romantic relationships and friendships.

**COM565 Intercultural Communication**

Hours 3

Survey and analysis of major concepts, theories, and research dealing with communication between people of different cultural backgrounds in multicultural and international settings.

**COM567 Seminar in Public Address**

SP

Hours 3

A topical consideration of individual case studies from public discourse, designed to probe problems of the nature of the audience, the ethics of persuasion, and the power of public advocacy in mass society. Topics may vary.

Special Topics Course

**COM570 Foundations in Health Communication**

Hours 3

This course focuses on the foundations for studying communication occurring in the professional and everyday practices of health and healing, including patient-provider relationships, health education, health care organizations, health and the body, and other political, cultural, and material forces that influence how we make sense of health.

**COM571 Seminar in Organizational Communication**

Hours 3

An introductory examination of historical and contemporary issues in organizational communication scholarship from a variety of theoretical and methodological perspectives.

**COM572 Organizational Assessment/Intervention**

Hours 3

Examines the theoretical issues inherent in the study of organizational communication, the primary factors requiring assessment and intervention, the impact of on-going changes and new information techniques, current challenges facing the organizational consultant, and the practical application of communication processes for improving organizations.

**COM573 Methods of Community Engagement**

Hours 3

This course studies the communicative processes and strategies for engaging with community stakeholders through research and experiential learning. Students are placed in an environment to practice application of these methods, to learn firsthand the effects of engagement communication models, and to experience the community building possible through careful communication.

**COM575 Technology, Culture, and Human Communication**

Hours 3

Study of the complexity of technologically-mediated communication across cultures. This course combines literature and concepts from intercultural communication with human communication and technology and addresses the challenges of interacting with others via technology, working in global virtual teams and organizations, and participating as a citizen and consumer in the technology age.

**COM578 Critical Autoethnography**

Hours 3

This course examines autoethnography as perspective, method, and content area, concentrating on writing as a method of knowing that privileges lived experience.

**COM580 Capstone Seminar**

Hours 3

This course gives students opportunities to demonstrate learning by interpreting, synthesizing, and integrating their knowledge from previous coursework in communication studies. This course serves as a culminating experience and should be taken during the last term of students' program of study.

Prerequisite(s): COM 550

**COM590 Internship**

Hours 1-3

Proposal for supervised field experience in communication studies must be submitted and approved.

**COM595 Special Topics**

SP

Hours 3

Topics vary by instructor.

Special Topics Course

**COM598 Professional or Creative Project**

SP

Hours 3

MA students in Communication Studies who elect the Professional Plan II Option may earn 3 hours credit for completing a research or creative project.

Special Topics Course

**COM599 Thesis Research**

Hours 1-6

*No description available*

**JCM500 Orientation to Graduate Studies**

Hours 1

This course introduces students to graduate study and sets the stage for the remainder of their coursework. Students learn about research in journalism and media studies, and they become familiar with the department faculty's interests and expertise. Students will develop an overall research question and begin to work on a topic proposal.

**JCM501 Media Production Tools**

Hours 3

Instruction in and critical analysis of communication technologies used in the production of community journalism.

**JCM502 Producing Community Journalism**

Hours 3

This course focuses on gathering, writing, editing, and presenting of news and information across media platforms.

**JCM511 Depth Reporting**

Hours 3

This course entails reporting and writing in-depth news and feature stories for publication in print and online. Students learn advanced techniques in information gathering and non-fiction writing. Deadline reporting and writing skills are addressed, as well.

**JCM512 Seminar in American Cinema**

Hours 3

The analysis of American cinema—focusing on three critical methods: genre study, authorship (the auteur theory), and the star system.

**JCM517 Advanced Sports Writing & Reporting**

Hours 3

Advanced techniques in reporting and writing for sports media, as well as ethical and societal implications of sports journalism.

Prerequisite(s): None – graduate student standing.

**JCM520 Media Effects**

Hours 3

Theoretical study of individual and societal effects of media, including the impact and influence on attitudes and cultural beliefs.

**JCM522 Science and Environment in Popular Media and Culture**

Hours 3

Students apply theoretical perspectives useful in understanding the role of entertainment media in public engagement with science. This course foregrounds the role of storytelling in science and environmental communication in both contemporary and emergent media.

**JCM533 Journalism and Emergent Media**

Hours 3

This course examines how emerging media have and are evolving the relationship between journalism/mass media and society. From primarily a social scientific perspective, this course addresses key theories and issues relevant to journalism's ongoing shift to the digital world.

**JCM535 Sports Documentary**

Hours 3

The course will give students a better understanding of the theory and practice of sports documentary production. Students will research and create mini-documentaries on sport-related topics.

**JCM536 Teaching Multimedia News**

Hours 3

This course is designed to give students an overview of journalism and the process and pedagogy of instructing K-12 and college journalism classes.

**JCM542 Advanced Magazine Writing**

Hours 3

This course focuses on writing and editing of long-form articles for publication in print and online depth magazines. Students learn advanced narrative non-fiction writing techniques and how to gather information for longer feature stories.

**JCM544 Data Journalism**

Hours 3

The course will teach students to tell stories using data and visualization techniques. The course will cover a variety of topics in pursuit of this goal, including data collection, data cleaning and manipulation, basic statistics, and data visualization.

**JCM545 Feature Writing in the Digital Age**

Hours 3

Advanced techniques in writing and editing feature articles for publication across media outlets. Students will learn nonfiction writing techniques and apply them to a variety of feature article forms, with an emphasis on storytelling for digital audiences. Students will study top-notch published work to observe these techniques in action, and then sharpen their own skills through several short and lengthier, in-depth feature articles.

**JCM548 News Analysis**

Hours 3

Historical and critical study of electronic-media news in the United States.

**JCM551 News Media Management**

Hours 3

Development of leadership skills for managing media organizations in the global environment. Students will analyze media industries and media data, review case studies and try to resolve media challenges. Students will gain a deeper understanding of the impact of a digitized media world.

**JCM552 Journalism Theory and Research**

Hours 3

Exploration of theory and an overview of research approaches as they relate to the study of news media and their role in communities.

**JCM553 Making Media Innovation**

Hours 3

Covers the methods by which journalists and marketing professionals monitor the interests and activities of readers, viewers, and users of content.

**JCM555 Entrepreneurial Journalism**

Hours 3

Practices, ethics and theory of entrepreneurship in the journalism field.



**JCM561 JCM Special Topics**

SP

Hours 1-3

Course content varies to explore current topics relevant to journalism and creative media. Repeatable for up to 6 credits if the topics are different.

Special Topics Course

**JCM562 Contemporary Issues in Journalism**

Hours 3

Examines current issues facing the news media, ranging from professional problems to the human, social, and other consequences of news, news practices, and news technology.

**JCM563 History of Journalism and Media**

Hours 3

This course focuses on the study of the origin and development of journalism and mass media, covering major ideas and milestones and the individuals who have made notable contributions to the field. The history and philosophy of freedom of the press and the First Amendment receives particular attention.

**JCM571 Practice of Community Journalism**

Hours 1

An immersion in a community and in the news organization that covers it, and an introduction to the daily practice of professional journalism at the community level.

**JCM572 Seminar in Professional Journalism**

SP

Hours 3

Studies in selected aspects of the practice of journalism. May be repeated.

Special Topics Course

**JCM575 Anatomy of a Trial I**

Hours 3

Anatomy of a Trial is an interdisciplinary service-learning course in narrative nonfiction, focusing on audio storytelling. Students learn to develop their own personal voice and style while also learning practical skills about the emerging podcast landscape. Students are introduced to professional audio techniques, including recording, editing and sound design. The course involves study of radio journalism history and theory as well as the ethics of narrative nonfiction.

**JCM576 Anatomy of a Trial II**

Hours 3

This is an interdisciplinary service-learning course in narrative nonfiction, focusing on audio storytelling. Students learn to develop their own personal voice and style while also learning practical skills about the emerging podcast landscape. Students are introduced to professional audio techniques, including recording, editing and sound design. The course involves study of radio journalism history and theory as well as the ethics of narrative nonfiction.

**JCM590 Directed Research in JCM**

SP

Hours 1-3

Independent study as arranged.

Special Topics Course

**JCM597 Master's Project**

SP

Hours 1-3

Students produce a professional-level project or complete comprehensive exams.

Special Topics Course

**JCM599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Journalism. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**LS500 Information Science and Technology**

Hours 3

This introductory course examines information science through conceptual foundations and historical underpinnings of the field as they relate to the nature and roles of information and information institutions. Students will learn fundamental approaches to understand the relationships between Information and individuals, organizations, and society.

**LS501 Information in Communities**

Hours 3

This required course introduces students to values and ethics and power structures that impact information and information services to diverse communities. It serves as a foundation for broadly thinking about information, communities, power, and social responsibility of LIS professionals.

**LS502 Research Methods**

Hours 3

Introduces research design and statistical techniques used in library, media, and information science. At the conclusion of the course, the student should be able to comprehend and utilize research reports in these fields and to design and carry out basic research projects.

**LS504 Media Prod & Utilization**

Hours 3

Instructional modules that introduce the student to basic skills in the preparation and utilization of educational media.

**LS505 Collection Development**

Hours 3

Explores principles and issues involved in developing library collections. Aspects such as community analysis, policy development, selection and acquisitions, resource sharing, evaluation, weeding, and preservation are examined.



**LS506 Cataloging and Classification**

Hours 3

Investigates approaches to current and historical methods for information organization by librarians, including emerging approaches to resource identification and description via linked data. Explores subject access in using traditional access tools, and contemporary issues in bibliographic control.

**LS507 User Centered Information Services**

Hours 3

Introduces reference and instructional services in libraries.

**LS508 Management Theory and Practice**

Hours 3

Designed to introduce students to the theory and practice of modern management by studying the management aspects of authority, communications, decision making, delegation, leadership, personnel, planning, budgeting, and motivation. Use is made of case studies and simulations.

**LS512 Info Resources:Science**

Hours 3

Surveys scientific and technical communication, the bibliographic structure of science and technology, and information services for scientists and technologists. In-depth study of the major information sources in biology, chemistry, physics, mathematics, engineering, and geology is included.

**LS513 Professional Paths**

Hours 3

This required course introduces students to the multi- and interdisciplinary nature of Library and Information Science and to the career paths available to them through the MLIS degree. As a result of this course, students will be better able to make informed decisions about the educational, experiential, and technical opportunities needed in order to pursue their chosen professional path.

**LS515 Information Ethics**

Hours 3

This course provides students with the conceptual frameworks, methodologies, analytical approaches, and argumentation skills needed as information professionals to resolve complex ethical crises and dilemmas surrounding the use of information, data, and emerging technologies.

**LS516 Philanthropy, Fundraising, & Grants**

Hours 3

Philanthropy has become a fundamental component in maintaining the financial health, prosperity, and innovation of public institutions. The objective of this course is designed to discuss and expand students' knowledge of philanthropy and its varied foundations in public, academic, and special library settings as well as study its potential critical implications when private contributions are used in place of public funds.

**LS520 Early Childhood Literacy Materials & Story Programs**

Hours 3

Introduces a wide variety of print and non-print early literacy materials for young children ages birth to seven with an emphasis on selecting materials and developing literature-based story programs to meet their educational, cultural, and recreational needs. Among the types of story programming techniques to be explored are storytelling, flannel boards, drama, puppetry, and finger rhymes. Emphasis will be placed on investigating the principals involved in designing, implementing, promoting and evaluating early literacy story programs for young children.

**LS521 Materials & Services for Children**

Hours 3

Explores materials (print and non-print) and programs appropriate for children ages 6 to 12.

**LS522 Materials & Services for Young Adults**

Hours 3

Explores materials (print and non-print) and programs appropriate for teenagers and young adults.

**LS523 Matl Services Adults**

Hours 3

Examines services, programming, and popular materials provided to adult users of public libraries.

**LS524 Project Management**

Hours 3

Introduces graduate level concepts and skills associated with project management in information rich environments. Includes teamwork, team development, and collaboration.

**LS527 Information Literacy Instruction**

Hours 3

This course is intended to provide students with an introduction to the concepts, theories, and practice of library user instruction through reading, discussion, class speakers, and practice. The focus of the course will be on instruction for adult users in public and academic library settings.

**LS530 Public Libraries**

Hours 3

Examination of public library development, purpose, governance, and services and exploration of issues and concepts involved in managing public libraries.

**LS531 Academic Libraries**

Hours 3

Study of the role of library service in higher education.

**LS532 School Media Centers**

Hours 3

Develops a philosophical and functional background of the school-media program as an integral part of the teaching-learning process.

**LS533 Spec Libr & Info Centrs**

Hours 3

Philosophy, environment, and unique aspects of the services, operation, and management of special libraries and information centers are covered. Provides considerable opportunity for study of topics of interest to individual students.

**LS535 Records Management**

Hours 3

Introduces the fundamentals of information and records management. Content includes (a) inventory, scheduling and auditing records; (b) active and inactive information maintenance; (c) organizing and administering a records center; and (d) applications for information systems (computer, microform and paper).

**LS541 Youth Programming**

Hours 3

Explores various types of literacy programs and outreach services for youth (children, tweens, and teens) as well as the development and management of library environments that facilitate life-long learning and reading adventures.

**LS542 Instruct Design & Dev**

Hours 3

Comprises a series of modules that cover the basic skills required to undertake instructional development. Materials needed to plan and prepare instruction, as well as exercises designed to upgrade interpersonal skills, are included. Designed for library-media specialists, supervisors, administrators, and others who assist teachers in the development of instruction.

**LS543 Traditional & Digital Storytelling**

Hours 3

Introduces a wide variety of storytelling techniques both traditional and digital (technology-based) and explores how these strategies can be used in library programs and services for children and young adults. Emphasis is placed on developing personal storytelling skills via technology and traditional resources. A web-cam is required for this course.

**LS544 Cultural Diversity Programming for Children, Teens, and Families**

Hours 3

Explores the development and implementation of various types of library programs and outreach services for children and young adults that promote cultural diversity.

**LS550 Introduction to Audiovisual Archiving**

Hours 3

This course introduces students to the preservation of moving image and sound material. Participants will learn about current archiving methodologies and the challenges of preservation (for both analog and digital media), approaches to restoration, systems of description and retrieval for archival audiovisual material, and ways to provide ongoing access to them.

**LS551 Audiovisual Collections Management**

Hours 3

This course is concerned with moving image (film, videotape, audio-visual digital materials) collections as specialized repositories of historical knowledge and cultural values. This course examines issues surrounding the history, management and the accessibility of moving image materials, apparatus and ephemera in specific contexts. Different types of public and private moving image collections will be studied as reflections of governmental, commercial, cultural, and community needs, and their histories, purposes, intellectual organization, and physical management will be described.

**LS552 Digital Preservation**

Hours 3

This course is intended as a point of entry into the theory and practice of digital preservation. Focusing on the set of processes and activities that ensures long-term, sustained storage of, access to, and interpretation of digital objects, both digitized and born digital, this course defines issues and practices regarding the preservation of digital materials in the context of memory institutions.

**LS555 Introduction to Archival Studies**

Hours 3

This course offers an introduction to archival theory and practice. Emphasis is placed on investigating the nature and character of archival forms, the role of the archivist in society, the ethics of archival practice, and the social function of records and archives.

**LS556 Intellectual Foundations of Archival Theory & Practice**

Hours 3

Archives are made by ideas. Archivists have defined, and described, archives as functioning as memory, evidence, and information. In addition, archives have been ascribed cultural, historical, and artifactual values. This course is a critical examination of archival thought and its influence on how archives are conceived, constructed, and ultimately used.

Prerequisite(s): There are no prerequisites for this course.

**LS557 Archival Appraisal**

Hours 3

This course explores topics in the selection and appraisal of archival materials. In this course you will gain exposure to the principles and approaches, which influence how records are selected for long-term retention and preservation, as well as practical performing this archival practice.

Prerequisite(s): There are no prerequisites for this course.

**LS558 Archival Representation, Access & Use**

Hours 3

This course explores topics in the organization of archival materials. Specifically, the topics addressed include the description, arrangement, and representation of archival objects and collections. In studying these topics, students will obtain an understanding of the theoretical underpinnings of these practices as well as practical experience in creating usable collections through archival arrangement and description.

**LS560 Information Technologies**

Hours 3

Provides future information professionals with a solid foundation of basic information technologies at the skill, conceptual, and analytical levels. Acquaints students with the role of technology in information organizations. Students gain hands-on experience in web application production from a user-centered perspective, including: hypertext, usability analysis, database application, and technology instruction. Foundations of change management are addressed. IT Fluency is used as a model to explore the topics of this course.

**LS562 Digital Libraries**

Hours 3

Prepares students to develop digital libraries, exploring the issues associated with creating, operating, and maintaining digital libraries; analyzing electronic library programs in the U.S. and assessing their impact on education, scholarship and research.

**LS563 Linked Data**

Hours 3

This course examines the principles and practice of linked data for organizing and sharing information in libraries and other cultural heritage organizations.

**LS564 Programming for Digital Libraries**

Hours 3

Students learn basic programming concepts and skills for managing different types of content and developing interactive systems. PHP, as part of the "LAMP Stack" (Linux, Apache, PHP, Mysql) is the programming language used in this course to explore the development of digital libraries. We will start out at a beginner's level with PHP & MySQL, and students will gain understanding of basic programming syntax, data structures, and logic. Students will then learn how to develop web applications for more applied tasks, including data parsing and processing, and extending specialized PHP libraries for implementing further functionality of system components found in digital libraries.

**LS565 Social Media and Informatics**

Hours 3

This course explores the affordances of social software applications such as blogs, tagging, and online social networks and their functions in various work locales through the concepts of informatics. The focus of this course is on social software fluency for work and productivity.

**LS566 Metadata Fundamentals**

Hours 3

Introductory course that examines conceptual and ethical foundations of metadata in a range of practice contexts including library cataloging and special collections. Introduces data management software tools and techniques used for acquiring, cleaning, enhancing, and analyzing metadata datasets.

**LS567 Digital Reference**

Hours 3

Explores societal problems and professional developments that relate to digital reference services in public, academic and special libraries. Explores the impact of digital reference on users and libraries.

**LS568 Social and Technical Aspects of Cybersecurity and Terrorism**

Hours 3

This course examines the history of cyber-related espionage and terrorism, explores websites and Web 2.0 media that support and fight against terrorism, and identifies human behaviors indicative of potential information and communication technology (ICT) interaction misuse. The focus of this course is primarily on human behaviors as they relate to ICT use and provides students with opportunities to identify and examine strategies to protect their organizations from misuse of technology systems and applications.

**LS569 Database Management**

Hours 3

This course introduces database design, creation, and manipulation using a database management system. The course combines both conceptual and practical discussions for a relational database. Topics include data modeling, database design, implementation, Structured Query Language (SQL), and remote access to databases. NoSQL structure for web-archival databases and social media collections will also be introduced.

Prerequisite(s): LS 500

**LS570 Internship**

Hours 1-3

Internship.

**LS572 Intern Sch Media Cntrs**

Hours 3

Intern Sch Media Cntrs.

**LS580 Outreach to Diverse Populations**

Hours 3

Explores diverse cultural groups and the ways that all types of libraries can effectively serve the informational and recreational needs of these populations.

**LS581 Universal Design for Information Technologies**

Hours 3

Examines the place of information and communication technologies, online resources, and social networking tools in the current practice of information and communication interactions for persons with mild to severe physical access challenges.

**LS582 Race, Gender, and Sexuality in Library & Information Studies**

Hours 3

This course explores how race, gender, and sexuality shape (and are shaped by) LIS as a profession and practice. Socially constructed theories of race, gender and sexual identity will be critically examined in different contexts as they intersect, overlap and impact LIS institutions, information use, technology practices, and the design of information resources and services in the processes of creation, organization, and dissemination of information in library and information professions.

**LS583 Social Aspects of Information**

Hours 3

This course covers a range of social, political, and economic issues related to how people interact with information and communication technologies. The class explores the effects of different social contexts on the creation, use, and meaning of information technologies. Subject matter will range from examining online interactions, mobile technologies, information and work, digital labor practices, and laws and policies related to information technologies.

**LS584 Data Bias**

Hours 3

Information systems, both formal and social, have significant impact on people in society. Outcomes of these systems frequently pose disadvantages for certain groups resulting in differences in equality, equity, power, need, and responsibility. Students will explore notions of fairness, basic structure, original position, veils of ignorance, and just distribution to determine the effects of bias in automated systems. These notions will be examined through the lens of social, information, and communication theories that aid in understanding and envisioning solutions for improved information systems that promote fairness.

**LS590 Issues In Librarianship**

SP

Hours 3

Explores societal problems and professional developments that have, or are likely to have, an impact on the practice of librarianship. May be taken more than once.

Special Topics Course

**LS598 Directed Research**

SP

Hours 1-6

Provides the opportunity for an intensive investigation of a special aspect of library and information studies, under the supervision of an appropriate faculty member.

Special Topics Course

**LS599 Thesis Research**

Hours 1-6

Thesis Research. Maximum of 6 hours may be earned.

**LS620 Graphic Novels in Libraries Serving Youth**

Hours 3

Examines the ways in which graphic novels, comics, and other visual narratives serve as engaging and enriching media for contemporary youth (children and young adults); explores the use of these materials in classrooms and libraries to teach information, visual, and cultural literacies; and provides opportunities to explore and critically analyze visual narratives using multiple methods.

**LS621 Intercultural Perspectives in Youth Literature**

Hours 3

This course addresses cultural stereotypes and issues surrounding cultural authenticity in children's and young adult literature, and suggests how librarians / educators can help children use literature to make intercultural connections with youth from diverse cultural backgrounds. Provides opportunities to explore diverse perspectives and theories related to selecting, analyzing, and interpreting international and multicultural literature for youth.

**LS622 Leading Collaboration through School Libraries**

Hours 3

A study of the theories and strategies related to instructional collaborations involving school libraries and media centers.

**LS623 Issues in School Library Administration**

Hours 3

A critical examination of issues related to social and cultural justice in the administration of school libraries and media centers.

**LS653 Descriptive Bibliography**

Hours 3

Examines the intellectual objectives served by descriptive bibliographies and introduces the methods and problems of bibliographical description of printed books of the hand- and machine-press periods. Emphasis is on the examination and historical analysis of books as physical objects. Primarily for students interested in the history of books, special collections, rare book cataloging, and humanities reference work.

**LS654 Print Culture and Society**

Hours 3

Examines the book as a cultural artifact and explores the impact of print culture on communication and knowledge/information production in Europe and the United States. Topics include orality and literacy, reading, authorship, copyright, markets and distribution, and the future of books in a digital age.

**LS655 Book Artifact Materiality Text**

Hours 3

Examines the book as a physical artifact, as the material embodiment of text. Topics include the transitions between hand production and mechanical production, methods of bookmaking, printers and publishers, the alphabetic code, paratext, letterforms and typography, paper, page formats and layouts, illustrations, bindings, and other semiotic systems and bibliographic signifiers, as well as the purpose of the book with special emphasis on the relationships between meaning and physical form and the complex conventions of the book.

**LS698 Independent Research for School Library Leaders**

SP

Hours 3

An overview of library-based approaches to action research and providing research-focused professional development in the role of school librarian in K12 education.

Special Topics Course

**MC501 Mass Media Law Reguln**

Hours 3

A study of the laws affecting the media, decisions, and case histories that act as guides for the media. Independent readings and papers are required.

**MC513 Communication/Diversity**

Hours 3

Study and analysis of issues of diversity as they relate to groups in society and in communication fields. Emphasis is on the media's treatment of various groups in society.

**MC517 Mass Communication and Public Opinion**

Hours 3

Nature, development, formation, and distribution of politically relevant attitudes and opinions; role of leadership, persuasion, and communication in opinion-policy process. Emphasis on the role of the media in the formation of public opinion and on how the media are influenced in turn by public opinion.

Prerequisite(s): There are no specific course prerequisites, but graduate status or consent of instructor is required.

**MC526 Race, Gender and Media**

Hours 3

This discussion-oriented class examines the mass media through the lenses of race, ethnicity and gender. The course helps future media practitioners be aware of their roles in creating content that reflects increasingly multicultural audiences. Using current, contemporary and classic media texts, students critically analyze media messages and understand the importance of a diverse workforce.

**MC530 Video Games and Media**

Hours 3

This is an overview course that addresses game user research, theory and the ability to analyze for understanding usability, research, and play in the field, giving students an underpinning of the design and research approaches taken with video games. The course assists students who might employ the study of video games in health, advertainment, and journalism in their professional careers, and who may be expected to complete research relating to games.

**MC531 Sports & Social Media**

Hours 3

This course will focus on the connections and engagement of social media within sports communication. This will include topics such as personal/professional branding, audience analytics, media campaigns and messaging.

**MC546 Issues in Sports Media**

SP

Hours 3

This course is designed to synthesize work in mass communication to enable students to construct and critique arguments about modern sports media issues and controversies.

Special Topics Course

**MC550 Research Methods**

Hours 3

A survey of qualitative and quantitative methods in communication research.

**MC551 Sem Communication Theory**

Hours 3

A study of the development of selected theories of communication as they pertain to interpersonal, public, and mass communication.

**MC564 Sports Media Research**

Hours 3

This course focuses on the descriptive and empirical ways to develop and evaluate research related to the sports industry, individual accomplishments, fan participation, and social media. Emphasis will be placed on the way that sports media has influenced contemporary culture and values.

**MC595 Special Topics**

SP

Hours 3

Special topics in mass communication theory and research. May be repeated.

Special Topics Course

## College of Community Health Sciences Courses

**CHS540 Rural Community Interaction I**

Hours 3

The purpose of this course is to introduce participants to real life and practical application and topics related to rural medicine, with an emphasis on minority populations. The course is divided into two parts: a shadowing experience with a primary care provider working in a rural or underserved setting, and a seminar series. Additionally the course will include a special service learning project in order to further expose students to practical application of issues and topics in rural or underserved communities.

**CHS541 Rural Community Interaction II**

Hours 3

The purpose of this course is a continuation of Rural Community Interaction I and introduces participants to additional real life and practical applications and topics related to rural medicine, with an emphasis on minority populations. The course is composed of two class projects of planning, implementation, and evaluation of a community screening event to be selected by the class. Each student will also complete a final paper (5 double-spaced typed pages) describing their cumulative experiences including lessons learned.

Prerequisite(s): CHS 540

**CHS550 Introduction to Fundamentals of Medicine I**

Hours 6

Introduction to Fundamentals of Medicine I is an interdisciplinary course that provides a foundation for understanding the molecular and biochemical basis of cellular processes and whole body physiology, and initiates an appreciation for their impairment during various human diseases. The course will include an overview of the functional roles of various cellular constituents (e.g., protein, carbohydrate, lipid, nucleic acids) and the processes involved in their synthesis and degradation (e.g., thermodynamics, metabolic pathways, transcription/translation). This will involve not only an understanding of the mechanisms and pathways involved, but will also include an appreciation of their regulation/dysregulation during numerous perturbations of physiologic status (e.g., fed versus fasted, sedentary versus exercise) and disease states. IFM-I consists of a variety of instructional strategies (e.g., lectures, labs, small groups, team-based learning, self-study) to help develop critical thinking and problem solving skills, as well as build a knowledge base that is scientifically and clinically relevant to medical research and practice.

Prerequisite(s): Admission to Rural Community Health Program and Approval by the Instructor



**CHS551 Introduction to Fundamentals of Medicine II**

Hours 6

Introduction to Fundamentals of Medicine II is an interdisciplinary course that provides a foundation basic pharmacology and cellular physiology. The basic principles of pharmacodynamics and pharmacokinetics will be followed by an introduction to autonomic nervous system pharmacology that will serve as a basis for understanding the pharmacologic treatment of diseases. This course will also cover mechanisms of cellular homeostasis, transport, electrophysiology and communication, and will provide examples of disease states that result from abnormal functioning of these processes. This course consists of a variety of instructional strategies (e.g., lectures, labs, small groups, team-based learning, self-study) to help develop critical thinking and problem solving skills, as well as build a knowledge base that is scientifically and clinically relevant to medical research and practice.

Prerequisite(s): Admission to Rural Community Health Program and Approval by the Instructor

**CHS595 Special Topics**

SP

Hours 1-3

Selected topics in Community Health Sciences offered by CCHS faculty members.

Special Topics Course

**CHS599 Thesis Research**

Hours 1-6

A candidate for the Master of Science in Population Health Sciences pursuing the thesis option is required to complete six credit hours dedicated to original research under the direction of a faculty advisory committee. A written thesis is required to be presented, defended orally, and submitted to the faculty advisory committee for approval. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CHS620 Ind Study In Prev Med**

SP

Hours 1-5

Research or directed reading in community medicine topics, including health care delivery, preventive medicine, and health policy aspects of other related topics.

Special Topics Course

**CHS622 Directed Research in Community Health**

SP

Hours 3

An advanced applied-research course designed to develop skills in the analysis and evaluation of health problems of community interest.

Prerequisite(s): POPH 523 AND 522

Special Topics Course

**CHS660 Drug Delivery Beyond the Biological Barriers**

Hours 4

This course provides an overview of drug discovery, formulation, and delivery with efforts to reflect on the past and peek into the future drug development. This course requires substantial knowledge of chemistry, mathematics, and physics, and basic courses in biological sciences.

**CHS661 Imaginary Logic of Advanced Drug Delivery Program**

Hours 1

This graduate level course presents topics designed to bring together divergent thinking (imaginary) with convergent thinkers (logical) to provide a platform to train the next generation of graduate students to think horizontally to overcome the valley of death in drug discovery and bring new therapies to clinic. As a career preparation course, it aims to provide graduate students the depth and breadth of understanding in drug discovery and development that will be applicable throughout their careers, regardless of their research focus.

**CHS662 Formulations Science Lab**

Hours 3

This research-based laboratory course provides training in the developing the next generation of drug delivery systems through a broad spectrum of techniques including synthesis of polyesters and their bioconjugation, characterization of polyesters using the state-of-the-art analytical tools, processing the polyesters into nanoparticulate drug carrier systems encapsulating diverse model drugs, and characterization of the nanoparticles for size, loading, encapsulation, release, and stability. For students who have interest and aspire to research careers in interdisciplinary advanced drug delivery, this course will provide basic training and experience for a smooth start for future laboratory work. This course requires substantial knowledge of chemistry, mathematics, and physics, and basic courses in biological sciences.

Prerequisite(s) with concurrency: CHS 660

**CHS663 Formulations Testing Lab**

Hours 3

This research-based laboratory course that focuses on training students in testing the next generation of drug delivery systems. Students will be exposed to a broad spectrum of techniques (e.g., in vitro, ex vivo, in vivo). Students will be exposed to a variety of techniques including tissue processing for tissue mechanics, drug estimation, particle tracking, receptor binding, and histology and immunohistochemical analysis, and in vitro and ex vivo study designs. Students will have hands-on experience in a wide variety of microscopy and histology equipment. For students who have interest and aspire to research careers in interdisciplinary advanced drug delivery, this course will provide basic training and experience for a smooth start for future laboratory work involving pharmacology testing. This course requires substantial knowledge of chemistry, mathematics, and physics, and basic courses in biological sciences.

Prerequisite(s): CHS 662

**CHS664 Drug Delivery Bioanalysis Lab I**

Hours 3

This course provides individual training on the use of different equipment in the bioanalytical core in support of graduate student research in advanced drug delivery. This lab-based course trains students to develop and adapt bioanalytical methods that are pivotal for in vitro, ex vivo and in vivo testing of experimental therapeutics.

**CHS665 Drug Delivery Bioanalysis Lab II**

Hours 3

This course is designed to offer individualized training to graduate students in advanced drug delivery, focusing on the use of various equipment in the bioanalytical core. Through this lab-based course, students will learn how to develop and adapt bioanalytical methods crucial for in vitro, ex vivo, and in vivo testing of experimental therapeutics.

**CHS699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral level research dissertation hours toward the Ph.D. in the student's field. A minimum of 18 dissertation hours are required, at 1-12 hours per semester. The course is conducted under the guidance of the Ph.D. advisor. The student must register for a minimum of 3 hours per semester in this course until reaching the required minimum of 18 credit hours. Thereafter, students must register for a minimum of 1 hour each semester in this course, maintaining continuous enrollment until degree completion.

Prerequisite(s): Admission to Candidacy

**CHS700 Clinical Clerkship**

Hours 12-18

This course is designed to allow UASOM students to complete their MS3 clerkships on the Tuscaloosa campus. Material covered is defined by UASOM and the UASOM Primary Care Track curriculum. This is a 12 month curriculum and these courses are to define participants' status as UA students during this time.

**CHS701 Clinical Clerkship**

Hours 12-18

This course is designed to allow UASOM students to complete their MS3 clerkships on the Tuscaloosa campus. Material covered is defined by UASOM and the UASOM Primary Care Track curriculum. This is a 12 month curriculum and these courses are to define participants' status as UA students during this time.

**CHS702 Clinical Clerkship**

Hours 12-18

This course is designed to allow UASOM students to complete their MS3 clerkships on the Tuscaloosa campus. Material covered is defined by UASOM and the UASOM Primary Care Track curriculum. This is a 12 month curriculum and these courses are to define participants' status as UA students during this time.

**CHS800 Clinical Clerkship**

Hours 12-18

This course is designed to allow UASOM students to complete their MS3 clerkships on the Tuscaloosa campus. Material covered is defined by UASOM and the UASOM Primary Care Track curriculum. This is a 12 month curriculum and these courses are to define participants' status as UA students during this time.

**CHS801 Clinical Clerkship**

Hours 12-18

This course is designed to allow UASOM students to complete their MS3 clerkships on the Tuscaloosa campus. Material covered is defined by UASOM and the UASOM Primary Care Track curriculum. This is a 12 month curriculum and these courses are to define participants' status as UA students during this time.

**CHS802 Clinical Clerkship**

Hours 12-18

This course is designed to allow UASOM students to complete their MS3 clerkships on the Tuscaloosa campus. Material covered is defined by UASOM and the UASOM Primary Care Track curriculum. This is a 12 month curriculum and these courses are to define participants' status as UA students during this time.

**CHS900 Residency**

Hours 12

*No description available*

**POPH520 Essentials of Population Health**

Hours 3

An introductory graduate level course designed to teach learners to examine health issues from a population health perspective.

**POPH521 Health Policy & Planning**

Hours 3

Designed to assist the student in understanding the planning process and factors that influence and determine policy decisions.

**POPH522 Biostatistics**

Hours 3

A course in statistical methods and concepts particularly appropriate for biomedical research and health-related subjects. Topics include descriptive statistics, probability, parametric and nonparametric procedures for one-group and two-group problems, contingency tables, and computer applications.

**POPH523 Basic Epidemiology**

Hours 3

A course for students in health-related fields. The basic epidemiologic approach is developed; principles and methods are learned through readings (text and published studies), lectures, discussions, and the preparation of a research design by each student.

**POPH524 Health Economics**

Hours 3

A course designed for graduate students interested in understanding the importance of health economics on public policy. Topics include the supply and demand of health care, health insurance, consequences of information asymmetry, health technology assessment, comparison of national health care systems, and behavioral economics.

Prerequisite(s): POPH 522 OR HHE 526 OR BER 540 OR ST 509

**POPH525 Outcomes Research in Population Health**

Hours 3

This course examines the methods utilized in the design, implementation, and evaluation of research studies implemented in a healthcare setting. In this course, you will explore various research designs that can be used to evaluate studies with outcomes at the individual and organizational level. Both naturalistic (or observational) and experimental designed will be covered throughout the course. Various analytic approaches that are appropriate to examine the design, implementation, and evaluation of studies in the medical setting will be applied. Furthermore, students will be expected to develop a research protocol that demonstrates the mastery of core competencies obtained throughout the semester.

Prerequisite(s): POPH 522 or HHE 526 or BER 540 or ST 509

**POPH530 Introduction to Medical Care**

Hours 3

Overview of Medicine by organ systems: Cardiovascular, Endocrine, Gastrointestinal, Pulmonary, Central Nervous System, Musculoskeletal, Nephrology, and Reproductive Systems. Selected topics in Dermatology, Hematology/Oncology, Addiction and Alcoholism and Infectious Diseases.

**POPH531 Interprofessional Health Communication**

Hours 3

This interprofessional course focuses on understanding roles, how to work in a team using a common language; presenting information that other team members can understand, contributing to safe and effective systems. Identify basic concepts of effective teamwork among professions with an emphasis on communication and teamwork.

**POPH532 Healthcare Finance and Reimbursement**

Hours 3

This course covers health insurance operations, principles, payment methods and contracts, and revenue cycle management. Key topics include private and public sector insurance, insurance contracts, underwriting principles, and inpatient and outpatient payment processes. This course presents an overview of financial systems in health care so that students will be able to understand the broad financial context within which organizational decision-making occurs. Additionally, selected financial management topics will be covered with an emphasis on providing future managers with the tools required to carry out their fiscal responsibilities.

**POPH533 Healthcare Quality & Informatics**

Hours 3

Students will become familiar with how electronic health record (EHR) data that can be used to participate in quality improvement and research. Class will involve exploring the structure of data generated by EHRs and understanding how to manipulate the data and operationalize it for quality reporting and research. The goal of the class will be for clinicians and managers to be able to produce data for MACRA, PCMH, and other common quality initiatives. In addition those with a research focus will get a hands on view of EHR data and how to use it to answer research questions.

**POPH535 Data Management**

Hours 3

This course educates students on the basic tenets of relational databases, the components of a database, and introductory-level querying through programming. These concepts will be taught through the lens of population health, and will show how many departments of health, health agencies, and large scale research studies store and retrieve data. The goal of this course is to introduce database management concepts to future analysts, thereby empowering their ability to effectively work with database administrators in their pursuits to generate tables for big data analytics. This course will use Microsoft SQL Server © to achieve its purpose and goals.

**POPH536 Introduction to Qualitative Methods in Population Health**

Hours 3

This course will provide an introduction to qualitative research methodologies as they are applied to the field of population health.

**POPH537 Cultural Competency**

Hours 3

The increasing cultural diversity in the United States has profound implications for population health science and practice. This seminar is designed to address a broad range of theoretical, research, and clinical issues related to cultural competency in healthcare. Using readings, class discussions and student presentations, the seminar will emphasize the role of ethnicity, class, culture, gender, sexual orientation, and disability in population health, and the impact of these factors on assessment, diagnosis and treatment. Students will take an assessment at the beginning and the end of class designed to determine the growth in student knowledge, understanding, acceptance, and behavior change in regard to cultural competence.

**POPH595 Population Health Applications (Non-Thesis)**

Hours 3

The practicum is a planned, supervised, and evaluated work experience that complements the student's classroom education, and allows them the opportunity to apply the lessons learned in their course work. The practicum experience is designed to enhance student's professional experience in the field of population health, and is key to a comprehensive understanding of population health in clinical settings. Success is defined by the exposure to valuable work experience, improvements in subject matter knowledge, mastery of specific competencies, and the development of relationships between the student, preceptor, and the site. The student is responsible for connecting with their peers, academic and professional networks to identify and contact a suitable preceptor. The student is responsible for completing 120 hours under the guidance of their preceptor, and is required to document their completed hours on a regular basis. Only hours directly relating to the practicum learning objectives should be logged.

Prerequisite(s): POPH 520, POPH 521, POPH 522, POPH 523, POPH 524, AND POPH 525

**POPH599 Thesis Research**

Hours 1-6

A candidate for the Master of Science in Population Health Sciences pursuing the thesis option is required to complete six credit hours dedicated to original research under the direction of a faculty advisory committee. A written thesis is required to be presented, defended orally, and submitted to the faculty advisory committee for approval. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**POPH622 Multivar Meth Hlt Stats**

Hours 3

This course aims to help the student apply linear methods such as regression and generalized linear models to health-related scientific studies for cross-sectional or longitudinal data. Some software solutions will be discussed and explored.

Prerequisite(s): POPH 522 or HHE 526

**POPH623 Advanced Epidemiology**

Hours 3

This course will take a hands-on approach to learning about epidemiologic methods, particularly as they relate to current health topics, like cardiovascular disease, cancer, and behavioral epidemiology. This is a second-level course on the conduct of epidemiologic research. It will focus on both the conceptual problems of applying the scientific/epidemiologic method and on the practical issues in carrying out of work.

Prerequisite(s): POPH 523 or instructor approval

**RCH500 Rural Envir/Occup Health**

Hours 3

The goal of the course is to help the student recognize environmental and occupational health hazards in the rural setting, the effects of exposure to these hazards and preventative measures that should be taken to avoid environmental risks. This course introduces students in the Rural Medicine Program to the basics of environmental and occupational health in the rural setting. The course is designed to help these students recognize biological, chemical, physical, safety, and ergonomic health hazards common to the rural South; the effects of human exposure to these hazards are presented; and preventive measures that should be taken to avoid such exposures are discussed. Applicable environmental and workplace regulations are reviewed.

**RCH522 Community Clinical Process I**

Hours 3

A combination of scheduled sessions and fieldwork activities. The fieldwork will consist of visiting with an assigned rural advisor, completing a rural community assessment, and assisting with community health screenings and education programs.

**RCH523 Independent Study Community Medicine**

SP

Hours 1-6

This independent study course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of an advisor. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on issues related to rural healthcare, primary care, etc. to encourage a better understanding of the multifaceted role of a rural, primary care physician.

Special Topics Course

**RCH530 Stress Management**

Hours 3

This course focuses on learning to identify, understand, and manage the stressors that most affect their lives. Course will consist of a regular seminar and out of class assignments from required textbook. Students will be exposed to research findings on the physical, psychological, sociological, and spiritual aspects of stress. In addition, students will be presented with examples of coping skills, including relaxation techniques, behavior change interventions, and strategies for defusing physiological arousal. Students will be introduced to the tools needed to cope with stress in an increasingly stressful world. Special emphasis will be placed on clinical concerns (e.g., methods for alleviating stress) for rural populations.

**RCH532 Community Clinical Process II**

Hours 3

A combination of scheduled sessions and fieldwork activities. The fieldwork will consist of visiting with an assigned rural advisor, completing a rural community assessment, and assisting with community health screenings and education programs.

**RCH591 Clinical Correlations and Study Strategies in Biomedical Science I**

I

Hours 2

Application of biomedical principles in a clinical context. Introduction to clinical reasoning and study skills. This course is designed to reinforce and develop foundational biomedical science concepts, learning and study skills, critical thinking, wellness, and clinical application skills crucial for success in medical school.

**RCH592 Clinical Correlations and Study Strategies in Biomedical Science II**

Hours 2

This course is designed to reinforce and develop foundational biomedical science concepts, learning and study skills, critical thinking, wellness, and clinical application skills crucial for success in medical school.

## College of Education Courses

**AEL520 Leadership for Communities**

Hours 3

A study of the individual and group leadership skills needed to address issues affecting student learning, family engagement, and community support for school improvement efforts.

**AEL521 Leadership for Improvement**

Hours 3

Prepares prospective educational administrators working in the grade P-12 setting with instructional leadership skills. The course focuses on learning methods and strategies for program planning, design, implementation, and evaluation.

**AEL522 Teaching and Learning**

Hours 3

The course emphasizes the development of a school leader's knowledge in the area of teaching and learning and the ability to lead, coach, participate in and enhance an informed dialogue on student learning.

**AEL523 Human Resource Development**

Hours 3

The course covers the basic concepts of effective supervision, including supervisory roles and functions, communicative interaction, and formative and summative strategies for improving instruction.

**AEL524 Ethics and Law**

Hours 3

A study of ethics and law as it relates to the educational leader's role as the first citizen of the school/district community.

**AEL525 Management**

Hours 3

A study of theories, principles and practices of managing an educational organization. Emphasis will be on the practical management of the local school.

**AEL526 Data Informed Decision Making**

Hours 3

Uses school-based data as a vehicle to illustrate the applicability of decision-making models for the resolution of school problems.

**AEL527 Internship in Educ Leadership**

Hours 1.5

Applies theory, knowledge and skills in meaningful and practical experiences in actual school settings. Students are required to complete two semesters of internship for a total of 3 hours credit.

**AEL530 Introduction to Educational Leadership**

Hours 3

This course is an introduction to leadership theory and practice. It focuses on both individual and group leadership skills and how they are used to affect student learning and the engagement of the broader learning community. The collaborative development of a school's mission and the examination of the critical issues that school leaders commonly face will be examined.

**AEL531 Evidence-based Decision Making**

Hours 3

This course uses school performance data to illustrate the applicability of decision-making models for the resolution of school-based problems.

**AEL532 Supervision and Mentoring**

Hours 3

This course examines strategic approaches to instructional leadership, supervision and mentoring. The focus of the course centers on the knowledge base, the interpersonal and technical skills, as well as the mentoring proficiencies that is required of an instructional leader.

**AEL533 Management and Strategic Planning**

Hours 3

This course is a study of the theories, principles, and practices of managing an educational organization with an emphasis on the practical management of the local school. It addresses the role that instructional leaders play in advancing student learning through the effective, efficient, and equitable utilization of resources.

**AEL534 Leadership and Organizational Theory**

Hours 3

This course focuses on the analysis of concepts and issues related to the organization and administration of the school. The course is a general introduction to the study of educational administration that puts a focus on key leadership skills.

**AEL535 Leadership of Curriculum and Instruction**

Hours 3

This course is designed to prepare prospective educational administrators in the area of curriculum and instruction. The course focuses on research insights related to teaching and learning as well as on key principles and concepts for curriculum design, curriculum implementation and curriculum evaluation.

**AEL608 Educ Fin Theory/Pract**

Hours 3

A study of litigation, legislation, and implementation of public-school finance programs in the 50 states. Concentrates on four aspects of equity: resource equity, input equity, output equity, and tax equity.

**AEL611 Superintendency and the Leadership Team**

Hours 3

An inquiry utilizing the perspectives of effective delegation and participation into the nature of the superintendency and the development of a leadership team.

Prerequisite(s): None

**AEL612 Instruc Supv Mentor Trng**

Hours 3

A comprehensive critical examination of advanced philosophy, theory, and research of instructional supervision, including an interdisciplinary focus on forces impinging upon instruction. Implications of these findings for individual and group development and the improvement of instruction and the instructional environment are emphasized.

**AEL618 Adv Educational Law**

Hours 3

Emphasizes original legal research by the student. After reviewing general principles of educational law, each student selects a topic for intense research. With the instructor's assistance, each student will prepare a publishable article on some area of educational law. Proper use of legal notations, forms, and research methods is stressed.

**AEL619 Politics Of Education**

Hours 3

Study of politics as it relates to educational decision making, with emphasis on political theory, history of politics in education, and the legislative process. Offered once during the academic year.

**AEL630 School Partnerships**

Hours 3

This advanced course examines basic principles, strategies, and components of school and community partnerships and the obstacles to forging effective and successful partnerships from a solid theoretical foundation in community sociology and its relationship to school reform. In addition, it analyzes how social and cultural differences impact the ways in which business, schools, families/parents, and communities interact, relate, and conflict.

**AEL631 Strategic Leadership**

Hours 3

Application of Leadership theories to district level leadership practice, with an emphasis on strategies and tactics for planning. Includes field experience.

**AEL632 Leading Learning Through the Curriculum**

Hours 3

Knowledge, skills and understandings about curriculum discourses and assumptions underlying historical, social and contemporary thought, practice and research applying to curriculum leadership.

Prerequisite(s): AEL 521

**AEL633 Leading, Developing, and Mentoring for Adult Learners**

Hours 3

Emphasis is on advanced study of leading learning communities, developing adult learners and strategies for teachers to ensure all students learn.

Prerequisite(s): AEL 522 and AEL 631



**AEL634 Development and Supervision of Human Resources**

Hours 3

Analysis of personnel functions, emphasizing philosophy, theory, skills and research on professional development for adult learners in professional learning communities.

Prerequisite(s): AEL 523

**AEL635 Ethical, Legal, and Policy Issues in Schools**

Hours 3

Advanced ethics and law for school administrators with emphasis on relationships between these and policy for school leaders.

**AEL636 School Finance and Financial Management**

Hours 3

An introduction to school and school systems business management and related technologies, fund accounting; GAAP; budgets; asset stewardship and internal control; purchasing and contracts; local school revenues, reporting and relationships to school support organizations and student activities.

**AEL637 Leadership and Social Systems**

Hours 3

A study of the interplay between leader behavior and schools from social systems theory and practical implications for improving instruction.

**AEL638 Solving Problems of Practice**

Hours 3

Directed opportunities to use educational leadership knowledge and skills to design field-based projects and evaluate solutions.

**AEL649 Advanced Research**

Hours 1-6

Directed research activities related to educational leadership topics. Enrollment is subject to program regulations and permission of the student's program committee. Credit is based on the nature and degree of student involvement.

**AEL650 Organizational Theory**

Hours 3

An exploration of the relationship among concepts, generalizations, and theoretical models found in the behavioral and social sciences. The application of these to administrative practice in educational settings is addressed.

**AEL661 Major Issues and Trends in Educational Leadership**

Hours 3

This course provides an advanced analysis of the current issues and trends commonly affecting the decisions of school leaders.

**AEL664 Educational Policy and the Dynamics of Change**

Hours 3

Components of change will be identified and theories of social and personal dynamics will be adapted and applied to planned programs of change in education.

**AEL671 Survey of Instructional Supervision**

Hours 3

A critical examination of research in supervision and leadership to improve instructional capacities and diverse student learning.

**AEL675 Leadership for Organizational Improvement: Theory into Practice**

Hours 3

This is a second-level course on organizational theory that is a continuation of the work begun in AEL 650. The course presents a deep exposure to the research literature on organizational theory, taken from various theoretical perspectives, with the expectation of fashioning a dissertation problem.

**AEL682 Lead & Org/Theory & Appl**

Hours 3

An examination of historical and contemporary theories, models, concepts, and practices for effective and efficient approaches to leadership within organizations and how these apply to educational settings.

**AEL697 Seminar in Educational Leadership**

Hours 3

An advanced seminar for students to explore research in educational leadership and conduct critical inquiries into areas of specialized interest.

**AEL699 Dissertation Research**

Hours 1-12

Twelve semester hours (EdD) or 24 semester hours (PhD) required. Directed dissertation research in the area of educational leadership. Student must maintain continuous enrollment for a minimum of 3 semester hours per semester until the dissertation is completed. Enrollment is subject to program regulations and permission of the student's dissertation committee.

**AHE500 Perspect High Educ Admin**

Hours 3

How higher education has been shaped by the major trends in American society, how it has contributed to the development of this country, and what may be expected of higher education in the future. Higher education is also viewed in institutional and conceptual forms from the perspective of students, faculty, and administrators.

**AHE503 Learning with Technology in Higher Education**

Hours 3

This course provides students with an overview of the main issues surrounding the use of technology for the advancement of teaching in higher education settings. It includes some hands-on experiences designed to enhance the productivity and creativity of learning in both classroom and online environments.

**AHE505 Grant, Project and Research Work in Higher Education**

Hours 3

This course introduces students to the skills and knowledge necessary to conduct grant, project, and research work in higher education in the role of a principal investigator, research team member or supporting staff member.

**AHE507 Student Development Theory I**

Hours 3

Introduction to the theoretical basis for the delivery of services through organizational student development, and a study of the research basis for student development.

**AHE510 The Community College**

Hours 3

An overview of the development, format, issues, and purposes of the contemporary community and junior college.

**AHE520 Student In Higher Eductn**

Hours 3

A survey of the needs, characteristics, and cultures of the American college student within various types of higher education institutions.

**AHE521 Student Affairs**

Hours 3

An overview of the organization, personnel, and practices of student affairs and related higher education functions in U.S. colleges and universities. The course is designed to increase student understanding of how student services, student activities, and student development tasks are organized, administered, and assessed. Students will explore the main issues, roles, constituencies and expectations affecting individual professionals as well as the profession as a whole.

**AHE530 Law & Higher Education**

Hours 3

Investigates and explicates the structure and background of law and equity in higher education, with emphasis on how statutory law, administrative law, and case law respond to and affect faculty, students, administrators, and trustees. Constitutional law, contracts, torts, the law of private associations, civil rights statutes, executive orders, injunctions, specific performance, corporate and partnership law, law of agency, and laws on liability are studied as they apply to higher education.

**AHE540 Org and Governance**

Hours 3

Overview of the organization, administrative roles and positions, administrative process, and administrator relationships within various institutions of higher learning.

**AHE550 Financing Higher Eductn**

Hours 3

An overview of the budgeting processes, sources of revenue, types of expenditures, and issues and innovations in financing various types of contemporary institutions of higher education. Also a survey of the various business and planning operations vital to the operation of colleges and universities.

**AHE560 Comparatv Higher Eductn**

Hours 3

This course is designed to provide a cross-cultural perspective on issues related to higher education throughout the world. The course will focus on topics such as reform, students and student activism, internal and external governance of universities, unions, and the academic profession in key world regions.

**AHE590 Ind Study In Higher Ed**

SP

Hours 3-6

Directed independent study in the literature of higher education, designed for the student seeking a minor or pursuing master's work in the program in higher education (AHE).

Special Topics Course

**AHE591 Seminar Higher Education**

Hours 3

A topical seminar on a current issue or problem in higher or postsecondary education. On occasion, the seminar involves travel or on-site visitations to institutions or oversight bodies.

**AHE592 Internship in Higher Education**

Hours 3

The application of theory, knowledge, and skills in authentic educational settings. Students are required to complete one semester of internship for a total of three hours credit.

**AHE593 Student Affairs Capstone Seminar**

Hours 3

The Student Affairs Capstone Seminar will be the final course for students in the Higher Education Master's Program. The course focuses on leadership and organizational change in student affairs in postsecondary education.

Prerequisite(s): Instructor permission

**AHE599 Thesis Research**

Hours 1-6

Directed thesis research.

**AHE601 Professional Sem High Ed**

Hours 3

This course is designed for students newly admitted to the doctoral program in higher education administration. As such, the seminar concentrates on issues and concerns that arise as part of the doctoral experience. Course activities and experiences may vary according to the professional experience and academic background of course participants.

**AHE602 Problems In Higher Education**

Hours 3

Seminar studying the current issues and trends related to higher education.

**AHE603 College & University Teaching**

Hours 3

An intensive graduate seminar that provides an overview of the issues, principles, and practices associated with effective college teaching. Topics include learning and diversity; teaching models and strategies; teacher and student behaviors and learning outcomes; and instructional improvement strategies.

**AHE610 Academic Culture & Learn**

Hours 3

An intensive examination of the student, faculty, and administrative cultures in higher education environments. The impact of various internal and external factors on institutional culture and behavior will also be studied, particularly as they relate to teaching, learning, research, and service.

**AHE621 Power Politics Change**

Hours 3

*No description available***AHE625 Community College Leadership**

Hours 3

This course provides an overview of issues pertaining to leadership in American community colleges.

**AHE640 Organizational Change**

Hours 3

Colleges and universities face tremendous challenges; the need for change, and for change agents, has never been greater. This course examines organizational change both theoretically and practically in higher education.

**AHE644 Sem Acad Progm Dev Eval**

Hours 3

Design and management of academic programs; study of institutional structures for academic affairs; practice in program review for instructional improvement; and overview of graduate programs (general and liberal education, as well as occupational and professional education).

**AHE645 Higher Education and Student Affairs Assessment**

Hours 3

This course will explore assessment in higher education and student affairs, including the history and significance of assessment, perspectives from associations, fundamental perspectives, ethics, practical considerations, and future directions. We will also study specific processes for creating assessment initiatives, including developing outcomes, instrumentation, data collection, sampling, data analysis, dissemination, and utilizing results.

Prerequisite(s): AHE 645 has no prerequisites.

**AHE670 Higher Education Policy**

Hours 3

This course will introduce students to the essential elements of higher education policy and finance. Students will examine the main financing options of colleges and universities; college costs and pricing; financial aid policy, and emerging policy issues.

**AHE680 Readings in HE**

SP

Hours 3

The purpose of this course is to provide students with skills that enable them to understand and synthesize current research in higher education.

Special Topics Course

**AHE685 Implementing Multicultural and Diversity Initiatives in Higher Education Practice**

Hours 3

This course is designed to provide overview of issues related to multiculturalism and diversity in American Higher Education and to help students learn how these issues influence higher education practices.

**AHE688 Mentored Teaching**

Hours 3

This course provides students with a mentored experiential learning opportunity to develop competency and mastery in course construction and delivery in the higher education environment.

**AHE689 Mentored Research**

Hours 3

This course provides students with mentored experiential learning opportunity to develop competency and mastery in research and analytical skills. To be taken at or near end of students research requirements.

**AHE690 Direct Doctoral Study**

SP

Hours 1-6

Directed individual study and analysis of a problem confronting higher education. Note: Frequently, special one-time-only seminars focusing on a particular aspect of higher education are offered by program faculty under this course number.

Special Topics Course

**AHE699 Dissertation Research**

Hours 1-15

Directed dissertation research in the field of higher education. Enrollment is subject to program regulations and permission of the student's dissertation committee chairperson. Also offered in summer school.

**AIL600 Integr Tech Educ & Train**

Hours 3

An examination of advanced applications of current and emerging instructional technological applications in a variety of settings and in the context of various fields of study and job environments. Technologies and applications addressed in current course include computers, the Internet, presentation media, and multimedia. Cognitive, product, and skill competencies are included. Cognitive competencies are integrated into product and skills evaluations. Products are required to reflect some competencies, while skills competencies are either observed directly or inferred from the products.

**AIL601 Prin Instruct Technology**

Hours 3

The doctoral level course provides an introduction to the historical, theoretical and philosophical foundations of the field of Instructional Technology (IT). The course allows students to explore current and emerging instructional technology tools and processes in the context of their domain of interest.

**AIL602 Electrnc Instruct Design**

Hours 3

Designed to develop basic knowledge and skills for electronic instructional design -analysis, design, production, evaluation, and revision - for specific electronic projects.

**AIL603 Telecommctn & Networks**

Hours 3

Designed to explore design, layout, and installation of local and wide area networks. Addresses topologies, ethernet standards, physical layer, network operating software, data-link layer, file server, network cards, hubs, peripherals, routers, and other network operations.

**AIL604 Distance Technologies**

Hours 3

Prepares students with knowledge and skills in methods of distance education, which incorporates telecommunications and computer technology to instruct students at remote locations or to serve as an adjunct to classroom instruction. The technology used includes telephony, cable television, satellite communications, videocassettes, videoconferencing, computer-mediated instruction, and/or online computer communication via the Internet.

**AIL605 Interact Multimedia Proc**

Hours 3

Prepares students with knowledge and skills in modeling, simulation, testing, or analysis or training in real-world contexts using interactive multimedia processes.

**AIL606 Software Technology**

Hours 3

Intended for students who have had some prior programming experience; otherwise, students will need to develop competencies prior to taking this course. Issues include matching the capabilities of the medium to the intellectual structure of the subject, who directs the interaction between human and computer; the size of the intellectual field; and pedagogical concerns in choosing the operations of a software environment. Students are expected to design and complete a project at the end of the course.

**AIL607 Readings in Instructional Technology**

SP

Hours 3

This course is designed to aid students in understanding and synthesizing research and developing theoretical approaches to the study of instructional technology.

Special Topics Course

**AIL608 Diversity, Inclusion, Equity and Accessibility in Instruct. Tech Design and Implementation**

Hours 3

Students will explore issues of diversity, inclusion, equity, and accessibility when designing and implementing learning technologies.

**AIL631 Administrative Technology**

Hours 3

This course introduces learners to the primary administrative technologies available for administrators and the critical technology issues educational and organizational leaders face.

**AIL689 Practicum in Instructional Technology**

Hours 3-6

Students pursue research in the Instructional Technology program. They are required to develop, implement, and analyze research; and report findings in APA format.

**AIL690 Sem Instructional Technology**

Hours 3

*No description available*

.

**AIL691 Doctoral Seminar: Instructional Technology**

SP

Hours 1

This doctoral seminar presents opportunities to study or work independently on topics or projects of collective concern in the IT doctoral program.

Special Topics Course

**AIL695 The Dissertation in Nurse Education**

Hours 3

This capstone course explores the writing of a dissertation in Nursing Education; including the organization of the argument, the framing of research questions, the description of field research, the analysis data, and the reporting and discussion of findings.

**AIL699 Dissertation Research**

Hours 1-12

Twelve semester hours (EdD) or 24 semester hours (PhD) required. Directed dissertation research in the area of instructional leadership. Students must maintain continuous enrollment for a minimum of 3 semester hours per semester each fall and spring semester until the dissertation is completed. Enrollment is subject to program regulations and permission of the student's dissertation committee.

**BCE511 Principles Of Guidance**

Hours 3

Explores the rationale for guidance by examining human development and sociological, psychological, and philosophical bases for guidance. Provides awareness of services by surveying components of guidance programs. Offered fall semester.

**BCE512 Counseling Theory Proc**

Hours 3

Introduction to counseling, counseling theories, and the counseling relationship; and an overview of the counseling process. Offered fall and spring semesters.

**BCE513 Career Development**

Hours 3

An introduction for counselors and teachers to career development concepts, labor force information, and other resources needed to help persons with career planning and decision making. Offered spring semester.

**BCE514 Counseling Skills**

Hours 3

An experiential course involving applied elements of theoretical models and customary helping skills to orient and prepare students for their initial supervised work with counseling clients. Offered fall and spring semesters.

**BCE516 Practicum Counseling II**

Hours 3-6

Supervised practice in counseling. Offered fall and spring semesters.

Prerequisite(s): BCE 512 and BCE 514

**BCE517 Professional Issues, Ethics, and Advocacy in Counseling**

Hours 3

This course is designed to expose students to the fundamental principals of being a professional counselor. This course will help students to be familiar with assumptions, theories, strategies, applications, ethical, and legal considerations related to the development of counseling.

**BCE518 Intro to Clin. Ment. Hlth Cnsl**

Hours 3

Seminar and fieldwork designed to acquaint the student with the functions and roles of the counselor in various community and agency settings. Offered fall semester.

**BCE521 Group Proced Coun Educ**

Hours 3

Background in group methods, including group guidance, group counseling, and group dynamics. One-half of class time is spent in a laboratory experience during which each student is provided an opportunity to function in a group. Offered fall and spring semesters and in summer school.

**BCE522 Indiv & Group Appraisal**

Hours 3

An overview of measurement methods, practice in administration and interpretation of standardized tests, and evaluation of tests and testing programs for counseling and guidance. Offered spring semester and in summer school.

**BCE523 Prog Development & Mgt**

Hours 3

An examination of the organization and implementation of the guidance functions of schools and the guidance responsibilities of counselors, teachers and administrators. Offered spring semester.

Prerequisite(s): BCE 511

**BCE525 Internship in School and Clinical Mental Health Counseling**

Hours 3-12

Supervised field experience in an appropriate job setting. Offered fall, spring and summer semesters/terms.

Prerequisite(s): BCE 516 and BCE 512

**BCE528 Adv Sem. Clin. Ment. Hlth Cnsl**

Hours 3

Advanced study and discussion of a variety of agency-specific issues and topics. Offered spring semester.

Prerequisite(s): BCE 518

**BCE533 Special Topics**

SP

Hours 1-3

This course is designed to offer students a range of counseling-focused 500-level special topic classes.

Special Topics Course

**BCE540 Orientation to Rehabilitation Counseling**

Hours 3

Philosophical, social, psychological, and legislative bases of rehabilitation; the nature and scope of the rehabilitation process and the functions of the rehabilitation counselor; and study of the individual. Offered fall semester.

**BCE542 Medical and Psychosocial Aspects Disabilities**

Hours 3

General knowledge of chronic illness and disability is important for rehabilitation counselors, allied health professionals, and other human services workers who work in settings involved with serving persons with disabilities. This course will explore the personal, psychosocial, and vocational impact of chronic illness and disability. The course provides an overview of various body systems, the etiology and pathology of diseases, injuries, and disabilities that can affect the body systems, the prognosis, psychosocial and vocational implications of these conditions. Also examined will be the various models of conceptualizing disability and assistive technology.

**BCE545 Case Management, Vocational Rehabilitation, & Placement**

Hours 3

The purpose of this course is to provide students with the knowledge and necessary skills to complete case management and vocational rehabilitation placement services. Course content includes competencies of case management; intake interviews; medical and psychological evaluation and life care planning.

**BCE546 Pract Rehab Counseling**

Hours 3-6

Supervised practice in rehabilitation counseling. Offered fall, spring, and summer semesters/terms.

Prerequisite(s): BCE 512 and BCE 514 with a minimum of B

**BCE547 Internship in Rehabilitation Counseling**

Hours 3-12

Supervised field experience in a rehabilitation setting. Offered fall, spring, and summer semesters/terms.

Prerequisite(s): BCE 546

**BCE611 Multicult. Approach Counseling**

Hours 3

This course is designed to introduce students to multicultural issues unique to counseling and other helping professions. Offered even-numbered fall semesters.

**BCE613 Substance Abuse Counseling**

Hours 3

The primary goals for this course are to deepen students' understanding of substance use disorders, facilitate the development of addiction counseling competencies associated with positive treatment outcomes and increase students' level of confidence in identification of substance abuse issues.

**BCE615 Field Exper Counselor Ed**

Hours 3-6

Supervised field experiences in counseling to supplement accredited, advanced-level internships. Offered annually.

**BCE616 Advanced Practicum In Counseling**

Hours 3-6

Supervised practice in counseling for advanced majors. Offered alternate spring semester.



**BCE618 Adv Theory Counseling**

Hours 3

Historical and current approaches to individual counseling, and the theories of personality structure and individual behavior from which these approaches are derived. Offered alternate spring semesters.

**BCE619 Supervision in Counselor Education**

Hours 3-6

Supervision of practicum students within a structured pedagogical course. Offered in the fall and spring semesters.

**BCE621 Advanced Multicultural Counseling**

Hours 3

This course is a theoretical and skill development course for counselors and other human helpers to strengthen multicultural awareness, knowledge and skills in the competencies necessary to evaluate presenting issues brought forward by racially, ethnically, and culturally diverse clients. Additionally, this course will examine the related ethical and professional issues of developing multicultural counseling competencies. Entrance into the EdS in Counseling program required.

**BCE622 Developmental Guide**

Hours 3

This course presents an overview to the practice and profession of school counseling with specific emphasis on the past, present, future and issues in the field. Individual readings, conferences, group discussions, and reports focusing on areas of interest in counseling and guidance will be utilized. Entrance to the EdS in school counseling program required.

**BCE625 Advanced Internship**

Hours 3-9

Supervised field experiences in counseling and counselor education for advanced students. Offered fall, spring, and summer semesters/terms.

Prerequisite(s): BCE 615 or BCE 616

**BCE626 Readings**

SP

Hours 3

Independent study under faculty direction. Offered fall, spring, and summer semesters/terms.

Special Topics Course

**BCE633 Advanced Seminar**

Hours 3

Seminars focusing on contemporary counseling issues and topics. Varied offerings.

**BCE635 Teaching and Scholarship in Counselor Education**

Hours 3

This course is designed for advanced counseling students who study teaching and scholarship in Counselor Education.

**BCE636 Leadership and Advocacy in Counselor Education**

Hours 3

The course is designed for advanced counseling students who study leadership and advocacy in Counselor Education.

**BCE650 Couns Stratg Fam Relatns**

Hours 3

Examination of theoretical and applied elements of systemic intervention with troubled families. Offered spring semester.

**BCE652 Couns Stratg Adult-Child**

Hours 3

Examination of theoretical and applied elements of intervention with discordant relationships between adults and children. Offered summer terms only.

**BCE653 Intro Play Therapy**

Hours 3

This course is an introduction to the use of play therapy. It includes the history of play as a therapeutic medium and the techniques a health care professional can use in practice.

**BCE698 Non-Dissertn Research**

Hours 3-6

Directed research not related to dissertation research. Variable offerings.

Prerequisite(s): Instructor Approval

**BCE699 Dissertation Research**

Hours 1-15

Student research for writing dissertation.

**BEF503 History Of Amer Educn**

Hours 3

An interpretive history of the educational and social movements and conflicts leading to understanding contemporary issues of educational aims, curriculum, teaching methodology, administrative policy, and the professionalization of teaching. Offered in alternate semesters and in summer school.

**BEF504 Philosophy Of Educ**

Hours 3

An examination into the meaning and purpose of education in light of major philosophical problems of knowledge, value, and reality. Offered in alternate semesters and in summer school.

**BEF507 Sociology Of Education**

Hours 3

A sociological emphasis on cultural factors (such as ethnic background; socioeconomic status; family, peers, and community; and sex-role stereotyping) that influence education in a pluralistic society.

**BEF510 Phil Hist Socl Founds Ed**

Hours 3

Drawing on interdisciplinary study in philosophy, history, and sociology, this course examines the purposes and development of schools in relation to the social, cultural, political, and intellectual makeup of society.

**BEF534 Multicultural Education**

Hours 3

Studies in selected aspects of the social, cultural, and political foundations of society, with a critical evaluation of their relevance for understanding diversity in educational institutions and in creating pedagogies that meet the diverse needs of students.

**BEF575 Found Educn Through Film**

Hours 3

One of the most powerful media for awakening and reflecting on ideas is film. This course uses various films with educational themes to examine social and philosophical issues in education.

**BEF577 Readings in Critical Sociology of Education**

SP

Hours 3

Readings in Critical Sociology of Education will provide graduate students with post introduction type of readings into significant theories and theorists of the sociology of education from a critical perspective. This perspective will give students a conceptual tool to interpret important theoretical frameworks necessary for research into educational issues. Prerequisite - Admission into Graduate School.

Special Topics Course

**BEF585 Language Politics & Education**

Hours 3

This course provides students a broad overview of language policy and planning. Drawing on international case studies, students will identify different foci of language planning, including status, corpus, and acquisition planning, as well as the different linguistic and political views that inform policy.

**BEF607 Readings In Soc Of Ed**

SP

Hours 3

Individualized readings in the sociology of education, with a focus on the educator as a reflective practitioner and facilitator of learning.

Special Topics Course

**BEF638 Civil Rights, Law, and Equity in P-12 Education**

Hours 3

This course introduces students to legal and policy initiatives aimed at expanding educational civil rights and limiting educational and social inequities. This course helps analyze key legal cases, especially decisions from the United States Supreme Court. The course also allows students to understand the social movements that have led to policies related to civil rights in education.

**BEF639 Educ Theory And Policy**

Hours 3

A critique of educational theory (learning, curricular, instructional, administrative) and its implications for policy making.

**BEF640 Studies History Of Education**

Hours 3

A critical examination of significant events, movements, or individuals in the history of education.

**BEF641 Studies Social Foundatn Educatn**

Hours 3

A special topics course providing an in-depth analysis of important individuals, theories, and contemporary issues in the social foundations of education.

**BEF642 Studies Philosophy Education**

Hours 3

This course provides in-depth analyses of important individuals, ideas, or concepts that have helped to develop, expand, or shed light on our philosophical understandings of the myriad and contested purposes, policies, and practices of schooling.

**BEF644 Phil Science Rel Ed Res**

Hours 3

An inquiry into the basic assumptions and principles underlying scientific research in education. Offered spring semester.

**BEF650 Critical Race Theory In Educ**

Hours 3

This seminar explores the history, theory, and educational implications of critical race theory in the areas of pedagogy, curriculum, and educational policy.

**BEF653 Studies in Higher Ed History**

Hours 3

A critical examination of significant events, movements, or individuals in the history of higher education.

**BEF654 Phil & Amer Higher Ed**

Hours 3

An analysis of the language, concepts, and value judgments embedded in higher-education policy issues.

**BEF667 Multicult Soc Ed Leadership**

Hours 3

An advanced inquiry into contemporary social and cultural dimensions of education and their relationships to leadership. Includes issues of diversity, gender, ethnicity, pluralism, and equality.

**BEF669 Curriculum and the Study of Schooling**

Hours 3

The course is an inquiry into the school curriculum. It provides a critical analysis of the relationship between curricular decision-making and prevailing social and political systems. The course emphasizes contemporary issues and problems in school leadership and the wider school experience.

**BEF681 Ethics And Education**

Hours 3

An exploration and examination of traditional and contemporary ethical issues confronting educational leaders, managers, and teachers at all levels of the educational process. Emphasis on an interdisciplinary approach to foundations in ethical theory and establishing a conceptual framework for the resolution of moral and ethical questions prevalent across the educational spectrum.

**BEF690 Seminar in Argumentation and Analysis in Social Theory**

Hours 3

In this course, students will do a comparative reading of canonical texts in the field of social and cultural studies. Topics will vary semester to semester in order to make the course repeatable for credit.

**BEF695 Seminar in Curriculum Leadership**

Hours 3

An advanced seminar for students to explore, discuss, and interpret contemporary curriculum practice and research. Provides students with opportunities for critical inquiry into an area of specialized need and interest.

**BEF698 Non-Dissertation Research**

Hours 1-6

Individual research in history, philosophy, or sociology of education.

**BEP500 Adv Educational Psych**

Hours 3

Principles of educational psychology for teaching and for educational services in schools and colleges.

**BEP501 Proseminar in Educational Psychology**

Hours 3

This course presents an introduction to doctoral studies in Educational Psychology at The University of Alabama.

**BEP505 Motivation and Self-Regulation**

Hours 3

Investigates the development of self-regulatory processes and the match between those processes and educational practice. Transitions from home to school, elementary to secondary, and high school to college/work are considered in depth.

**BEP541 Foundations of the Learning Sciences**

Hours 3

Provides a foundation in the learning sciences and cognitive research with a particular focus on educational settings.

**BEP550 Life Span Development**

Hours 3

A study of principles and concepts of physical, cognitive, personality, and social development from conception through death.

**BEP561 Social Cult Basis Behav**

Hours 3

Provides fundamental knowledge regarding the methods in which social and cultural interactions and histories influence human behavior. Focuses on application of social psychology principles and multicultural issues to increase awareness and improve skills across a variety of social settings, including schools and human-service agencies.

**BEP565 Personality & Social Dev**

Hours 3

Examines the major theories of personality and social-emotional factors as they impact on the learning process and educational practice. Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course.

**BEP570 Foundations of Educational Neuroscience**

Hours 3

A survey of main issues and topics in educational and cognitive neuroscience, cognitive science, and learning sciences. The course is open to all graduate students from any program.

**BEP598 Non-Thesis Research**

Hours 1-6

Research conducted by student.

**BEP599 Thesis Research**

Hours 1-6

Research conducted by student for thesis.

**BEP600 Contemp Educ Psych Prob**

Hours 3

Thorough exploration of current problem areas in education and the impact and perspectives of educational psychology.

**BEP601 Family, School, and Community Relationships**

Hours 3

Provide candidates with a strong foundation for understanding family, school, and community partnerships, and to build their abilities to put this knowledge into practice within their own school settings.

**BEP610 Doctoral Seminar in Educational Psychology**

Hours 1

An advanced seminar covering special topics in Educational Psychology. It provides students with opportunities to present their own research, gather feedback on their projects, practice presentation skills, learn about novel research findings in the field, and establish collaborations between students, UA faculty and external researchers.

**BEP641 Seminar in Learning and Cognition**

Hours 3

Cognitive approaches to learning/teaching with focus on what constitutes authentic learning. Topics/themes include nature of preschool learning, sources contributing to learning, constructivism and holistic perspectives.

**BEP645 Developmental Cognitive Neuroscience**

Hours 3

This course presents a broad overview of current research and methods in the field of developmental cognitive neuroscience with a particular focus on its relevance to teaching and learning. The course starts with a review of how the brain develops from conception into adulthood, with a focus on how changes in neuro-development affect learning.

**BEP650 The Psychology of Morality**

Hours 3

An overview of the psychology of morality with a particular focus on the processes leading to moral action. Specialty topics include measurement, gender, cross-cultural, and educational issues. Character education will be discussed with special attention to the empirical and theoretical background of current character education programs.

**BEP651 Neuroscience of Morality**

Hours 3

This course provides a thorough exploration of the neuro-scientific and psychological basis of morality and moral functioning. It addresses interdisciplinary topics and issues taken from recent research on morality.

**BEP652 Readings in Character Education**

Hours 3

This course will provide an in-depth, graduate-level introduction to character education from a neo-Aristotelian virtue ethics perspective. The course will emphasize eudaimonic conceptions of human flourishing of which character is a necessary but not sufficient component. The course has significance for educators wanting to cultivate character among students.

**BEP656 Embodied and Situated Approaches to Education**

Hours 3

This course aims to help participants understand and apply principles derived from research on embodied and situated cognition. The course will start by defining embodied and situated cognition in relation to different approaches and by focusing on their relevance to educational practice.

**BEP660 Reading, Language and the Brain**

Hours 3

In this course, students will examine how human linguistic properties are acquired, developed, organized, and processed in the brain. Formal linguistic properties (phonology, morphology, syntax, etc.) will be defined and related to cognitive mechanisms and relevant brain structures. Key journal articles, both foundational and innovative in nature, will be used to examine how neuroimaging has been and can be used to study reading and language processes in the brain.

**BEP670 Research Methods and Trends in Educational Neuroscience**

Hours 3

Focuses on research methods and trends in educational neuroscience. Seminar format with some data analysis activities. Topics will emphasize research trends, methods (e.g. MRI, EEG) and neuroscience theory (e.g. connectivity).

**BEP671 Introduction to Functional Magnetic Resonance Imaging**

Hours 3

This course provides an introduction to the fMRI technique, covering its main advantages and limitations, and including hands-on lab sessions in which the student will learn the basics of fMRI analysis using an existing fMRI dataset.

**BEP672 Teaching Ed Psych Coll**

Hours 3-12

Seminar for graduate student instructors. Students must be GTAs in educational/school psychology. Designed to help GTAs use reflective decision making and knowledge of educational psychology to teach undergraduates.

**BEP674 Computational Methods in Cognitive Neuroscience**

Hours 3

This course focuses on coding, signaling processing, and computational methods and skills that are essential for conducting cognitive and educational neuroscience research.

Prerequisite(s): Instructor Approval

**BEP675 Cognitive Electrophysiology**

Hours 3

This course focuses on cognitive electrophysiology methods used in cognitive and educational neuroscience, particularly EEG (electroencephalogram) and ERP (event-related potentials) methods.

**BEP690 Readings In Educ Psych**

SP

Hours 1

An advanced seminar covering special topics in Educational Psychology.

Special Topics Course

**BEP698 Non-Dissertatn Research**

Hours 3-12

Participation in a research project relating to educational psychology.

**BEP699 Dissertation Research**

Hours 1-15

Research by student for dissertation.

**BER500 Intro Educatn Research**

Hours 3

An overview of research methodology, primarily for master's students.

**BER540 Statistical Methods In Educ**

Hours 3

This course covers basic descriptive and inferential statistics, including measures of central tendency and dispersion. Hypothesis testing related to one-sample z-and t-tests; independent and dependent sample t-tests; correlations; and chi-square and simple regressions are included.

**BER550 Eval Classroom Learning**

Hours 3

An examination of concepts, principles, purposes and tools used in the construction and use of assessment instruments in all educational settings. Attention will be on the use of assessment information for educational decision making. Students will learn how to evaluate the psychometric properties of an assessment tool, to interpret scores, norms, scales, data and grades, and to engage in ethical assessment practices.

**BER555 Measurement and Evaluation in the Social and Behavioral Sciences**

Hours 3

This course offers a survey introduction to the history, principles and main perspectives of the study of measurement and evaluation in the social and behavioral sciences. Students will acquire specialized knowledge and skills in test theory, test and instrument development and validation, program evaluation and analysis of educational and psychological data.

**BER558 Introduction to Psychometrics Theory**

Hours 3

The purpose of this master's level course is to help graduate students develop a scholarly way to think, reflect on, and critique extant research and theory in education through the lens of psychometrics. The following major topics will be explored: Overview of the history of psychometrics and theories of measuring psychological constructs; validity, reliability and fairness.

Prerequisite(s): BER 540

**BER600 Survey of Educational Research**

Hours 3

This course is an overview of the main research methods and procedures used in educational studies. Because the course emphasizes the use of the main quantitative and qualitative methods used in writing doctoral dissertations, it is especially useful for doctoral student.

**BER603 Survey Research In Educ**

Hours 3

Comprehensive introduction to using survey instruments for research purposes. Survey development, construction, validation scaling, sampling, and research methods as they apply to matching the survey to research questions are covered.

Prerequisite(s): BER 540

**BER610 Professional Seminar in Educational Research**

Hours 3

This graduate seminar course serves to introduce students in Educational Research to knowledge, skills, and dispositions that will help them become successful graduate students, scholars, and practitioners. As such, this course will engage students with topics of relevance to their personal, scholarly and professional trajectories.

**BER630 Qualitative Case Study Research Methods**

Hours 3

The course examines case studies of individual practices, discrete institutions and organizations, as well as state-level policies while also exploring the research methods used to inform the production of case study representations and the the various styles used in case study writing. Offered summer term.

**BER631 Inqry As Interp: Qual I**

Hours 3

Examines the history and philosophy of naturalistic studies of human experience. Concentrates on post-positivistic, phenomenological, structuralist, and post-structuralist theory and modes of analysis. Course assignments provide practice with rudimentary qualitative research skills. Offered fall, spring, and summer semesters.

**BER632 Reflect Resist: Qual II**

Hours 3

This course examines the irony and ideology of naturalistic studies of human experience. It focuses on the epistemic limits of any method of research representation, and the political and ethical implications of those limits. Course assignments provide practice with intermediate qualitative research skills, including participant observation, field note development, and interviewing skills. Offered spring and summer semesters.

Prerequisite(s): BER 631 or BER 630

**BER633 Ethics & Aesthc:Qual III**

Hours 3

Examines the ethics, aesthetics and opportunities for advocacy in naturalistic studies of human experience. Explores feminist, Afrocentric, critical theoretic, artistic and journalistic conceptions of data collection, and a variety of styles and formulas for research writing. Course assignments support the development of students' research interests and are geared toward scholarly publication. Offered all semesters.

Prerequisite(s): BER 630 or BER 631 with a minimum passing grade of C, and BER 632 with a minimum passing grade of C

**BER634 Narrative Inquiry**

Hours 3

This course serves as an introduction to narrative inquiry and analysis in qualitative research. Topics covered include: theoretical and philosophical underpinnings of narrative inquiry, ethics and reflexivity in narrative inquiry, analytic methods in narrative inquiry, narrative interviewing, and (re)presenting narrative work.

Prerequisite(s): BER 631 or equivalent

**BER635 Materialist Theories in Qualitative Research**

Hours 3

This course examines the implications of the materialist turn in qualitative inquiry, challenging students to think beyond linguistically-oriented forms of research (those based solely on words)to consider intersections with relationally-informed conceptions of materialism. Students will learn the theoretical bases for materialism and design a qualitative study informed by this perspective.

Prerequisite(s): BER 631 or equivalent

**BER636 Qualitative Interviewing**

Hours 3

This course serves as an introduction to qualitative interviewing in human subjects research. Topics covered include: 1)Types of qualitative interviews (e.g. phenomenological ethnographic, feminist, and focus group interviews); 2)The ways that theoretical frameworks have historically shaped interviewing and the ways that theories inform students' interviewing approaches; 3)The ethical concerns of conducting different forms of interviews with different populations.

Prerequisite(s): BER 631 or equivalent

**BER637 Arts-Based Research**

Hours 3

This course consists both the historical and current landscape of arts-based research and its place in/against the field of qualitative research. Further, it engages students in readings that span the breadth of arts-based research practices, while cultivating opportunities for students to become arts-based research practitioners.

Prerequisite(s): BER 631 or equivalent

**BER638 Social Justice in Qualitative Research**

Hours 3

This course is designed to examine the role that research can play in uncovering and addressing systemic forms of oppression. The course explores the importance of and challenges involved in engaging in anti-oppressive, socially just, culturally sensitive, and decolonizing research activities. Students will also consider philosophical underpinnings and methodological approaches to educational research that support justice aims in research.

Prerequisite(s): BER 631 or equivalent with instructor approval

**BER639 Applied Regression Analysis**

Hours 3

This course will help students better understand how to conduct and interpret analysis for educational research. Students will learn how to estimate different types of regression models, interpret the results and draw meaningful and substantive conclusions. Although mathematical foundations will be explored, the course will focus primarily on the conceptual and applied aspects of regression analysis.



**BER640 Advanced Statistical Methods in Education**

Hours 3

The primary emphasis of this course focuses on the relationships between a single dependent variable and one or two independent variables. Although more complex models can be considered (i.e. more than two independent variables) generalizations for the models discussed in this case can be applied to a multiple-variable scenario. Topics covered include: one-way ANOVA, two-way ANOVA, repeated measures ANOVA and multiple regression.

Prerequisite(s): BER 540 or equivalent.

**BER642 Advanced Regression Methods**

Hours 3

Different multiple regression methods are presented including an overview of ordinary least squares regression, ordinal regression, logistic and probit regression, loglinear, mixed, and regression discontinuity. Interpretation of results diagnostics, and applications are covered for the several glm models.

Prerequisite(s): BER 639 or BER 640

**BER643 Multivariate Statistics**

Hours 3

This course is designed to introduce students to the various types of multivariate statistical techniques used in the social sciences. Multivariate statistics focus on two or more dependent variables with one or more independent variables. Computer applications are included to facilitate the understanding and interpretation of different multivariate statistical techniques.

Prerequisite(s): BER 642

**BER644 Introduction to Bayesian Inference**

Hours 3

Bayesian methodology is used in designing innovative or complicated statistical models. We will explore what Bayesian Modeling is and the differences in how statistical inference is both viewed and done. The majority of this class will be spent learning common models and model-fitting methods.

Prerequisite(s): BER 540, BER 639

**BER645 Advanced Experimental Design**

Hours 3

This course covers the advanced statistical methods commonly used in experimental design, including specialty ANOVA designs and varied designs for experimental studies. Topics include Factorial ANOVA, Randomized Block Designs, Nested Designs, Random and Mixed Effects ANOVA, Repeated Measures ANOVA, and Incomplete Block Designs.

Prerequisite(s): BER 639 or BER 640

**BER646 Structural Equation Modl**

Hours 3

This course provides an introduction to the basic concepts of structural equation modeling, including approaches to regression, path analysis, confirmatory factor analysis, and model building with dependent and independent variables.

Prerequisite(s): BER 642 or BER 643

**BER647 Experimental Research Design Single-Case Research**

Hours 3

This course will introduce basic single-case research design principles and strategies that can be used in research in educational and other applied settings. The purposes of the course are to provide students with an understanding of potential applications of single/within case research strategies, a working knowledge of commonly used single-case research designs and strategies for evaluating single-case research outcomes.

Prerequisite(s): BER 540

**BER648 Advanced Structural Equation Modeling**

Hours 3

This course is designed to introduce students to the various advanced structural equation modeling applications not commonly covered in basic SEM courses. The topics covered in the course include Non-Linear SEM, advanced confirmatory factor analysis techniques, Mixture Modeling (Latent class Analysis, Growth Mixture Models, Latent Transition Models), data imputation and Monte Carlo Simulation.

Prerequisite(s): BER 642, BER 643, and BER 646

**BER657 Applications of Psychometric Theory**

Hours 3

The purpose of this doctoral level course is to help graduate students develop a scholarly way to think, reflect on, and critique extant research and theory in education through the lens of psychometrics. The following major topics will be explored: Overview of the history of psychometrics and theories of measuring psychological constructs; validity, reliability and fairness.

Prerequisite(s): BER 540

**BER658 Psychometric Theory Prac**

Hours 3

The major topics covered in this course include true score reliability, validity, classical theory, generalizability theory, contemporary theory and item response theory. Computer applications are required.

Prerequisite(s): BER 540 and BER 558 with a minimum passing grade of C

**BER660 Eval I:Theory & Practice**

Hours 3

This course covers the concepts and techniques used for evaluating education programs, projects, materials, curriculum, and personnel. Field work and computer analyses are required.

**BER661 Evaluation 2 Improvement Science Methodologies**

Hours 3

This course will introduce students to the six principles of Improvement Science and related, "engaged research" methodologies (e.g. Design-Based Implementation Research, Developmental Evaluation). It will provide an opportunity to apply these principals to a problem of practice in schools and/or health and human service agencies. Students will learn to assess systems-level problems and barriers through Causal Systems Analysis, develop complex theories of action through diagrams, and design and implement Plan-Do-Study-Act (PDSA) Cycles.

Prerequisite(s): BER 540; BER 631

**BER663 Casual Inference**

Hours 3

This course introduces the statistical theory that guides the design and analyses of experiments and quasi-experiments. Specifically, this course will provide conceptual, technical, and hands-on training in a) the design and analyses of multilevel/longitudinal randomized controlled trials (RCTs); b) propensity score analysis and related methods; c) instrumental variables analysis; d) difference-in-difference analysis and related methods including fixed effect models, comparative interrupted time-series analysis and synthetic control; e) recent development of application of matching learning techniques in casual inference.

Prerequisite(s): BER 640 or equivalent

**BER664 Multi-Level and Longitudinal Modeling**

Hours 3

This course provides an introduction to multi-level models (MLM). These models afford an analysis of nested data. Data with a nested structure are common in social science research (e.g. students are nested within classrooms) as well as other disciplines and fields. This course explores the different kinds of multi-level models and approaches (e.g. bootstrap/jackknife) that can be used to analyze large-scale survey data.

Prerequisite(s): BER 641

**BER665 Mixed Methods Research Design**

Hours 3

Course participants will be provided with an overview of the history and foundations of mixed methods research, literature on emerging trends in mixed methods research, types of MM designs, types of research problems addressed by MM research, data collection and analysis strategies, and reporting and evaluating mixed methods research.

Prerequisite(s): BER 540 and BER 631

**BER669 Item Response Theory**

Hours 3

This course provides an introduction to item response theory (IRT). Major topics include 1) IRT models for dichotomous and polytomous data (e.g. Likert scales and partial credits). 2) basic estimation procedures, 3) differential item functioning (DIF) methods for evaluating validity and/or fairness in a scale, survey or educational assessment, and 4) applications using IRT software.

Prerequisite(s): BER 540 or BER 639 or BER 640

**BER670 Rasch Techniques for Constructing and Evaluating Measurement Instruments**

Hours 3

This course provides graduate students with an introduction to techniques for constructing and evaluating measurement instruments in the human sciences. Major topics include the latent trait models proposed by George Rasch and extensions of these models (dichotomous, polytomous, many-facet), the philosophy for measurement that corresponds to these models, software applications for conducting analysis with Rasch models, the interpretation and use of results from Rasch model analysis, and opportunities to evaluate real-world applications of Rasch models.

Prerequisite(s): BER 540; BER 640 OR BER 639 (recommended)

**BER671 Cognitive Diagnosis Modeling**

Hours 3

This course provides a robust overview of cognitive diagnosis modeling, a novel psychometric framework for developing educational and psychological tests and analyzing item-response data. In addition to exploring the foundational frameworks for cognitive diagnosis modeling the course covers the most recent developments in the field, including models for cognitive diagnosis and skill and item association validation.

Prerequisite(s): BER 540 or BER 639 or BER 640

**BER672 Mentored Teaching in Educational Research Methodology**

Hours 3

This course provides students with the opportunity to assist with teaching a research methods course. Working closely with an Educational Research faculty member, students will gain experience in designing curriculum, implementing thoughtful pedagogical practices, as well as insight into the affordances and challenges that accompany teaching various research-related topics.

Prerequisite(s): Completion of 12 credit hours in BER courses.

**BER687 Field Work Educational Research**

Hours 3

The field-based experience in educational research is a student-initiated research project that is conducted with faculty supervision. Field work is required.

Prerequisite(s): BER 540 or BER 631

**BER689 Practicum Educ Research**

Hours 3

Practicum is a faculty-initiated research project done with faculty supervision. The work is related to the advisor's research interests. Field work may be required.

Prerequisite(s): BER 540 or BER 631

**BER690 Readings In Educ Res**

SP

Hours 1-3

Offered fall and spring semesters and in summer school.

Special Topics Course

**BER695 Spec Top in Ed Research**

SP

Hours 3

This special topics course will be focused on selected current advanced statistical and/or research methods in Educational Research.

Prerequisite(s): By permission of instructor only

Special Topics Course

**BER698 Non-Dissertat Research**

Hours 3-12

The course is for Educational Research PhD students who are conducting research that precedes or is different from dissertation research.

**BER699 Dissertation Research**

Hours 1-12

The course is for Educational Research PhD students who have been admitted to doctoral candidacy and are engaged in work related to their dissertation.

**BSP500 Intro School Psychology**

Hours 3

The history, role, and ethical and legal issues of school psychology are studied. The school psychologist's role in team decision making is emphasized.

**BSP501 Professional Issues and Ethics in School Psychology**

Hours 3

This course deals with pertinent issues in school psychology, such as ethics, theory, history and foundations of school psychology, legal issues, professional issues and standards, alternative models for delivery of school psychological services, as well as, roles and foundations of the school psychologist.

**BSP502 Professional Seminar in School Psychology**

Hours 3

This graduate seminar course serves to introduce students in School Psychology to knowledge, skills, and dispositions that will help them become successful graduate students, scholars, and practitioners. As such, this course will engage students with topics of relevance to their personal, scholarly, and professional trajectories.

**BSP504 Ethical and Professional Issues in Behavior Analysis**

Hours 3

This course is an introduction to the main roles and functions, the primary professional issues and the legal as well as ethical standards that are associated with the work of behavior analysis.

**BSP515 Cog Acad Assmnt Decsn Makng**

Hours 3

Cognitive and academic assessment and psychological case report writing, focusing on standardized measures, as well as authentic and direct techniques, and treating the topics from perspectives in data based decision making and intervention for children with learning and behavior problems.

**BSP516 Social Behav Assmnt Decisn Mak**

Hours 3

Study of behavioral and social-emotional assessment, emphasizing data-based decision making for children with learning and behavioral problems; using data in meaningful educational and psychological interventions is also stressed.

**BSP520 Cognitive and Academic Assessment and Data-Based Decision Making**

Hours 3

The course is primarily focused on how to write cognitive and academic assessments and psychological case reports. The course accounts for the use of standardized measures and authentic and direct techniques, as well as for data-based decision making and the consideration of interventions for children with learning and behavioral problems.

**BSP521 Cognitive and Academic Assessment and Data-Based Decision Making**

Hours 3

The course instructs students on cognitive and academic assessment and psychological case report writing, focusing on standardized measures, as well as, authentic and direct techniques, and perspectives in data-based decision making and interventions for children with learning and behavior problems.

**BSP523 Social-Behavioral Assessment and Data-Based Decision Making**

Hours 3

The study of behavioral and social-emotional assessment that emphasizes data-based decision making for children with learning and behavioral problems and that stresses the use of data in educational and psychological interventions.

**BSP580 School-Based Practicum in Assessment**

Hours 3

School-based practicum requiring 150 hours of supervised experience in assessment. Course emphasizes intellectual, achievement, behavioral, and social-emotional assessment of children with learning and/or behavioral problems and use of assessment in team decision making.

Prerequisite(s): BSP 521 & BSP 523, Minimum grade of B

**BSP586 Assessment Practicum**

Hours 3

Requires 150 hours of supervised experience in assessment and is conducted in public schools or other agencies. Intellectual, achievement, behavioral, and social-emotional assessment of children with learning and behavioral problems and use of assessment in team decision making are emphasized.

**BSP588 Intern School Psychomtry**

Hours 3-6

The student performs the duties of a school psychometrist in a school system, under supervision.

**BSP601 Appl Pediatric Neuropsych**

Hours 3

Study of applied brain-behavior relationship in the areas of academics, behavior, and social/emotional skills. Various disorders, assessment techniques, interventions, and preventions will be examined and discussed.

**BSP625 Behavioral Consultation and Interventions for School-Based Problems**

Hours 3

Study of consultation with teachers, administrators, parents, and various community agencies, emphasizing behavioral, ecological, mental health and organizational models and use of data-based decision making to plan and implement appropriate interventions for children with social and behavioral challenges and disabilities.

Prerequisite(s): BSP 500 or permission of the instructor

**BSP632 Behavior Interventions**

Hours 3

This course focuses on the knowledge and practical skills necessary for developing applied interventions related to a variety of behavior problems in a variety of settings. Specific principles and procedures for assessing behavior, developing interventions, and making data-based decisions will be addressed.

Prerequisite(s): BSP 501 or permission of the instructor

**BSP633 Academic Interventions and Data-Based Decision Making**

Hours 3

This course is an advanced study of assessment and remediation of student deficits, skill-by-treatment interaction, systems consultation, organizational change, theories and research underlying instructional and academic interventions, and data-based decision making that meets the needs of all students within school settings.

Prerequisite(s): BSP 501 or permission of the instructor

**BSP634 Advanced Concepts and Principles in Behavior Analysis**

Hours 3

This course is an introduction to the foundational concepts and principles of applied behavior analysis and the coverage of more advanced theoretical constructs in behavior analysis.

**BSP635 Academic and Instructional Consultation and Intervention**

Hours 3

Advanced study of assessment and remediation of academic skills problems for children with learning challenges and disabilities, instructional and academic consultation, aptitude-treatment interaction, study-skills training, self-regulation and monitoring, peer-influenced academic interventions, prevention, and other interventions to meet the needs of all students in inclusive settings.

Prerequisite(s): BSP 500 or permission of the instructor

**BSP636 Positive Behavior Interventions and Supports**

Hours 3

This course is designed to provide guidance for practitioners in special education or general education settings. Educators will learn the background of Positive Behavior Interventions and Supports (PBIS), focusing on evidence-based components across all three tiers, on key practices, as well as on methods of monitoring progress within a multi-tiered system of support.

**BSP638 Consultation and Supervision**

Hours 3

This course addresses the application of consultation and supervision theories to support teachers, administrators, parents and various community agencies. This course emphasizes behavioral, ecological, mental health and organizational models and use of data-based decision making to plan and implement appropriate interventions for children with social and behavioral challenges and disabilities.

Prerequisite(s): BSP 632 or permission of instructor

**BSP660 Psychopathology**

Hours 3

Thorough examination of the history, scope, and understanding of abnormal behavior through the life span, with emphasis on educational and clinical implications. The most recent classification system is used to structure topics and issues in the course.

**BSP670 Educational and Historical Foundations of Psychology**

Hours 3

This course will explore the origins of psychology in philosophy and the sciences, the development of the science of psychology in the 19th and 20th centuries, and prevailing theoretical perspectives and key research findings in the field. The role of culture, science and technology in the development of psychological ideas will also be addressed. The course includes a focus on the profession of psychology from a diversity and multicultural perspective.

Prerequisite(s): Instructor Approval

**BSP673 Research/Ethics Seminar**

Hours 3

Covers topics of current interest to school psychologists.

**BSP683 Advanced School-Based Practicum**

Hours 3

The practicum requires 150 hours of supervised experience in the practice of school psychology, including consultation and intervention with children, parents, teachers, and administrators in public schools or other agencies.

Prerequisite(s): BSP 501, BSP 580, BSP 632

Prerequisite(s) with concurrency: BSP 633

**BSP686 Consult Interv Practicum**

Hours 3

Requires 150 hours of supervised experience in conducting consultation and intervention (within a team-decision-making framework) with children, parents, teachers, and administrators in public schools and other agencies.

**BSP687 Specialist Internship**

Hours 3-6

The student performs the activities of a school psychologist in an educational or other agency, under supervision.

**BSP688 Doctor Intern School Py**

Hours 3-6

The student performs the duties of a school psychologist in an educational agency, under supervision.

**BSP690 Readings School Psych**

SP

Hours 1-6

An opportunity for the student to study intensively a topic in school psychology, covering a sizable body of literature (the topic chosen should nevertheless be narrower than that subsumed under the name of a course).

Special Topics Course

**BSP696 Advanced Doctoral Practicum-School Psychology**

Hours 3

Supervised field experiences for doctoral students that focus on conducting school psychology assessments, consultations, and interventions with children, parents, teachers, and administrators in public schools and other agencies.

Prerequisite(s): BSP 580, BSP 683

**BSP698 Non-Dissertatn Research**

Hours 3

Participation in a research project relating to school psychology.

**BSP699 Dissertation Research**

Hours 1-12

Research for student's dissertation.

**CAT531 Computer Based Instruction**

Hours 3

This is an introductory course in the fundamentals of computer applications for educational use. The course explores current and emerging tools and trends for online learning strategies, communication, productivity, presentation, research, and classroom administration.

**CEE515 Science in Early Childhood and Elementary School**

Hours 3

Designed to expand knowledge and competencies of early childhood and elementary teachers of science with specific focus on current standards, research, and inquiry models of instruction.

**CEE516 Social Science in Early Childhood and Elementary School**

Hours 3

The focus is on current trends in early childhood and elementary social studies, with particular attention to innovative instructional modes and to relating learning to the learners' social environment.

**CEE517 Lang Arts In Elemy Sch**

Hours 3

Designed to extend and strengthen the knowledge and competencies of experienced teachers of communication arts and skills in the elementary school.

**CEE525 Issues Trends in Early Childhood and Elem School Science**

Hours 3

Focus on current research and trends in early childhood and elementary science with respect to historical, political, and socio-cultural contexts.

**CEE526 Implementing Early Childhood and Elementary Social Studies**

Hours 3

The focus is on considering and applying to one's own classroom the research base of investigating social studies curricula and instruction in early childhood and elementary education.

**CEE530 Modern Elementary School Programs**

Hours 3

The evolving elementary school and its program, with emphasis on analysis of current trends that directly affect modern school practices in a societal context.

**CEE532 Early Childhood and Elementary School Curriculum**

Hours 3

The purpose of this course is to focus on historical, current trends, and projective perspectives that influence the evolving early childhood and elementary school curriculum framework.

**CEE544 Current Trends and Research in Early Childhood Education**

Hours 3

Students will review current trends and research related to early childhood education, including curriculum, assessment, play, quality, and family engagement. Students will synthesize and apply research and discuss implications for working with children birth through age eight.

**CEE550 Intro to Teaching Early Childhood and Elementary School Science**

Hours 3

Introduction to the teaching of science. Current research is emphasized supporting best instructional practices in science.

**CEE560 Intro to Teaching Early Childhood and Elementary Social Studies**

Hours 3

Teaching P-6 social studies using research-based instructional strategies and curriculum.

**CEE565 Classics & Modern Literature for Early Childhood and Elementary Education**

Hours 3

Designed to extend and strengthen the knowledge and competencies of experienced teachers in the following areas: major developments in literature for children; genres of children's literature; and effective methods of helping early childhood and elementary children enjoy and use literature.

**CEE570 Teach Reading in the Elementary School**

Hours 3

The course provides a foundation in the materials and methods of teaching elementary reading with an emphasis on development, assessment, and instruction for individual and small groups of students. Intensive field experience is required.

Prerequisite(s): CRD 369, CEE 320, CEE 491 and MUE 385

Prerequisite(s) with concurrency: CEE 365 and CEE 401 and CEE 492 and CEE 582 and CEE 595

**CEE574 Guiding Early Childhood and Elementary Pupil Learning**

Hours 3

Focuses on understanding how students learn, what physiological and environmental factors influence learning and how teachers can facilitate learning using brain-compatible learning. Included are theories-to-applications of brain-based learning research to classroom instructional situations in early childhood and elementary education.

**CEE578 Teaching Language Arts in the Early Childhood and Elementary School**

Hours 3

Deepening understanding of the materials for teaching of language arts in early childhood and elementary schools with emphasis on planning and implementing a writing program. Intensive field experience. Writing proficiency within the discipline is required for a passing grade in the course.

**CEE580 Concepts of Early Childhood and Elementary School Mathematics**

Hours 3

Focuses on the current research in P-6 mathematics education concerning how children learn mathematics.

**CEE581 Early Childhood and Elementary Math Curriculum Research**

Hours 3

Students learn the role and influence of mathematics curriculum and its interconnectedness to instruction and reflect about school, district, state and/or national curriculums. Explore current issues with US mathematics curriculum and unpack curriculum into intended, enacted, and assessed components for early childhood and elementary education.



**CEE582 Teaching Mathematics to Early Childhood and Elementary Students**

Hours 3

This course prepares students to effectively teach mathematics in P-6. Emphasis is on the current research in mathematics education.

**CEE594 Problems**

Hours 1-6

Opportunities to study or work independently on topics or projects of individual concern. Credit is based on the nature and degree of student involvement.

**CEE595 Practicum in Early Childhood and Elementary Education**

Hours 3

Supervised opportunities to apply knowledge and skills in a P-6 setting. Credit is based on the nature and degree of student involvement. Admission to TEP Program is required.

Prerequisite(s): CRD 369, CEE 320, CEE 491, and MUE 385

Prerequisite(s) with concurrency: CEE 365 and CEE 401 and CEE 492 and CEE 570 and CEE 582

**CEE596 Advanced Practicum**

Hours 3

A field-based course providing graduate students with opportunities to practice authentic classroom application of various content areas in P-6 education. Admission to TEP Program is required.

Prerequisite(s): CEE 365, CEE 492, CEE 570, CEE 582 and CEE 595

Prerequisite(s) with concurrency: CEE 401 and CEE 550 and CEE 560 and CEE 578 and BER 450

**CEE597 Internship in Early Childhood Education and Elementary Education**

Hours 3-12

Observation, participation, and teaching experiences supervised by selected cooperating teachers in P-6 schools. Additional supervision is provided by College of Education personnel.

Prerequisite(s): CEE 401, CEE 550, CEE 560, CEE 578, CEE 596, and BER 450

Prerequisite(s) with concurrency: EDU 500

**CEE598 Non-Thesis Research**

Hours 1-3

*No description available*

**CEE616 Adv Soc Studies Elem Sch**

Hours 3

The focus is on current trends and research in elementary social studies with particular attention to innovative instructional modes and relating learning to the learner's social environment.

**CEE687 Topical Research Review**

Hours 3

Supervised opportunities to apply knowledge and skills in a professional setting. Credit is based on the nature and degree of student involvement.

**CEE690 Advanced Seminar**

SP

Hours 1-3

In-class opportunities to analyze and discuss current topics, problems, and/or projects of collective concern. Topics vary.

Special Topics Course

**CEE694 Problems**

Hours 1-6

Opportunities to study or work independently on topics or projects of individual concern. Credit is based on the nature and degree of student involvement.

**CEE695 Practicum**

Hours 1-12

Supervised opportunities to apply knowledge and skills in a professional setting. Credit is based on the nature and degree of student involvement.

**CEE697 Specialist Degree Res**

Hours 1-6

Systematic classroom inquiry is used to engage students in a teacher action research project.

Prerequisite(s): CEE 687

**CEE698 Non-Thesis Research**

Hours 1-3

*No description available*

**CEE699 Dissertation Research**

Hours 1-12

The independent research course partially fulfills required research dissertation hours toward the doctoral degree. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CIE523 Teaching Visual Arts**

Hours 3

This course will focus on the practice of teaching art education in pre-kindergarten, primary, middle and secondary levels. The theory supporting engaging art education and the available and appropriate tools, strategies and resources will be investigated. Students will develop a working knowledge of art materials and methods appropriate for each level of growth.

Prerequisite(s): CSE 390, EDU 200, SPE 500, CEE 320, BEF 510

Prerequisite(s) with concurrency: CIE 592 and CRD 512

**CIE524 Improving Visual Arts Instruction**

Hours 3

This course will focus on the practice of teaching visual arts education in pre-kindergarten, primary, middle and secondary levels. The theory supporting engaging visual arts education and the available and appropriate tools, strategies and resources will be investigated. Students will develop a working knowledge of art materials and methods appropriate for each level of growth.

Prerequisite(s): CSE 390, EDU 200. SPE 500, CRD 512, BEF 510, CIE 523, CIE 592

Prerequisite(s) with concurrency: EDU 500 and CIE 597

**CIE560 Principles in Mathematics Education: Equity & Access Issues**

Hours 3

This course explores the principles and foundations of effective, high-leverage mathematics teaching practices and their subsequent impact on students with diverse backgrounds. Teachers, administrators, and/or others are introduced to beliefs, practices, and situations that are related to maximizing student potential and learning opportunities. Access and equity are well-defined, developed, implemented, and assessed for all. This course is for Class B or Class A Educator license.

**CIE562 Tesol: Basic Methods**

Hours 3

Theories, methods, and strategies for English as a second language that focus on communicative competence and cross-cultural understanding. Admission to TEP Program is required.

Prerequisite(s) with concurrency: CSE 592

**CIE567 Improv Foreign Lang Instruct**

Hours 3

Critical examination of theoretical perspectives, methods, major issues, and controversies pertinent to teaching foreign language; use of technology in language instruction is a critical component.

**CIE575 Teaching Emergent Multilinguals in Public Schools**

W

Hours 3

This course explores the pedagogies of translingual literacies to prepare teachers to serve emergent multilinguals in the U.S. public schools. It offers teacher candidates classroom strategies to make content comprehensive and accessible to emergent multilinguals. Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course.

Writing

**CIE576 Linguistics Classroom Teachers**

Hours 3

This linguistic course enables teachers to understand the basics of how the English language functions. Provides information essential for dealing with students whose native language is not English. Offers useful information about various English dialects as well.

**CIE577 Second Language Acquisition**

Hours 3

Introduction to and analysis of the main issues and theories in second language acquisition (SLA); students deduce and demonstrate instructional implications.

**CIE578 Second Lang Test Assess Evaln**

Hours 3

Preparation in the background and skills necessary to construct classroom-based tests, appropriately use published tests, and understand second or foreign language program evaluation.

**CIE579 Tch English For Lang Prog/Pol**

Hours 3

Theories of language learning, acquiring a second language, and current linguistic theories; emphasis is on programs, policies, and instructional methods of ESL education.

**CIE580 Teaching Foreign Languages**

Hours 3

Theories, methods, and strategies for foreign language teaching that focus on communicative competence and cross-cultural understanding; use of technology in language education is a critical component. Admission to the TEP Program is required.

Prerequisite(s) with concurrency: CSE 592

**CIE582 Dev Util Instr MatrIs**

Hours 3

*No description available*

**CIE592 Field Work**

Hours 1-3

A clinical experience taken concurrently with the methods course and designed to facilitate students' development of pedagogical skills, effective thinking, and professional problem solving.

**CIE597 Elementary/Secondary Internsh**

Hours 3-9

Elementary/Secondary Internship.

**CIE599 Special Topics in Early Childhood, Elementary, and/or Secondary Education**

SP

Hours 1-6

This course, offered on campus or abroad, provides opportunities to engage with topics or projects of collective concern in early childhood, elementary, and/or secondary education. Topics vary. May be repeated. Offered according to demand.

Prerequisite(s): Permission of instructor

Special Topics Course

**CIE601 Conceptual Frameworks in Curriculum and Instruction Research**

Hours 3

This course focuses on reading, analyzing, and creating conceptual frameworks that warrant research in Curriculum and Instruction. We will also attend to historical and material-discursive aspects of research paradigms that represent different conceptions of the human subject, agency, power, and data.

**CIE602 Research on Learning in Curriculum and Instruction**

Hours 3

This is a required course for Ph.D. students in Curriculum and Instruction. It aims to build the intellectual capacity needed to generate knowledge in the field of Curriculum and Instruction. It is one of four courses comprising the introductory course sequence for the Ph.D.

**CIE603 Research on Learning in Curriculum and Instruction**

Hours 3

This is a required course for PhD students in Curriculum and Instruction. It is designed to build intellectual capacity to generate knowledge in the field of Curriculum and Instruction. It is one of the four courses comprising the introductory course sequence for the PhD.

**CIE604 Critical Research in C&I**

Hours 3

This course focuses on critical research practices within curriculum and instruction that foreground the purposive and contextual aspects of scholarly inquiry. Students will attend to historical, sociopolitical, and material-discursive aspects of various approaches to critical research, where "critical" signals research that explores power operates within and across communities we research and our own research practices. Emphasis vary.

**CIE605 Teachers and Teaching Practices in Classrooms across the World**

Hours 3

The focus of this course is research on teachers and their teaching practice in real classrooms.

**CIE606 New Literacies**

Hours 3

This course explores and applies theories of new literacies communication, learning, and research.

**CIE609 Discourse & Pedagogy**

Hours 3

This seminar will provide foundational training for doing discourse analytic work within research of teaching and learning, with a focus on the integration of theory and methodology. Participants will be asked to conduct an analysis of classroom discourse for final evaluation.

**CIE610 Effective Teaching**

Hours 3

Examination of the knowledge base in effective teaching practice through in-depth study of the research literature on classroom instructional practices and conditions, and on the classroom teacher. Designed specifically for doctoral-level students.

**CIE620 Design Res Classrm Teach**

Hours 3

The practice and use of reflection and action research with emphasis on developing professional skills in performing and applying research on classroom teaching and learning leading to teacher empowerment and school reform. Designed specifically for doctoral-level students.

**CIE621 Writing for Academic Publication**

Hours 3

This course will provide doctoral students with information about academic writing and project management. The tools, strategies and resources will be useful as students plan their thesis or dissertation and prepare research for dissemination. Students will learn writing habits, strategies for synthesizing research, and techniques for writing with clarity.

**CIE625 Res Sem Science Curriculum**

Hours 3

Designed to enable students to understand and synthesize current research and to develop a theoretical framework in the science curriculum for K-12.

**CIE626 Res Sem Social Studies Curricl**

Hours 3

Designed to enable students to understand and synthesize current research and to develop a theoretical framework in social studies education for K-12.

**CIE627 Second Language Literacy**

Hours 3

This course is designed to provide the student with an introduction to the major issues in research and instruction in second language (L2) literacy (reading and writing). An emphasis in this course is on literacy as a cognitive skill. The psycholinguistic processes of reading and writing in a second language will be addressed.

**CIE630 Curric Classroom Teacher**

Hours 3

This course discusses the major issues in curriculum design and implementation for the classroom teacher. Designed specifically for doctoral-level students.

**CIE631 Research Apprenticeship in Curriculum and Instruction**

Hours 1-6

The course is designed to introduce novice scholars to a variety of research practices in the field. Students will participate in an existing research project directed by a faculty member, with permission and under the supervision of that faculty member.

**CIE632 Teaching Apprenticeship in Curriculum and Instruction**

Hours 1-6

The course is designed to introduce novice scholars to a variety of teaching practices in the field. Students will participate in a teaching project directed by a faculty member (with permission and under the supervision of that faculty member).

**CIE633 Supervision Apprenticeship in Curriculum and Instruction**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of supervision practices in the field. Students will participate in a supervision project directed by a faculty member (with permission and under the supervision of that faculty member).

**CIE634 Research Apprenticeship in Early Childhood Education and Social-Emotional Learning**

Hours 1-6

This course is designed to apprentice novice scholars in a variety of research practices. Students will participate in an existing research project (with permission and at the direction of faculty).

**CIE635 Teaching Apprenticeship in Early Childhood Education and Social-Emotional Learning**

Hours 1-6

This is an elective course for doctoral students in the PhD program. The course is designed to apprentice novice scholars in a variety of teaching practices related to early childhood education and social-emotional learning. Students will participate in planning, teaching, and assessment as directed by a supervising faculty member.

**CIE636 Supervision Apprenticeship in Early Childhood Education and Social-Emotional Learning**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of supervisory practices related to early childhood education. Students will participate in supervisory activities directed by a faculty member.

**CIE637 Research Apprenticeship in Elementary Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of research practices in the field. With the permission of a faculty member, students will participate in an existing research project supervised by a faculty member.

**CIE638 Teaching Apprenticeship in Elementary Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of teaching practices in the field. With the permission of and under the supervision of a faculty member, students will participate in a teaching project.

**CIE639 Supervision Apprenticeship in Elementary Education**

Hours 1-6

The course is designed to apprentice novice scholars under the supervision of a faculty member and in a variety of supervision practices in this field. The permission of a faculty member is required for enrollment.

**CIE640 Sem Teachr Educ Program**

Hours 3

The course focuses on issues, problems, trends, and research associated with undergraduate and graduate teacher education and certification programs in Alabama, the U.S., and the world. Designed specifically for doctoral-level students.

**CIE644 Student Teach Supervision**

Hours 3

Organization and administration of student-teaching programs and methods of supervising student-teaching in schools. Designed specifically for doctoral-level students.

**CIE645 Prof Cont: Tchng & Lrning Com**

Hours 3

Research-based focus using theoretical frameworks to examine and analyze the professional development continuum.

**CIE646 Research Apprenticeship in Social Studies Education**

Hours 1-6

The course is designed to apprentice novice scholars under the supervision of a faculty member, using a variety of research methods in a variety of settings. The permission of a faculty member is required for enrollment.

**CIE647 Teaching Apprenticeship in Social Studies Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of teaching practices. Students will participate in a teaching project directed by a faculty member. The permission of a faculty member is required for enrollment.

**CIE648 Supervision Apprenticeship in Social Studies Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of supervision practices. Students will participate in a supervision project directed by a faculty member. The permission of a faculty member is required for enrollment.

**CIE651 Research Apprenticeship in Literacies and Languages Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of research methods and practices. Students will participate in an existing research project directed by a faculty member. The permission of a faculty member is required for enrollment.

**CIE652 Teaching Apprenticeship in Literacies and Languages Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of teaching practices. Students will participate in a teaching project directed by a faculty member. The permission of a faculty member is required for enrollment.

**CIE653 Supervision Apprenticeship in Literacies and Languages**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of supervision practices relevant to this field. Students will participate in a supervision project directed by a faculty member. The permission of a faculty member is required for enrollment.

**CIE656 Sem For Language Educatn Resear**

Hours 3

Examination and critical analysis of a wide range of perspectives from the professional literature on teaching and learning a foreign language.

**CIE660 Cognitive Perspectives**

Hours 3

The course focuses on systematic descriptions and analysis of major learning theories for classroom application. The intent is to contribute education insight toward more effective teaching through cognitive processes.

**CIE661 Research Apprenticeship in Mathematics Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of research practices relevant to the field of mathematics education. Students will participate in an existing research project directed by a faculty member. The permission of a faculty member is required for enrollment.

**CIE662 Teaching Apprenticeship in Mathematics Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of teaching practices relevant to the field of mathematics education. Students will participate in an existing teaching project directed by a faculty member (with permission and under the supervision of that faculty member).

**CIE663 Supervision Apprenticeship in Mathematics Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of supervision practices relevant to the field of mathematics education. Students will participate in an existing supervision project directed by a faculty member (with permission and under the supervision of that faculty member).

**CIE670 Critical Inquiry Curric Pedago**

Hours 3

Examinations of different conceptualizations of curriculum and pedagogy in K-12; emphasis on critical theory and postmodern theory and critique.

**CIE671 Research Apprenticeship in Science Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of research practices in science education. Students will participate in an existing research project directed by a faculty member (with permission and under the direction of that faculty member).

**CIE672 Teaching Apprenticeship in Science Education**

Hours 1-6

Students will participate in teaching a science education course with a faculty member (with permission and under the direction of that faculty member).

**CIE673 Supervision Apprenticeship in Science Education**

Hours 1-6

The course is designed to apprentice novice scholars in the supervision of field experiences. Students will be supervised and mentored by a faculty member, with faculty permission.

**CIE675 Theory and Research on Emergent Multilinguals**

Hours 3

This course explores the current research base and theoretical frameworks for doctoral students to understand the pedagogies of translingual literacies and study emergent multilinguals in the U.S. public schools.

**CIE680 Sem In Math Educ Research**

Hours 3

Designed to enable students to understand and synthesize current research and to develop a theoretical framework in mathematics education.

**CIE681 Research Apprenticeship in STEM Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of research practices in the field. Students will participate in an existing research project directed by a faculty member. Faculty permission is required.

**CIE682 Teaching Apprenticeship in STEM Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of teaching practices. Students will participate in a teaching project directed by a faculty member. Faculty permission is required.

**CIE683 Supervision Apprenticeship in STEM Education**

Hours 1-6

The course is designed to apprentice novice scholars in a variety of supervision practices in the field. Students will participate in a supervision project directed by a faculty member. Faculty permission is required.

**CIE686 Research on Science Teaching**

Hours 3

Principles and practices of research into science teaching with a focus on building researchers' professional identities in the field. Topics include the field-specific nature, purposes, methods, rhetoric and impact of research into science teaching.

Prerequisite(s): BER 600, BER 631, and BER 640. Instructor Permission required.

**CIE687 Research Apprenticeship in Transformative Education**

Hours 3

This is an elective course for doctoral students. The course is designed to apprentice novice scholars in a variety of teaching practices. Students will participate in planning, teaching (including collaborative-teaching experiences), and assessment as directed by a faculty member (with permission and under the supervision of that faculty member).

**CIE688 Teaching Apprenticeship in Transformative Education**

Hours 3

This is an elective course for doctoral students. The course is designed to apprentice novice scholars in a variety of teaching practices. Students will participate in planning, teaching (including collaborative-teaching experiences), and assessment as directed by a faculty member (with permission and under the supervision of that faculty member).

**CIE693 Workshop**

Hours 1-6

In-class opportunities to study or work on topics or projects of collective concern. Topics vary. May be repeated. Offered according to demand.

**CRD510 Expanding Reading**

Hours 3

A comprehensive study of the major factors involved in teaching reading at the intermediate grade levels. Techniques for teaching word recognition and comprehension skills are studied extensively.

**CRD511 Beginning Reading in Pre-K and Primary Grades**

Hours 3

Attends to the theory and practice of beginning reading; key areas of study include diagnostic and evaluative procedures and the organization and implementation of appropriate instruction for P-6. A field component is required.

**CRD512 Impr Read Second Schools**

Hours 3

A comprehensive study of the major components involved in literacy instruction at the secondary level. A field component is required. This course should be taken concurrently with the content methods course and CSE 592.

**CRD569 Introduction to Literacy Education**

Hours 3

This course provides an overview to the foundations of literacy development and instruction grades PK-12.



**CRD590 Seminar In Literacy Coaching**

Hours 3

A comprehensive study of the major theories of and components involved in providing professional development in literacy to teachers and schools.

**CRD593 Practicum in Literacy Coaching**

Hours 3

This course provides students with the ability to implement the knowledge base of current research in coaching teachers' literacy instruction by conducting literacy coaching and literacy professional development in P-12 schools.

**CRD595 Practicum In Reading**

Hours 1-12

Provides graduate students supervised opportunities to apply knowledge and skills in primary grade settings (preschool-2nd).

Prerequisite(s): Corequisites: CRD 510, CRD 511, and CRD 512

**CRD653 Foundations of Literacy Education P-12**

Hours 3

This course explores multiple theories of literacy from a variety of perspectives and lenses. Additional areas of emphasis include a comprehensive study of the theoretical foundations and the history of literacy development and instruction in PK-12 settings, non-traditional settings (e.g. out of school context(s), and social contexts.

Prerequisite(s): Permission of the instructor.

**CRD654 Re-envisioning Reading Assessment and Instruction**

Hours 3

Provides advanced study of theoretical perspectives of diagnostic methods and materials for P-12 students at risk of reading failure.

**CRD690 Advanced Seminar Crd**

Hours 1-3

Provides students with a knowledge base of the relationship between theory, research and practice in regard to K-12 literacy education.

**CRD693 Advanced Workshop**

Hours 1-3

In-class opportunities to study or work on topics or projects of collective concern. Topics vary. May be repeated.

**CRD695 Adv Practicum Readg Education**

Hours 3

Provides graduate students supervised opportunities to apply knowledge and skills in intermediate grade settings (3rd-6th).

Prerequisite(s) with concurrency: CRD 510

**CRD696 Adv Reading Specialist Practic**

Hours 3

Provides reading specialist graduate students supervised opportunities to apply knowledge and skills in middle school and high school settings (7th-12th).

Prerequisite(s) with concurrency: CRD 654

**CSE502 Building Humanizing Classroom Communities in Secondary Schools**

Hours 3

A required course for candidates in secondary teaching programs that will focus on classroom management and building humanizing classroom communities in secondary classrooms. It will focus on aspects of engaged learning environments, positive responses to challenging behavior, classroom expectations and routines, building connections between home and school, and accountability and responsibility among learners.

**CSE530 Mod Sec School Program**

Hours 3

The evolving secondary school and its program, with emphasis on analysis of current trends that directly affect modern school practices in a societal context.

**CSE532 Secondary Sch Curric**

Hours 3

The evolving secondary school curriculum, from historical, current trends, and projective perspectives.

**CSE555 Adolescent Literature**

Hours 3

An introduction to literature appropriate for the adolescent reader; reading patterns and major concerns of adolescents.

**CSE563 Improvg English Instr**

Hours 3

Principles of learning applied to concepts, skills, attitudes, and problem solving in English and speech; diagnosis, enrichment, remedial teaching, and evaluation.

**CSE564 Imprvg Soc Sci Instr**

Hours 3

Exploration and examination of methods and materials for improving social studies instruction. Focuses on teaching for diverse learners, constructivist methods, critical thinking, interdisciplinary teaching, and various technologies as they apply to secondary social studies classrooms.

**CSE565 Improvg Science Instr**

Hours 3

Principles of learning applied to concepts, skills, attitudes, and problem solving in science; diagnosis, enrichment, remedial teaching, and classroom evaluation, and application and evaluation of technologies.

**CSE566 Principles of Mathematics Education: Teaching, Learning & Curriculum**

Hours 3

Principles of learning applied to concepts, skills, attitudes, and problem solving; proper use and evaluation of teaching aids; construction and utilization of teaching instruments; and examination and exploration of alternative assessment strategies and technologies for use in secondary mathematics classrooms.

**CSE569 Pedagogical Grammar**

Hours 3

Exploration of structural, transformational, and traditional approaches to teaching grammar.

**CSE570 Teaching Writing 6-12**

Hours 3

This course is designed to prepare prospective and current English teachers to successfully teach and evaluate writing in grades 6-12.

**CSE574 Guiding Early Childhood and Elementary Pupil Learning**

Hours 3

Focuses on understanding how students learn, what psychological and environmental factors influence learning, and how teachers can facilitate meaningful classroom instructional learning through insights into brain compatible learning, included are theories-to-applications of brain-based learning research to classroom instructional situations in early childhood and elementary education.

**CSE575 Principles of Mathematics Education: Tools, Technology, Assessment**

Hours 3

This course focuses on the teaching secondary mathematics with the use of new and emerging technologies. It explores the appropriate use of technologies to enhance conceptual understanding and problem solving in mathematics and aims to to develop classroom lessons and assessments for a technology classroom.

**CSE576 Improving Science Teaching**

Hours 3

Examination and evaluation of emerging and existing technologies specific to secondary science teaching. Students will grow their capacity to employ technologies to plan, enact, and access science teaching and learning.

**CSE579 Teach Sec School English**

Hours 3

Methods and media essential to effective instruction in English in the secondary school.

Prerequisite(s) with concurrency: CSE 592 and CRD 512 and BER 550

**CSE580 Teach Sec Sch For Lang**

Hours 3

Theories, methods, techniques, and essential media for teaching foreign languages effectively in the secondary school. Admission to TEP Program is required.

Prerequisite(s) with concurrency: CSE 592 or CRD 512

**CSE583 Teach Sec School Math**

Hours 3

Methods, media, and techniques of teaching mathematics in the secondary school, including selected topics in mathematics and exploration and examination of various technologies for use in secondary mathematics classrooms, including, but not limited to, calculators and various computer software.

Prerequisite(s): CSE 406 with a minimum passing grade of C-

Prerequisite(s) with concurrency: CSE 592 and CRD 512

**CSE585 Advanced Teaching Inquiry in Secondary Social Studies**

Hours 3

This course is designed to assist students' understanding of and application of powerful, inquiry-based strategies to the design of meaningful 21st century social studies instruction and assessment.

Prerequisite(s): TEP

**CSE586 Teach Sec School Science**

Hours 3

Methods and technologies essential to effective instruction in science in the secondary school.

**CSE587 Teach Sec School Soc Sci**

Hours 3

Theories and methods of teaching social studies in secondary schools, including examination and exploration of instructional materials, various technologies, constructivist methods, and assessments.

**CSE592 Field Work**

Hours 1-3

A clinical experience taken concurrently with the methods course and designed to facilitate students' development of pedagogical skills, effective thinking, and professional problem solving.

Prerequisite(s): Unconditional admission to the Teacher Education Program (TEP)

**CSE593 Workshop**

Hours 1-3

In-class opportunities to study or work on topics or projects of collective concern. Topics vary. May be repeated.

**CSE594 Problems**

Hours 1-6

Opportunities to study or work independently on topics or projects of individual concern. Credit is based on the nature and degree of student involvement.

**CSE595 Practicum**

Hours 3-6

Focuses on analysis and performance of teaching strategies and the evaluation of teaching-learning problems.

**CSE597 Internship**

Hours 3-12

Full-time internship as a teacher in the major teaching field.

Prerequisite(s): CSE 579 OR CSE 580 OR CSE 583 OR CSE 586 OR CSE 587 or CIE 580 OR CIE 582

**CSE598 Non-Thesis Research**

Hours 1-6

*No description available*

**CSE663 Sec School English**

Hours 3

Literature, research, and content in English and speech; current trends; experimental programs; gradation or sequence of subject matter; criteria for program evaluation; and basic issues.

**CSE664 Sec Sch Social Science**

Hours 3

Focuses on curriculum and research in social studies education, including materials development and current issues in the field.

**CSE665 Sec School Science**

Hours 3

Literature, research, and content in science; current trends; experimental programs; gradation of subject matter; criteria for program evaluation; and basic issues.

**CSE666 Research on Teaching, Learning & Curriculum in Math Ed**

Hours 3

This course examines the principles of learning as they apply to the teaching of concepts, skills, attitudes, and problem solving; the proper use and evaluation of teaching aids and other forms of instructional implementation; the construction and understanding of teaching instruments; and the utilization of research in teaching, learning and curriculum in mathematics education.

Prerequisite(s): Admission to post-master's graduate program

**CSE670 Res & Theory In Sec Ed**

Hours 3

An examination of the relationship between theory and research. Students learn to search and evaluate the research literature and develop a proposal for research.

**CSE675 Research on Tools, Technology, and Assessment in Math Ed**

Hours 3

The course focuses on the proper application of research-supported tools, technology, and assessment strategies in mathematics education as well as the construction and understanding of various assessment instruments.

Prerequisite(s): Admission to a post-master's degree program or Permission of Instructor

**CSE690 Advanced Seminar**

SP

Hours 1-3

In-class opportunities to analyze and discuss current topics, problems, and projects of collective concern. Topics vary.

Special Topics Course

**CSE693 Advanced Workshop**

Hours 1-9

In-class opportunities to study or work on topics or projects of collective concern. Topics vary. May be repeated.

Prerequisite(s): CSE 670

**CSE694 Advanced Problems**

Hours 1-6

Opportunities to study or work independently on topics or projects of individual concern. Credit is based on the nature and degree of student involvement.

**CSE695 Practicum**

Hours 1-12

Supervised opportunities to apply knowledge and skills in a professional setting. Credit is based on the nature and degree of student involvement.

**CSE697 Specialist Degree Res**

Hours 1-6

Systematic classroom inquiry is used to engage students in a teacher action research project. Advisor recommendation required.

Prerequisite(s): CSE 670

**CSE698 Non-Thesis Research**

Hours 1-3

*No description available*

**CSE699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required research dissertation hours toward the doctoral degree. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology.

**EDU500 Internship Seminar**

Hours 1

This seminar aims to encourage interns to reflect and to otherwise deliberate on their internship experiences. Class activities involving lecture, group discussions, portfolio development, and successful completion of a culminating teacher performance assessment used to facilitate professional development.

Prerequisite(s): Meet all qualifications for Teacher Internship

**INTE532 Instructional Technology Design**

Hours 3

This course provides an introduction to the elements of instructional design and their application to the design of technology-mediated instruction, with a primary focus on blended and online learning.

**INTE533 Online Teaching and Learning**

Hours 3

This course provides students with knowledge and skills in the methods of online teaching and learning, including the creation of effective online learning environments.

**INTE534 Issues and Trends in Instructional Technology**

Hours 3

Study of current issues and trends affecting the use of technology in training, instruction, and implementation. Includes an examination of emerging technologies: legal, social, cultural, cyber ethics and security, and ethical issues affecting technology: technology funding, technology planning and professional development.

**INTE535 Analysis, Implementation, and Evaluation of Assistive Technology**

Hours 3

Study of hardware and software applications designed to meet the needs of those with developmentally and physical abilities. Topics include: adaptive/assistive technologies and services to improve learning environments; accessibility standards for traditional classrooms and online learning environments; selecting and using adaptive and/or assistive hardware and software applications; evaluation and selection of adaptive and assistive technology.

**INTE536 Assessment and Evaluation of Instructional Technology**

Hours 3

Procedures for evaluating educational programs, training systems, emerging learning technologies, and new technology applications. Topics include the evaluations of instructional or performance improvement programs; models for formative and summative evaluations.

**INTE537 Game-Based Learning**

Hours 3

Study of current issues and trends related to the use of games (both analog and digital) for pedagogical purposes. Includes an examination of theoretical and empirical support for game-based learning; educational game design theory; game development; game-based learning pedagogical models; integration of games in the formal classroom.

**INTE538 mLearning**

Hours 3

This course provides an introduction to mobile learning (mLearning) in higher education, K-12 and business environments. During the course, students will design and evaluate a mobile app for use in higher education, K-12 or business learning environments.

**INTE539 Special Topics in Instructional Technology**

SP

Hours 3

The course will include an in-depth study of a particular topic, contemporary issue or concern. Investigation of unique problems and new developments in instructional technology will occur. Specific topics will be announced in the Schedule of Classes each time the course is offered or students will select individual topics to study in-depth.

Special Topics Course

**INTE540 Planning and Managing Technology Projects**

Hours 3

This course introduces learners to theories, models, tools and processes for planning and managing technology projects as mechanisms of change and performance improvement in schools and organizations.

**INTE541 IT Leadership and Administrative Technologies**

Hours 3

This course introduces learners to administrative technologies and critical technology issues facing educational and organizational leaders. Technologies covered in the course include data management systems and course management systems. Issues include policies for safe and legal use of technology resources; diversity and social justice; ethical use of technology; and professional development.

**INTE542 Instructional Technology Internship**

Hours 3

This course aims to provide students with the opportunity to apply theory, knowledge, and skills and gain practical experience within an instructional technology/design environment.

Prerequisite(s): INTE 532, INTE 533

**INTE543 Third Party Technology Tools**

Hours 3

This course aims to provide students with the opportunity to explore and build course assets using current 3rd party technology tools used in the career field of instructional design and technology.

Prerequisite(s): INTE 532

**INTE589 Instructional Technology Research and Product Development**

Hours 3

This culminating course is intended to give students an experience of the "what" and "how" in instructional technology research (action research) and/or product development through collaboration with businesses, schools and/or community entities.

Prerequisite(s): CAT 531, INTE 532, INTE 533

**KIN500 Sociology of Sport**

Hours 3

Examines the institution of sport from a sociological perspective. Provides an opportunity to critically analyze the assumptions surrounding the social significance of sport through a process of reflective thought.

**KIN506 Techniques of Research**

Hours 3

Designed to acquaint the student with the types of research and the methods and materials necessary for scientific inquiry. Includes the development of a research proposal, with emphasis on form and style.

**KIN507 Lab Techniques in Kinesiology**

Hours 3

This course covers the theoretical and practical understanding of physiological instrumentation and measurement in Kinesiology. The work includes practical laboratory experiences that are preparatory for graduate level research and other research and clinical career settings.

**KIN510 Tchg & Supervg Elem PE**

Hours 3

Open to elementary education and physical education majors. Reviews the essential concepts for successfully teaching grades 1-6; learning, function and duties of consultant.

**KIN511 Readings in Sport Management: Trends and Issues**

Hours 3

Online course. This course is designed to provide students with an opportunity to immerse themselves in the extant literature relating to trends and issues in sport and recreation management. Emphasis will be placed on approaches to proactively implement the contemporary trends.

**KIN512 PE Curriculum**

Hours 3

Program content and curriculum planning in grades 1-12 and higher education; includes developing curriculum plan applicable to one's need.

**KIN538 Adv Adapted Phys Ed.**

Hours 3

Pertinent information concerning legislation, mainstreaming, the physical education IEP, and movement problems of individuals who deviate from the norm. A clinical experience is required.

**KIN551 Sport Management Internship**

Hours 3

This course provides students with the opportunity to gain applied, practical experience in a suitable sport management related setting.

**KIN552 Legal Issues in Sport**

Hours 3

Legal Issues in Sport provides an overview of legal issues that frequently arise in the context of sport and physical activity. Emphasis will be placed on how sport managers should respond to specific situations based on the law.

**KIN553 Sport Facility and Event Management**

Hours 3

This course will provide students with an understanding of the factors involved in planning, designing, equipping, and managing sport facilities and event logistics.

**KIN555 Sport Finance**

Hours 3

An overview of the budgeting process, sources of revenue, types of expenditures, issued and innovations in financing for sport management.

**KIN562 Admin Sports Programs**

Hours 3

Problems and issues in organizing and administering secondary and college athletic programs.

**KIN566 Evaluation in Kinesiology**

Hours 3

The course covers practical aspects of measurements and evaluation as they relate to the school and college experience. A practical measurement/evaluation project is expected to be completed.

**KIN585 Lab & Field Experience**

Hours 3,6

Provides for teaching laboratory, internship, and/or practicum experiences, according to individual needs and goals.

**KIN588 Marketing and the Media**

Hours 3

This course examines the various components of sport marketing and consumer culture. Particular emphasis is given to the influence of the media in promoting sporting goods and products.

**KIN590 Sports/Dance Workshop**

Hours 1-6

In-depth study of physical education subject matters (gymnastics, dance, fitness, aquatics, track and field, and sports/games) focusing on content, theoretical frameworks, and educational perspectives. Students enroll in 1-credit-hour workshops according to individual needs and certification requirements.

**KIN592 Physiology of Exercise**

Hours 3

Designed to be an overview of the human physiological response to exercise.

**KIN593 Advanced Fitness Testing and Exercise Prescription**

Hours 3

Explores advanced fitness testing and exercise prescription techniques using practical experiences.

**KIN595 Workshop Physical Education**

Hours 1-6

This course is designed to help students improve their ability to teach elementary, secondary, and/or college physical education and understand theory and research as it is applied in each setting.

**KIN596 Independent Study**

SP

Hours 1-3

Designed to provide the opportunity for independent study in a specific area of Kinesiology.

Special Topics Course

**KIN598 Non-Thesis Research**

Hours 3

Experimental or analytical investigation of problems in Kinesiology.

**KIN599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Kinesiology. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature and aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the goal of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**KIN602 Readings in Kinesiology**

SP

Hours 3

An independent readings course for doctoral students.

Special Topics Course

**KIN603 Special Projects in Kinesiology**

Hours 3

Experimental and analytical investigations of problems in Kinesiology, arranged on an independent basis for doctoral students.

**KIN604 Sem in Physical Education**

Hours 3

Critical issues in athletics, curriculum, instruction, evaluation, research, fitness, individual differences, and financial support.

**KIN612 Res Phys Ed Teach Education**

Hours 3

An examination of the development, design, and application of research in physical education/teacher education.

**KIN615 Organizational Behavior & Theory Development in Sport**

Hours 3

The purpose of this course is to introduce the student to critical areas of sport management and the theories associated with organizational behavior and theory development.



**KIN622 Analy Res Teach Phys Ed**

Hours 3

A thorough analysis of published research on teaching in physical education.

**KIN632 System Observ Phys Educ**

Hours 3

An examination of analytical techniques used to collect and evaluate data related to teacher and student behaviors. Instruction in the development and use of systematic observation instruments is provided.

**KIN642 Instrct Design PE High Ed**

Hours 3

An examination of methods, applications, and current research related to instructional design.

**KIN651 Integrative Systems Physiology I**

Hours 3

This course will focus on the detailed physiological processes that occur in the major systems of the human body. The course will cover content related to cell physiology, fluid physiology, skeletal muscle physiology, cardiac physiology and function, nervous system physiology, and circulatory physiology.

**KIN652 Integrative Systems Physiology II**

Hours 3

This course will focus on the detailed physiological processes that occur in the major systems of the human body. The content of the course will cover acid/base and renal physiology, gastrointestinal physiology, pulmonary physiology and neural regulation, physiology of hematopoiesis and immunology, endocrine physiology, and metabolic regulation.

**KIN670 Biochemical and Molecular Aspects of Exercise**

Hours 3

This course focuses on the biochemical and molecular changes resulting from acute and chronic exercise training. Primary areas emphasized include metabolism, DNA/RNA, and cell signaling mechanisms.

**KIN685 Field & Lab Experience**

Hours 3

Arranged on an independent basis for doctoral students. Participation and research in schools and agencies.

**KIN690 Exercise Health Disease**

Hours 3

Designed to acquaint the student with the health benefits of regular physical activity and exercise. The most recent research literature is critically analyzed.

**KIN691 Res Sociology Human Perf**

Hours 3

Provides students with an in-depth understanding of the literature on the occupational socialization of physical education teachers.

**KIN692 Sem Exercise Physiology**

Hours 3

Provides an opportunity to study in depth the scientific literature related to various exercise physiology topics. May be taken more than once.

**KIN698 Non-Dissertn Research**

Hours 3

Experimental or analytical investigation of problems in kinesiology.

**KIN699 Dissertation Research**

Hours 1-15

This independent research course partially fulfills required doctoral level research dissertation hours towards the PhD in Kinesiology. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**MUE500 Foundatn Music Education**

Hours 3

Investigation of the purposes and functions of music education from antiquity to the present. Philosophical foundations and a chronological survey of historical issues related to the inclusion of music in general education will also be discussed.

**MUE522 General Music: Approaches and Practices**

Hours 3

This course examines curricular approaches and contemporary practices in general music education. Students explore important questions about the purposes and characteristics of general music programs and how those programs meet the needs of diverse learners and communities. Students develop critical and reflective understandings of general music education within the context of current challenges and opportunities facing the field.

**MUE525 Choral Techn Materials**

Hours 3

Organization, rehearsal, programming and performance of choral groups.

**MUE526 Instrml Techn Materls**

Hours 3

Organization, rehearsal, programming and performance of instrumental groups.

**MUE530 Mus Ed Curr Theory Dev**

Hours 3

Analysis of music curricula and study of the development process.

**MUE532 Research in the History and Aesthetics of Music Education**

Hours 3

This course will address various techniques into the history and aesthetics of music education.

**MUE535 Curriculum Projects In Mued**

Hours 1-3

The design, proposal, implementation, evaluation, and reporting of a curriculum project or an improved instructional procedure in music. Independent study.

**MUE540 Intro Research In Mued**

Hours 3

Introduction to research study in music education.

**MUE580 Introduction to Graduate Studies in Music Education**

Hours 3

Introduction designed to prepare student for the application of scholarly thinking to topics in the areas of music psychology, teacher training, and music education.

**MUE586 Marching Band Techniques**

Hours 1

Fundamentals of marching, maneuvering, and preparation and presentation of formations.

**MUE589 Clinical Exper. in MUE**

Hours 2-6

Part-time supervised teaching experience in secondary instrumental music education. Four-twelve hours weekly for 14 weeks in Tuscaloosa area public schools.

**MUE590 Seminar In Music Education**

Hours 1-3

Study of special topics in music education.

**MUE597 Practicum Music Education**

Hours 3-12

Supervised teaching experience in the area of specialization (instrumental or vocal and elementary), from nursery school through grade 12.

**MUE598 Non-Thesis Research**

Hours 1-3

*No description available*

**MUE599 Thesis Research**

Hours 1-6

*No description available*

**MUE631 Doctor of Philosophy Diagnostic/Admission Exam**

Hours 0

Examination required prior to completion of no more than six hours of study for admission to a Ph.D. program in music education.

**MUE635 Curriculum Projects Mued**

Hours 1-3

The design, proposal, implementation, evaluation, and reporting of a curriculum project or an improved instructional procedure in music. Independent study.

**MUE641 Adv Research Music Educ**

Hours 3

The design, implementation and reporting of research studies that illustrate a variety of methodological and statistical plans for research in music education.

Prerequisite(s): MUE 540

**MUE698 Non-Dissertatn Research**

Hours 1-3

*No description available*

**MUE699 Dissertation Research**

Hours 1-12

*No description available*

**SPE500 Intro Exc Childr/Youth**

Hours 3

Introduction to programs and problems of children and youth who deviate from the norm in physical, mental, emotional, and social characteristics.

**SPE501 Diagnosis and Assessment of Exceptional Children and Youth**

Hours 3

Comprehensive study of diagnosis and assessment, emphasizing concepts of tests and measurements, formal and informal assessment, test administration, and use of diagnostic results in educational intervention.

**SPE502 Adv Behav Mgt Spec Educat**

Hours 3

Concepts and principles of behavior change and management; practical experience in developing plans to prevent and remedy behavior problems. Research project required.

**SPE503 Masters Seminar In Spe**

Hours 3

This seminar examines and critiques current research and research problems in special education.

**SPE504 Introduction to Assistive Technology**

Hours 3

This is an introductory course for teacher educators in the fundamentals of assistive technology identification, consideration, and implementation.

**SPE506 Working W/Families**

Hours 3

Examination of the effects of an exceptional child on the family, and the various approaches to intervention with the family.

**SPE514 Teach Consult Model Spe**

Hours 3

Introduction to various direct and indirect service delivery models for students with mild disabilities; consultant techniques demonstrated.

**SPE520 Language, Communication and Early Literacy Interventions**

Hours 3

This course provides information on language, communication, and literacy interventions for children with language delays or developmental disabilities, including children from diverse cultural and linguistic backgrounds. Intervention and instructional strategies will be examined and current research on the efficacy of child language intervention strategies will be discussed.

**SPE531 Introduction to Autism Spectrum Disorder**

Hours 3

This course provides an introduction to autism spectrum disorder with an emphasis on both clinical practice and research. The course will cover topics related to a range of ages, from early childhood to adulthood, and will focus on etiology, diagnosis and assessment, treatment and intervention, family support and advocacy.

**SPE532 Evidence-Based Practices for Individuals with ASD**

Hours 3

This course focuses on evidence-based practices for individuals with autism spectrum disorder (ASD). The course will offer an overview of the characteristics of individuals with ASD in order to provide a foundation for how these characteristics may influence the selection of appropriate goals and intervention strategies. The course focuses on specific-based instructional practices for individuals with ASD.

**SPE533 Assessing Behavior Change in Individuals w/ Autism, Dev Disabilities and Behav Challenges**

Hours 3

This course assesses behavior changes in individuals with autism through the use of a single subject research methodology. It includes the application of behavioral measurement, single subject research designs, and methods of data analysis. Autism intervention research is critically examined and a single subject research proposal is developed.

**SPE571 Educ Yng Child W/Disabl**

Hours 3

An introductory course to the field of early childhood special education, including rationale, legal issues, and characteristics of children from birth through kindergarten.

**SPE572 Early Childhood Development**

Hours 3

This course is an examination of the developmental domains (cognitive, communicative, social-emotional, motor, approaches to learning) central to the healthy growth of children in the early childhood years. The course will also examine the historical and theoretical underpinnings that form the basis for current-day early childhood education approaches to learning, while also exploring a variety of early childhood educational settings, including the home, group care contexts, and the community. Students will also research the social, economic, and political influences on early childhood education.

**SPE575 ECSE Practicum**

Hours 1-6

Involves a demonstration of teaching expertise of candidate with students identified with severe/profound and/or multiple disabilities in special and general education classrooms.

**SPE576 Assessment Young Childrn**

Hours 3

Selection, administration, and interpretation of assessments of young children (birth through kindergarten).

**SPE578 Meth Tch Yng Child W/Dis**

Hours 3

Use of curricula, materials, and management techniques for young children (birth through kindergarten) with disabilities.

**SPE579 Intern Ed Yg Child Div Abil**

Hours 3-6

Fourteen week split internship providing supervised teaching experience in classrooms for young children. Offered spring and fall only. Application for internship must be made the semester prior to internship (excluding summer term) through Office of Educational Field Experience.

**SPE581 Psy Gift Tal Chld Yth**

Hours 3

Examination of the nature of youth with high potential in multiple areas. Contemporary theory, research, and the relationship between definition/identification and educational planning are considered.

**SPE582 Teach Gifted And Taltd**

Hours 3

Use and evaluation of teaching-learning methods for education of the gifted and talented, including consideration of roles, expectations for learning, and organizational procedures.

**SPE583 Creative Prob Solving**

Hours 3

A guided sequence of exercises and experiences leading to increased personal creative behavior, with emphasis on methods for nurturing creative talent in students of all ages.

**SPE584 Spec Populatn Gift Educ**

Hours 3

Examination of a variety of administrative designs, curriculum options, instructional models, and strategies to meet the unique cognitive and affective needs/abilities of special populations of gifted students.

**SPE585 Teaching Thinking Skills**

Hours 3

Survey of existing thinking-skills programs and techniques for creating new programs for thinking. Emphasis is on integrating thinking skills into gifted education and regular education.

**SPE586 Socl Emotl Compnts Talent Dev**

Hours 3

This course will explore current research, psychological theory and practical counseling techniques relevant to the social and emotional components of giftedness. Some topics include perfectionism, gender issues, underachievement, and special populations.

**SPE587 Indiv Needs Talents Classroom**

Hours 3

This course will outline instructional and managerial techniques that can be used in the grade level or heterogeneous classroom to address the individual learning needs, strengths, styles, and preferences of all students.

**SPE588 Practicum in Special Education, Autism**

Hours 3

This course is designed to ensure that students acquire critical knowledge in the instruction of children and youth with autism spectrum disorder. The course competencies reflect basic standards and competencies derived from the Alabama Administrative Code and the Council for Exceptional Children Standards for Advanced Preparation in Autism Spectrum Disorder and Developmental Disabilities.

**SPE589 Internship Gift/Talent**

Hours 3-9

Intensive, supervised teaching experience in programs for gifted and talented.

**SPE590 Intro Mild Disabilities**

Hours 3

An intensive study of the background and current perspective on mild disabilities. Emphasis on developing professional knowledge base.

**SPE591 Adv Academic Methods Elem**

Hours 3

Designed to develop skills in the use of curriculum, materials, and strategies for students with disabilities at the elementary school level.

**SPE592 Adv Academic Methods Sec**

Hours 3

Designed to develop skills in the use of curriculum, materials, and strategies for students with disabilities at the secondary level.

**SPE593 Intro Severe/Profound Disabili**

Hours 3

An intensive study of the background and current perspective on severe disabilities. Emphasis is on developing professional knowledge.

**SPE594 Methods Severe Disability**

Hours 3

Emphasizes educational programming, subject matter, professional responsibilities of teachers and related service personnel, curriculum development, communication, and physical management and handling procedures of individuals with severe disabilities.

**SPE595 Severe Practicum**

Hours 1-6

Involves a demonstration of teaching expertise of candidate with students identified with severe/profound and/or multiple disabilities in special and general education classrooms.

**SPE596 Collaborative Practicum**

Hours 1-6

Involves a demonstration of teaching expertise of candidate with students identified with severe/profound and/or multiple disabilities in special and general education classrooms.

**SPE597 Transition In Special Ed**

Hours 3

Focuses on the strategies, methods, curriculum, and measurement for facilitating an effective transition from school to adulthood of adolescents with disabilities.

**SPE598 Internship In Special Ed**

Hours 3-9

Intensive, supervised teaching experience in a special education program.

**SPE600 Doctoral Seminar Spe**

Hours 3

Required for all first-year doctoral students; diagnostic in function. Activities include examination of career goals and assessment of skills in written and oral presentations. Offered fall semester.

**SPE601 Sem Col Teachg In Spe**

Hours 3

Course structure, lecturing and other delivery techniques, student evaluation, and practicum supervision are included among topics that are reviewed to develop skills in college training. Offered fall semester.

**SPE602 Seminar Research Spe**

Hours 3

Focuses on the unique aspects of the exceptional population in relationship to typical statistical and research design procedures. Offered spring semester.

**SPE606 Topical Seminar In Spe**

SP

Hours 3-6

May be repeated for credit. Selected topics, review and critique of current literature, research problems, and methodology.

Special Topics Course

**SPE609 Practicum In Spe**

Hours 3-6

Designed for advanced graduate students. Students practice effective supervision skills or college teaching skills under the direction of the course instructor.

**SPE610 Applied Behavioral Analysis**

Hours 3

This course is designed to provide guidance for students in applied behavior analysis, the study of assessing and changing behavior for children, youth and adults. The course will review relevant research and evidence-based practices in the field of ABA.

**SPE611 Ind Study In Spe**

SP

Hours 1-6

Intensive investigation of a specific aspect of special education, by one student under the supervision of a faculty member in the student's area of concentration.

Special Topics Course

**SPE612 Readg Research In Spe**

SP

Hours 1-6

For doctoral students, an opportunity to initiate, develop, and successfully defend a dissertation topic dealing with a problem of magnitude in the field of special education.

Special Topics Course

**SPE613 Consult Proc Spe Progs**

Hours 3

Training in human-relations techniques and administrative strategies designed to facilitate communication and interaction with individuals and groups in special education programming.

**SPE616 Adv. Professional Development**

Hours 3

Theories and types of training and development programs will be reviewed and analyzed, needs assessments will be explored and conducted, and professional development sessions will be developed, facilitated, and evaluated.

**SPE617 SPE Leadership**

Hours 3

This course is designed to instruct the ethical, legal, and leadership principles that govern the field of special education. It includes emphasis on preparing for administrative positions in special education programs in local education agencies.

**SPE621 Issues in Special Education: Early Childhood**

Hours 3

Discussion of current research and investigation of major issues in the education of young students with disabilities, focusing on best practices, assessment and learning, programming, evaluation, community involvement, and facilitation.

**SPE622 Advanced Curriculum Workshop: Early Childhood Special Education**

Hours 3

This course assists leaders in early childhood special education in applying studies in basic disciplines to the development and implementation of appropriate curriculum for young students with disabilities. It includes emphasis on application of diverse teaching models and the use of a variety of program alternatives and skills in designing, managing, and evaluating program alternatives.

**SPE623 Issues in Collaborative Education**

Hours 3

Discussion of current research and investigation of major issues in the education of students with disabilities, focusing on best practices, assessment and learning, programming, evaluation, community involvement, and facilitation.

**SPE624 Advanced Curriculum Workshop in Special Education: Collaborative**

Hours 3

This course assists leaders in collaborative education in basic disciplines to the development and implementation of appropriate curriculum for students with disabilities. It includes emphasis on application of diverse teaching models and the use of a variety of program alternatives and skills in designing, managing, and evaluating program alternatives.

**SPE681 Issues In Gifted Educ**

Hours 3

*No description available*

**SPE682 Adv Curr Workshp Gift Educatio**

Hours 3-6

*No description available*

**SPE699 Dissertation Research**

Hours 1-12

*No description available*

## College of Engineering Courses

**AEM500 Intermediate Fluid Mechanics**

Hours 3

Development and use of the integral and differential forms of the equations of continuity, momentum, and energy with ideal fluids, viscous fluids and compressible fluids. Advanced topics in fluid mechanics, including potential flow, viscous flow and compressible flow.

**AEM508 Propulsion Systems**

Hours 3

Basic propulsion dynamics, thermodynamics of fluid flow, combustion kinetics, air-breathing engines, rockets, design criteria, performance, and advanced propulsion systems.

**AEM513 Compressible Flow**

Hours 3

Fundamentals of high-speed aerodynamics theory discussed. Topics covered include: normal and oblique shock waves, heat addition and friction effects in one-dimensional flow, expansion waves in two-dimensional flow, quasi 1-D nozzle flow, unsteady compressible flow calculations using method of characteristics, shock tube relations.

**AEM514 Experimental Aerodynamics**

Hours 3

The course provides a laboratory counterpart to concepts discussed in aerodynamics and fluid mechanics. Course topics include statistical and uncertainty analysis techniques, design of experiments, computer-based data-acquisition, sensors for fluid mechanic measurements, and aerodynamic measurement techniques and facilities.

**AEM516 Helicopter Theory**

Hours 3

Critical examination of the propulsive airscrew, including induced velocity relations, flow patterns, and similarity. Practical applications approached through existing theory and practice.

**AEM517 Aircraft Systems**

Hours 3

The principal objective of this course is to establish, develop, and refine capability in the integrated analysis and interdependency of aircraft systems.

**AEM518 Uncrewed Aircraft Systems**

Hours 3

The objectives of this course are to teach the remote sensing applications, design, and operation of uncrewed aircraft systems. General design criteria will be developed for radio communication, propulsion, avionics, airframe, and integration. Regulatory and operational procedures will be given for communication, and command & control with an emphasis on safety.

**AEM520 Computational Fluid Dynamics**

C

Hours 3

Introduction to basic mathematical concepts and engineering problems associated with numerical modeling of fluid systems. Application of the state of the art numerical models to engineering problems. Fundamentals of Finite Difference and Finite Volume Methods and their applications in fluid dynamics and heat transfer problems will be covered. Computing proficiency is required for a passing grade in this course.

Computer Science

**AEM525 Spacecraft Dynamics and Control**

Hours 3

Formulate, understand, and apply rigid body dynamics to a spacecraft. Determine the orientation of the spacecraft. Demonstrate the ability stabilize a spacecraft (gravity gradient, momentum-bias, spin stabilization). Perform analytic and numerical analysis to understand its behavior.



**AEM528 Space Propulsion**

Hours 3

Students are introduced to different types of space propulsion systems in this class. Different rockets, such as: monopropellant, bi-propellant, solid, liquid, nuclear and electric rockets are discussed in detail. Working principles of these rockets, their intended use and their design are discussed. Power limited and energy limited rocket working principles are given. Several rocket design projects are assigned throughout the class.

**AEM530 Continuum Mechanics**

Hours 3

Introduction to tensor analysis. Analysis of stress and strain at a point. Development of the equations representing conservation laws for a continuum. Study of constitutive relationships for fluids and solids. Application of field equations to simple boundary value problems in solid mechanics and fluid mechanics.

**AEM535 Applied Finite Element Analysis**

Hours 3

Applications of the finite element method to static stress analysis, heat transfer, natural frequency and Eigen-mode determination, for linear, hyper-elastic, and elastic-plastic materials. The course includes a basic background on finite element theory as well as usage of current finite element software.

**AEM546 Intermediate Solid Mechanics**

Hours 3

Two-dimensional theory of elasticity; exact and approximate solutions of bending, torsion, and buckling for bars; open sections and curved beams; stresses in axisymmetric members; and finite-element and energy methods.

**AEM548 Stochastic Mechanics**

Hours 3

This course develops, analyzes and discusses the application of uncertainty quantification in engineering systems and design methodologies to include uncertainties in the systems. Topics include: classification of uncertainties and methods of quantification, perturbation approaches, polynomial chaos, sampling techniques, random processes and Bayesian analysis.

**AEM552 Composite Materials**

Hours 3

First exposure to composite materials. Focus on how heterogeneity/anisotropy in composites influence thermomechanical behavior. The behavior of both continuous and short fiber reinforced composites will be emphasized. Stress analysis for design, manufacturing processes and test methods of composite materials will be covered.

**AEM553 Multiscale Analysis of Advanced Composites**

Hours 3

Concepts of multiscale analysis, nano-mechanics, micromechanics - principles of analysis of heterogeneous systems, information transfer between multiple spatial and temporal scales, including atomistic-to-continuum coupling, continuum-to-continuum coupling, and temporal bridging.

**AEM555 Nondestructive Evaluation**

Hours 3

Fundamental theories, limitations and instrumentation of nondestructive test methods used for metal, polymer and composites materials. The ultrasonic, acoustic emission, vibration, thermography, eddy current, penetrant, and radiography methods are emphasized.

**AEM562 Intermediate Dynamics**

Hours 3

Dynamics of systems in moving coordinate frames; Lagrangian formulation and Hamilton's principle; stability and perturbation concepts for rigid body motion; motion of systems of rigid bodies in three dimensions.

**AEM566 Optimal Control & Estimation**

Hours 3

Optimal parameter estimation; linear least-squares; nonlinear least-squares; constrained least-squares; optimal control problem; linear-quadratic regulator; hoo optimal control; h2 optimal control; convex optimization for control; receding horizon control; linear-quadratic-gaussian; separation principle; optimal state estimation; kalman filter; extended kalman filter; sigma-point kalman filters; bayes filter; particle filter.

**AEM569 Orbital Mechanics**

Hours 3

Introduction to engineering application of celestial mechanics; to formulate, understand, and apply fundamentals in orbital mechanics to trajectory design process. Perform analytic and numerical analysis to understand its behavior. Kepler's laws, coordinate transformations, and related studies.

**AEM570 Mechanical Vibrations**

Hours 3

Free and forced vibrations, both undamped and damped. Systems with many degrees of freedom are formulated and analyzed by matrix methods. Experimental techniques of vibration measurement are introduced.

**AEM574 Structural Dynamics**

Hours 3

Study of dynamic behaviors of elastic structures (interaction of elastic and inertial forces) with emphasis on aeronautical applications. Introduction of concepts and tools used in structural dynamics, including the Newtonian and variational methods. Basic numerical integration schemes to solve time-domain responses of elastic structures.

**AEM575 Fundamentals of Aeroelasticity**

Hours 3

Study of fluid-structure interactions between aerodynamic loads and static and/or dynamic deformations of flexible wings, as well as the influence of the interactions on aircraft performance. Concepts such as divergence, buffeting, and flutter, and rejection of external disturbances (e.g., gust alleviation) are introduced.

**AEM582 Space Systems**

Hours 3

Concepts in systems engineering of space systems: systems engineering, space systems, satellites, space transportation systems, space environment, attitude determination and control, telecommunications, space structures, rocket propulsion, and spacecraft systems.

**AEM584 Space Environment**

Hours 3

This course provides an introduction to the effects of the space environment on spacecraft. The harsh space environment introduces several unique challenges to the spacecraft designer. Focus on the impact of this environment and how best to mitigate these effects through early design choices will give the satellite designer better tools. Topics include: geomagnetic field, gravitational field of the Earth, Earth's magnetosphere, vacuum, solar UV, atmospheric drag, atomic oxygen, free and trapped radiation particles, plasma, spacecraft charging, micrometeoroids.

**AEM588 Advanced Space Propulsion and Power**

Hours 3

This course will explore concepts, theory, and performance of electrical, nuclear, and exotic space propulsion systems for use in space. This exploration will include fundamental physical processes exploited by these propulsion schemes. The course will also include concept, theory and performance of power generation methods in space. Systems studied will include low and high-power systems intended for short term or long term applications. Thermal, solar and nuclear devices and the energy conversion means for converting energy from these sources into useful electrical power will be studied.

**AEM589 Space Law**

Hours 3

Discussion-based course that provides an examination of legal and ethical issues regarding outer space. Topics discussed include: the historical development of international and domestic space law; international treaties, principles, and resolutions; specific issues relevant to contemporary space law; and US statutes governing space flight and resources.

Prerequisite(s): AEM 360

**AEM591 Special Problems**

SP

Hours 1-6

Independent investigations of special problems. Credit is based on the amount of work undertaken.

Special Topics Course

**AEM592 Special Problems**

SP

Hours 1-6

Independent investigations of special problems. Credit is based on the amount of work undertaken.

Special Topics Course

**AEM593 Special Topics**

SP

Hours 1-3

Planning, executing, and presenting results of an individual project involving a research design, analysis, or similar undertaking; pass/fail designation.

Special Topics Course

**AEM594 Special Projects**

SP

Hours 1-6

Planning, executing, and presenting results of an individual project involving a research design, analysis, or similar undertaking.

Special Topics Course

**AEM598 Non-Thesis Research**

Hours 1-3

Research not related to thesis.

**AEM599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree Aerospace Engineering and Mechanics. The course is conducted under the guidance of the thesis advisor. Material covered or studied will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**AEM606 Physical Gas Dynamics**

Hours 3

Introduction to the behavior of gases. Gases are treated as interacting particles and the collective behavior is studied as an ensemble of semi-random events. The evolution of gas properties from the molecular viewpoint to the continuum viewpoint will be examined. Applications of interest include chemical reactions important to hypersonic aircraft, scramjet engines, current and future high pressure ratio gas turbine engines as well as rocket propulsion.

**AEM614 Airfoil and Wing Theory**

Hours 3

This course covers incompressible and compressible airfoil and wing theories and their applications to aircraft aerodynamic design. It also discusses viscous effects, unsteady aerodynamics, and topics of current interest. Specific contents of this course include flow-field modeling, compressible aerodynamic theory, viscous effects, unsteady aerodynamics, classical and swept wings, and an introduction to super- and hyper-sonic aerodynamics.

**AEM621 Viscous Flow**

Hours 3

Development of basic boundary layer equations and concepts. Classical incompressible solutions for laminar boundary layer, approximate solutions, and concepts of turbulence.

**AEM622 Turbulent Flows**

Hours 3

Introduction to the physics and modeling of turbulent flows. This course will cover the governing equations of multi-species viscous laminar flows, origin and characteristics of turbulence, mathematical methods for obtaining the governing equations of turbulent flows, various modeling techniques for resolving closure problems associated with the governing equations of turbulent flows.

**AEM624 Hypersonic Flow**

Hours 3

This course develops, analyzes and discusses the application of hypersonic flow theory. Topics include: Hypersonic shock/expansion wave relations, approximate methods to calculate lift and drag on hypersonic vehicles, boundary layer equations for hypersonic flow, hypersonic viscous interactions, and topics of current interest.

**AEM635 Finite Element Methods**

Hours 3

Finite-element formulations in the areas of solid mechanics, fluid mechanics, and heat conduction; isoparametric elements; assembly process; solution of stiffness equations; and convergence of results.

**AEM637 Theory Of Elasticity**

Hours 3

Equations of linear elasticity, principal stresses and strains, stress and displacement potentials, energy principles, and numerical methods. Boundary value problems of elasticity.

**AEM638 Introduction to Experimental Mechanics**

Hours 3

Theory and application of electrical resistance strain gauges for stress analysis and for use as transducers. Study of circuits and instruments used for strain measurement. Theory and application of photoelasticity for measurement of stress. Fundamentals of servohydraulic testing.

**AEM644 Engineering Fracture Mechanics**

Hours 3

Linear elastic and elastic-plastic fracture mechanics. Fracture analysis using Griffith's criterion, stress intensity factors, CTOD methods, and the J-Integral.

**AEM648 Theory of Plasticity**

Hours 3

Theory of plastic deformation of metals and other materials. Development of yield criteria, application of flow rules, and yield surface based plasticity theories. Application to engineering structures, including computer programming assignments and finite element analysis assignments.

**AEM649 Fatigue Analysis**

Hours 3

Presentation of the strain life and fracture mechanics approaches to fatigue analysis. Review of damage parameters, mean stress effects, and cycle counting methods for uniaxial and multiaxial loading.

**AEM655 Advanced Composite Materials**

Hours 3

Advanced topics in composite materials, including theories of linear orthotropic elasticity, micro-mechanics of composites, nano-composites, and sandwich structures.

**AEM662 Multibody Dynamics**

Hours 3

This course presents the fundamentals of multibody dynamics: kinematics and dynamics of multibody systems, analytical dynamics, constrained dynamical systems, and flexible multibody dynamics.

Prerequisite(s): Instructor's consent.

**AEM667 Navigation & Target Tracking**

Hours 3

The objectives of this course are to teach the concepts and algorithms of state estimation for vehicles; both for itself, i.e. navigation, and others, i.e. target tracking. This course will use a model-based theoretic to explain these concepts and develop algorithms using state estimation theory to derive filters to accomplish these two tasks using a variety of sensor systems. These algorithms will be used in the design of modern timing, positioning, navigation, and target tracking systems.

**AEM668 Adv. Flight Dynamics & Control**

Hours 3

The objective of this is to teach advanced concepts related to flight dynamics and control including rotary-wing and rocket flight vehicles. This course will provide high fidelity nonlinear modeling for flight vehicle dynamics including vibrations, rotating and variable mass, unsteady atmosphere, variable gravity, rotating and ellipsoidal Earth, and multivariate model uncertainties using structured singular values. To address these model uncertainties for feedback control system design, robust optimal control techniques using H<sub>2</sub>, H<sub>∞</sub>, robust servomechanism, and #-synthesis will be introduced.

**AEM669 Advanced Astrodynamics**

Hours 3

The main objective of this course is to formulate, understand, and apply fundamentals of dynamical systems theory to spacecraft trajectory design process. Understand the behavior of a spacecraft under gravitational and non-gravitational forces and design cost-effective trajectories. Perform analytic and numerical analysis to understand spacecraft behavior beginning with the three-body problem.

Prerequisite(s): AEM 469 or AEM 569

**AEM685 Engineering Optimization**

Hours 3

This graduate course introduces the techniques of design optimization of engineering systems. Topics include: Basic principles of optimization theory, parameter optimization problems, linear and nonlinear programming. Unconstrained and constrained problems treated by simplex, penalty function, generalized reduced gradient methods, global optimization techniques, and surrogate modeling.

**AEM691 Special Problems**

SP

Hours 1-3

Independent investigations of special problems. Credit is based on the amount of work undertaken.

Special Topics Course

**AEM693 Special Topics**

SP

Hours 1-3

Planning, executing, and presenting results of an individual project involving a research design, analysis, or similar undertaking.

Special Topics Course

**AEM694 Special Project**

SP

Hours 1-6

Planning, executing, and presenting results of an individual project involving a research design, analysis, or similar undertaking.

Special Topics Course

**AEM698 Non-Dissertation Research**

Hours 1-3

Research not related to dissertation.

**AEM699 Dissertation Research**

Hours 1-12

Research related to dissertation.

**CE501 Masters Capstone Project-Plan II**

Hours 3

Development of a research paper, professional practice or policy paper, or other equivalent report. Topic to be approved in advance by the student's graduate advisor.

Prerequisite(s): MS Plan II students only

**CE514 Information Systems Design**

Hours 3

An overview of management information systems (MIS). The course will focus on the practical aspects, applications, and methodology of MIS, particularly from the construction engineer's perspective. Information design methodology and building information modeling (BIM) will be covered in detail.

**CE515 Transportation Data Science**

Hours 3

The course will provide basic introduction to processing and analyses of large-scale transportation-related data. The course will prepare the students with programming skills in Python, the understanding of important algorithms and machine learning methods in transportation research and projects, and applying these algorithms and models using transportation data.

Prerequisite(s): CE 350

Prerequisite(s) with concurrency: MATH 227

**CE516 Advanced Info Systems Design**

Hours 3

Current concepts in information systems architecture and applications, including decision support systems and expert systems. Emphasis placed on expanded use of systems design methodology.

**CE517 Advanced Project Management**

Hours 3

Not open to students who have credit for CE 417. This is an engineering management course designed to introduce students to the functions of project engineers and managers. It details the processes of planning and controlling project scope, time, and cost.

**CE518 Engineering Management**

Hours 3

Not open to students who have credit for CE 418. An introduction to management principles, and the management functions of planning, organizing, motivating, and controlling. Management of engineers in research, design, manufacturing/construction, and quality will be studied.

**CE521 Environmental Engineering Microbiology**

Hours 3

Fundamentals of microbiology for environmental engineers and application of these principles to natural and engineered systems.

Prerequisite(s): CE 320 or equivalent

**CE522 Solid Hazardous Waste Management**

Hours 3

Engineering design and regulatory requirements for the collection, storage, recycling, treatment, and disposal of solid wastes.

Prerequisite(s): CE 320

**CE524 Water & Wastewater Treatment**

Hours 3

*No description available*

Prerequisite(s): AEM 311 or CHE 304; and CE 320

**CE525 Air Pollution**

Hours 3

Introduction to the source, characteristics, and effects of air pollution and to air pollution control technology and design.

Prerequisite(s): AEM 311 or CE 320

**CE526 Groundwater Mechanics**

Hours 3

A mechanics course focusing on developing the physical and mathematical principles of groundwater models used for predicting water and contaminant transport processes in subsurface aquifers.

Prerequisite(s): MATH 227 and AEM 311

**CE528 Environmental Data Analysis**

Hours 3

An introduction to the area of data science with applications in environmental research. The course helps students develop skills and knowledge about useful data analysis methods and tools. The lectures cover the theory, and assignments will be mainly on applications (Python programming required). The lectures and assignments prepare students for interdisciplinary research projects and train them to develop data-driven approaches to answer environmental problems.

Prerequisite(s): ST 260; or GES 255; or CE 573 (or similar coursework)

**CE529 Research Proposal Writing in EWR**

Hours 3

Research funding is essential to a successful academic career. However, few PhD students receive adequate mentoring in how to craft competitive proposals. In this course, graduate students review literature, identify research questions, then draft and submit competitive funding proposals (for example to the EPA P3 program).

**CE530 Non-Destructive Evaluation and Testing of Civil Engineering Structures**

Hours 3

This course covers the state-of-the-art and state-of-the-practice methods of non-destructively evaluating and testing various civil engineering structures and materials such as concrete, asphalt, and steel. Students will use the techniques to solve real-world problems by evaluating and testing various structures across campus.

Prerequisite(s): CE 331 AND CE 340

**CE531 Structural Dynamics**

Hours 3

Response of civil engineering structures to typical dynamic loads including theory, development of basic equations, and measurement of structure response in the laboratory.

Prerequisite(s): AEM 264 and CE 331

**CE532 Matrix Analysis of Structures**

Hours 3

Introduction to the matrix-displacement method of analysis for framed structures, including computer implementation of analysis. An introduction to finite-element analysis is also included.

Prerequisite(s): CE 331

**CE534 Advanced Structural Mechanics**

Hours 3

Introduction to advanced structural mechanics topics, including elementary elasticity, elementary beam theories, beams on elastic foundations, energy methods, buckling and free vibration of beams, and elementary thin-plate theory.

**CE535 Concrete Materials**

Hours 3

Portland cement and supplementary cementitious materials, aggregates, properties of fresh and hardened concrete, concrete durability issues, mixture proportioning, concrete construction methods, special concrete materials, test methods.

Prerequisite(s): CE 331 or CE 340; MTE 271 for non-CCEE students

**CE536 Wood Structural Design**

Hours 3

Modern timber engineering: design of beams, columns, trusses, and floor systems.

Prerequisite(s): CE 331

**CE537 Reinforced Concrete Struct II**

Hours 3

Design of reinforced concrete building components including two-way slabs, slender columns, prestressed beams, slap-on-grade, and retaining walls.

Prerequisite(s): CE 433

**CE538 Struct Steel Design II**

Hours 3

Basic and elementary design procedures for steel structures such as plate girders, mill buildings, multistory buildings, highway bridges, and light-gauge steel structures.

Prerequisite(s): CE 434

**CE541 Wind and Earthquake Engineering**

Hours 3

Wind and Earthquake engineering theories and their applications in load estimation and structural design.

Prerequisite(s): CE 531, Structural Dynamics or instructor permission.

**CE543 Prestressed Concrete Design**

Hours 3

Analysis and design of prestressed concrete members, review of hardware, stress calculations, prestress losses, section proportioning, flexural design, shear design, deflections, and statically indeterminate structures.

Prerequisite(s): CE 433 or equivalent course on reinforced concrete structures

**CE544 Foundation Engineering**

Hours 3

Analysis and design of soil foundation systems.

Prerequisite(s): CE 340

**CE551 Roadway and Intersection Design**

Hours 3

Application of the principles of geometric design and traffic signal layout: vertical and horizontal alignment, intersections, traffic control, and traffic signal layout. Design projects will be prepared to illustrate standard techniques.

Prerequisite(s): CE 350

**CE552 Transportation Safety and Security**

Hours 3

This course focuses on major transportation safety and security issues. The course examines how death, injury and property damage and the public perception of risk detract communities from achieving their goals. The specific issues relate to transportation safety and security goals, relevant frameworks, and the selection of safety countermeasures and their evaluation in terms of specific criteria.

Prerequisite(s): CE 350

**CE553 Intelligent Transportation Systems**

Hours 3

This course covers the fundamentals of Intelligent Transportation Systems (ITS). The topics to be covered in the course will include systems engineering approach applied to ITS, ITS deployment and transportation operations, transportation system management, traveler response to technologies and information, ITS planning, evaluation, and institutional issues.

Prerequisite(s): CE 350



**CE554 Urban Transportation Planning**

Hours 3

An introduction to the planning process, software associated with transportation modeling, and conducting transportation planning and traffic impact studies.

**CE555 Traffic Flow Theory**

Hours 3

This course covers the fundamentals of traffic flow theory. Topics shall include microscopic flow characteristics, macroscopic flow characteristics, microscopic speed characteristics, macroscopic speed characteristics, microscopic density characteristics, macroscopic density characteristics, demand-supply analysis, capacity analysis, traffic stream models, shockwave analysis, queueing analysis, and simulation models.

Prerequisite(s): CE 350

**CE558 Traffic Engineering**

Hours 3

This course covers the fundamentals of traffic engineering, including vehicle operating characteristics, traffic flow, traffic data, traffic hardware, traffic software, geometric design of road and intersections, and methods of traffic control.

Prerequisite(s): CE 350

**CE559 Pavement Design and Rehabilitation**

Hours 3

This course covers two areas concerning care of existing highway asphalt and concrete pavements. Major maintenance includes overlay design, additional drainage, recycling, and slab repair. Routine maintenance includes distress surveys, pothole repair, and crack and joint sealing.

Prerequisite(s): CE 350 or CE 366

**CE561 Horizontal Construction Method**

Hours 3

Introduction to horizontal construction engineering equipment and methods. Design of horizontal construction systems, and construction operation analyses and simulation.

**CE562 Vertical Construction Methods**

Hours 3

Construction of buildings, including mechanical, electrical, plumbing and controls systems, design of temporary structures, and planning and design of lifts.

Prerequisite(s): CE 366

**CE563 Construction Cost Estimating**

Hours 3

Addresses the estimating and cost control function from conceptual planning through project execution. Topics include productivity analysis, organization of estimates, cost forecasting, estimating tolls and techniques, contingency planning and relationship to contract types and project execution strategies.

Prerequisite(s): CE 366

**CE564 Safety Engineering and Management**

Hours 3

Not open to students with credit for CE 464. An exposure to safety engineering and accident prevention including state and federal laws related to general and construction projects. Topics include accident theories, safety regulations, Construction Safety Act, hazards and their control, human behavior and safety, and safety management.

Prerequisite(s): GES 255, CE 366

**CE566 Sustainable and Lean Construction**

Hours 3

An introduction to sustainable and lean construction, including application of engineering economics principles to sustainable construction problems. Green design, construction, and operations from a project management standpoint. Theoretical concepts and industry practices used to model, evaluate, and enhance construction performance through the design and implementation of effective project schedules, construction operations, and contracting relationships.

Prerequisite(s): CE 366

**CE567 Constr. Accounting & Finance**

Hours 3

Applications of accounting and financial practice to management of construction projects.

Prerequisite(s): CE366

**CE568 Construction Scheduling**

Hours 3

The management structure of construction companies and the laws, regulations, practices, tools, and processes used in planning, scheduling, and monitoring construction projects. Writing proficiency is required for a passing grade in this course.

**CE570 Open Channel Flow**

Hours 3

Basic concepts of fluid flow, energy and momentum principles, flow resistance in nonuniform sections, channel controls and transitions, and nonuniform flow computations.

Prerequisite(s): CE 378

**CE571 Hydrologic Forecasting Praxis Lab**

Hours 3

Floods, droughts, and other water related events regularly dominate today's headlines. Increases in frequency and magnitude of extreme hydrologic events combined with changes in land use, land cover, climate, policies, and societal behaviors are increasing the complexity and difficulty of hydrologic forecasting. Opportunities for the use of new observation platforms, data-driven techniques, modeling frameworks, prediction systems, and decision support are revolutionizing the state of the practice in hydrologic forecasting. The goal of the Hydrologic Forecasting Praxis Lab is to engage students in table-top experiential learning exercises to develop their knowledge, skills, and competencies to enter and advance the practice of hydrologic forecasting. Students will learn through preliminary training and the table-top forecasting exercises how to analyze hydrometeorological observations, use water prediction models and tools, apply new techniques such as artificial intelligence, and communicate forecast information to diverse stakeholders and decision makers.

Prerequisite(s): CE 475 or CE 476 or instructor approval with equivalent hydrology course

**CE573 Statistical Applications**

Hours 3

Applications of statistical and probabilistic methodologies for analysis and solution of practical civil engineering problems, including hypothesis testing, simple and multiple regression analysis, analysis of variance for single and multi-factor experiments, forecasting models, simulation, and statistical quality control.

Prerequisite(s): GES 255

**CE574 Paleohydrology**

Hours 3

Students will examine hydrologic data (precipitation, snowpack, streamflow) and tree-ring data (proxies) and, when combining these datasets (Dendrohydrology), students will examine the past (paleo) variability of water. Students will participate in the collection (coring) of trees and an in-class lab on tree-ring cross dating. Students will gain knowledge in various statistical techniques including Stepwise Linear Regression and data filtering.

Prerequisite(s): GES 255, ST 260, PY 211, or permission of instructor

**CE575 Hydrology**

Hours 3

Hydrologic cycle, rainfall-runoff relations, unit hydrograph, statistical hydrology, and hydrologic simulation; includes a class project with application to flood control, water supply, and multipurpose projects.

Prerequisite(s): CE 378

**CE576 Process Hydrology**

Hours 3

This course develops a quantitative approach to understanding and prediction of hydrologic processes. The processes covered include interception, snowmelt, evapotranspiration, infiltration, groundwater flow, overland flow, and streamflow. Relative (dis-)advantages of different model representations will be highlighted. Process couplings and their impact on the integrated hydrologic response will be also discussed. Evaluation in the course will consist of out-of-class assignments and a term project.

Prerequisite(s): CE 378

**CE578 Analytical Methods in Environmental Engineering**

Hours 3

The field of environmental engineering relies heavily on a number of analytical techniques, which have become the basis for a large amount of the work being conducted. The main objective of this course is to introduce students to the theory and application of many of the analytical instruments that are commonly used by environmental engineers.

Prerequisite(s): CH 101 or CH 117; CE 320 or CHE 255

**CE581 Legal Aspects of Engineering and Construction**

Hours 3

Legal aspects of engineering and construction contracts and specifications; contract formation, interpretation, rights and duties, and changes; legal liabilities and professional ethics of architects, engineers and contractors. This is a three hour survey course covering, primarily, the organization of the federal and state courts, construction contracting, potential tort liability and professionalism for engineers in Alabama.

Prerequisite(s): CE 320, CE 331, CE 340, CE 350, CE 366 or CE 378, and one HU elective (3 credits)

**CE582 Hydrologic Forecast Seminar 1**

Hours 2

A beneficial aspect of the Water-R20 NRT for the students will be the continuous integration of co-curricular activities to add value to the learning outcomes. Students will have the opportunity to attend AWI WaterWorks to cross-pollinate with other disciplines, CIROH@UA distinguished speaker seminars, and have the chance to participate in other happenings based off the mentoring needs identified by the students with the Water-R20 Project Coordinator, Dr. Hannah Holcomb, helping the students to identify appropriate mentors. In addition, Water R20 project team members will provide group-based professional development opportunities (e.g., team science and science communication training). In addition, project mentors will guide multidiscipline teams of trainees in their NRT capstone project that begins in this seminar course and continues into the Spring semester. The NRT capstone project will be completed at the conclusion of the Praxis Lab in the spring semester following. Engagement and other learning opportunities from home departments, AWI, NOAA National Water Center, USGS Hydrologic Instrumentation Facility, and others will be available and made known to the students during the weekly class meetings.

Prerequisite(s): Must be accepted into the Water-R20 program at The University of Alabama and be in accepted graduate student standing in a relevant Water-R20 academic department.

**CE583 Hydrologic Forecasting Seminar II**

Hours 2

Students will have the opportunity to attend workshops, other related events, and hear speakers pertaining to NRT themes. In addition, Water-R20 project team members and others will provide group-based professional development opportunities (e.g., various programming workshops). Engagement and other learning opportunities from home departments, AWI, NOAA National Water Center, USGS Hydrologic Instrumentation Facility, selected project stakeholders, and others will be available and made known to the students during the weekly class meetings.

Prerequisite(s): CE 582

**CE585 Constructn Site Erosion Contrl**

Hours 3

Nature and magnitude of erosion problems, and erosion plan development. Rainfall energy and erosion predictions. Sediment transport in urban areas. Channel and slope stability, and sedimentation and other controls.

**CE586 GIS for Civil Engineers**

Hours 3

Introduction to geographic information system design and use for civil engineering problem solving.

Prerequisite(s): CE 260 and any CE 300 Level course

**CE591 Special Problems**

SP

Hours 1-3

Independent study. Credit is based on the amount of work undertaken.

Special Topics Course

**CE592 Graduate Independent Study in Civil Engineering Sub-Discipline**

SP

Hours 1-4

Independent study, either as individual students or a group of five students or less working under the guidance and mentorship of an instructor. The independent study will typically focus on: (1) a specific issue, problem, application, design or process in a traditional field of civil engineering OR (2) a specific development, advancement, issue, problem, or challenge in a new or developing specialty area in the fields of civil engineering.

Special Topics Course

**CE593 Practicum**

Hours 1-3

This course allows graduate students to gain classroom and laboratory experience under supervised conditions. Tasks may include grading for selected courses, structured lecturing, laboratory monitoring, and other related pedagogical exercises.

**CE598 Non-Thesis Research**

Hours 1-6

Research Not Related to Thesis. Variable credit.

**CE599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Civil Engineering/ Environmental Engineering. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CE616 Advanced Information Systems**

Hours 3

Current concepts in information systems architecture and applications, including decision support systems and expert systems. Emphasis placed on expanded use of systems design methodology.

Prerequisite(s): CE 414 or CE 514

**CE631 Experimental Methods in Structural Dynamics**

Hours 3

Introduction to experimental methods in the behavior of structures subjected to dynamic loading. Principles of vibration testing and digital signal processing. Current techniques in modal analysis, system identification, actuator and structural control, structural health monitoring.

Prerequisite(s): CE 531

**CE632 Structural Reliability**

Hours 3

The knowledge taught in this course is to provide the background needed to understand how reliability-based design criteria were developed and to provide a basic tool for structural engineers interested in applying this reliability-based design criteria to other situations.

Prerequisite(s): CE 573 Statistical Applications in Civil Engineering or instructor permission

**CE655 Sustainable Transportation**

Hours 3

*No description available*

**CE673 Statistical and Econometrics Practices for Engineers**

Hours 3

This course covers basic and advanced statistical and econometric methods as applied to engineering-related problems. Topics include introduction to ordinary least squares regression, count-data models including Poisson and negative binomial regressions and their extensions, simultaneous equations models, multinomial logit models, ordered probability models, joint discrete/continuous models, and hazard-based duration models.

Prerequisite(s): CE 573

**CE691 Special Problems**

SP

Hours 1-6

Advanced work in some area of specialization. Credit awarded is based on the amount of work completed.

Special Topics Course

**CE693 Practicum**

Hours 1-3

This course allows graduate students to gain classroom and laboratory experience under supervised conditions. Tasks may include grading for selected courses, structured lecturing, laboratory monitoring, and other related pedagogical exercises.

**CE698 Non-Dissertation Research**

Hours 1-6

Independent study; general research activities; pass/fail; no credit toward Ph.D. course requirements; no substitution for CE 699. This course serves as an introduction to Ph.D.-level research prior to Ph.D. candidacy. It involves early-stage research activities to prepare students for more focused dissertation research taken as CE 699 once admitted to candidacy.

**CE699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral level research dissertation hours toward the Ph.D. in civil engineering. A minimum of 24 dissertation hours are required, at 1-12 hours per semester. The course is conducted under the guidance of the Ph.D. advisor. After completing requirements for admission to candidacy, the student registers for a minimum of 3 hours per semester in this course, each semester, until all dissertation requirements have been approved. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be focused on readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CHE512 Polymer Materials Engineering**

Hours 3

Introduction to the manufacture, processing, and applications of organic polymeric materials. This course covers the chemistry of polymer manufacture, the molecular structures of polymers, and the structure-property relationships for thermoplastic and thermosetting polymers.

**CHE514 Computer Methods in Chemical Engineering**

Hours 3

A survey of common software, data processing, and statistical analysis tools applied to chemical engineering, science, and general interest topics. This course covers the fundamentals of computer programming (coding) and problem solving for chemical engineering students. Offered primarily in the fall semester.

**CHE516 Stem Cell Bioengineering**

Hours 3

This course will give introductory knowledge of stem cell biology and various bioengineering approaches used for their study and application.

**CHE518 Tissue Engineering**

Hours 3

Tissue engineering is an emerging dynamic, experimental science in which engineering and biological science principles are used to develop techniques for improving or restoring the structure and function of tissue.

**CHE540 Health Safety Chem Process Ind**

Hours 3

Health and safety in the chemical process industry that will introduce chemical engineering students to health and safety, regulations and the designs and procedures to meet them in the chemical process. Advanced topics will also be introduced, including current relevant topics such as recent accidents and ways and means of preventing a reoccurrence, advanced models of spills and advanced safety analysis. Several loss prevention topics are more complex than typically assigned to the undergraduate chemical engineering students. Advanced topics may include recent accidents and ways and means of preventing a reoccurrence, advanced models of spills and advanced safety analysis. Greater analysis, synthesis and evaluation-of-knowledge skills will be required.

Prerequisite(s): two courses from (CHE 304, CHE 305, CHE 306, CHE 324, CHE 354)

**CHE545 Introduction to Biochemical Engineering**

Hours 3

Study of biological processes, application of chemical engineering skills to areas including enzyme kinetics, fermentation, cell growth, and metabolic processes.

Prerequisite(s): CH 231

**CHE551 Adv Thermodynamics I**

Hours 3

Application of thermodynamic principles to chemical and phase equilibria.

**CHE552 Transport Phenomena**

Hours 3

Development of the analogy between momentum, energy, and mass transport, with applications.

**CHE553 Computation In Chem Engr**

Hours 3

Chemical-engineering applications of advanced calculus, numerical methods, and digital computer techniques, with emphasis on expressing physical situations in mathematical language.

**CHE554 Chemical Reaction Engr**

Hours 3

Chemical kinetics theory and experimental techniques. Industrial reactor design by advanced methods.

**CHE570 Chemical and Biological Engineering Research Techniques**

Hours 1

This course is an introduction to research skills required to perform scientific research in Chemical and Biological Engineering. Topics covered will primarily be related to research skill development, such as literature search, data processing, scientific critical analysis and effective scientific communication, both written and oral. Students will receive structured guidance from the class instructor (s), chemical engineering faculty, and their class peers throughout the semester.

Prerequisite(s): Qualified graduate students

**CHE591 Special Problems**

SP

Hours 1-4

Open to properly qualified graduate students. Enhanced learning in a specific area. Credit is based on the amount of work completed.

Special Topics Course

**CHE592 Special Problems**

SP

Hours 3

Open to properly qualified graduate students. Advanced learning in a specific area.

Special Topics Course

**CHE593 Chem & Biol Engr Practicum**

Hours 3

This course is designed for Ph.D. students to further gain classroom and laboratory experience under supervised conditions. Tasks may include exploring design and development of course materials, grading for selected courses, structured lecturing, laboratory monitoring, utilizing modern instructional technology, and other related pedagogical exercises.

Prerequisite(s): MS and PhD students enrolled in The University of Alabama Chemical and Biological Engineering graduate program.

**CHE595 Seminar**

Hours 1

Discussion of current advances and research in chemical engineering, presented by graduate students and other speakers.

**CHE598 Non-Thesis Research**

Hours 1-6

*No description available***CHE599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in chemical engineering. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CHE691 Special Problems**

Hours 1-3

Problems of current research.

**CHE692 Special Problems**

Hours 1-3

Problems of current research.

**CHE693 Chem & Biol Engr Practicum**

Hours 3

This course is designed for Ph.D. students to further gain classroom and laboratory experience under supervised conditions. Tasks may include exploring design and development of course materials, grading for selected courses, structured lecturing, laboratory monitoring, utilizing modern instructional technology, and other related pedagogical exercises.

Prerequisite(s): CHE 593

**CHE695 Seminar**

Hours 1

Presentations of dissertation research.

**CHE698 Non-Dissertation Research**

Hours 1-6

*No description available***CHE699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree in chemical engineering. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CS503 Programming Languages**

Hours 3

This course provides a graduate level presentation of Programming Languages. Formal student of programming language specification, analysis, implementation, and run-time support structures; organization of programming languages with emphasis on language constructs and mechanisms; and study of non-programming paradigms. Students who have successfully completed CS 403 may not also receive credit for CS 503.

**CS504 CS Curriculum for Math Education**

Hours 3

Building upon the concepts from CS 104, students will explore in-depth how computer science education is presented in the secondary education setting. Students will get the opportunity to explore current computer science curriculum and develop resources for future teaching, with a specific emphasis on the College Board's AP CS Principles (AP CSP) curriculum.

Prerequisite(s): CS 104 or permission by instructor.

**CS507 Software Interface Design**

Hours 3

Concepts of the human-computer interface, emphasizing the software aspects. Dialog styles, form models, user documentation and the evaluation of human-computer software interfaces. Students who have successfully completed CS 407 may not also receive credit for CS 507.



**CS515 Software Design and Development**

Hours 3

Object-oriented design and development using UML and Java, design patterns, and architectural patterns.

Prerequisite(s): CS 200, CS 201, and ECE 383 each with a minimum grade of C-

**CS516 Testing and Quality Assurance**

Hours 3

Study of verification & validation and related processes. Topics include techniques and tools for software analysis, testing, and quality assurance. Students who have successfully completed CS 416 may not also receive credit for CS 516.

**CS517 Requirements Engineering**

Hours 3

Study of requirements engineering and its phases. Topics include formal, semi-formal, and informal paradigms for elicitation, documentation, and management of software system requirements. Students who have successfully completed CS 417 may not also receive credit for CS 517.

**CS520 Software Evolution**

Hours 3

Study of techniques and tools for design-time and run-time software adaptation, including principles of reflection and metaprogramming, software modularity, metamodeling and software language engineering.

**CS526 Intro Operating Systems**

Hours 3

This course provides a graduate level presentation of Introduction to Operating Systems. Study of basic operating system concepts with an emphasis on memory processor, device, and information management.

Prerequisite(s): CS 200, CS 201 and ECE 383 with a minimum grade of C-

**CS528 Computer Security**

Hours 3

An examination of computer security concepts, such as cryptographic tools, user authentication, access control, database security, intrusion detection, malicious software, denial of service, firewalls and intrusion prevention systems, trusted computing and multilevel security, buffer overflow, software security, physical and infrastructure security, human factors, and security auditing. Students who have successfully completed CS 428 may not also receive credit for CS 528.

**CS534 Compiler Construction**

Hours 3

This course provides a graduate level presentation of Compiler construction. Syntax and semantics of procedure-oriented languages and translation techniques used in their compilation; includes computer implementation.

**CS535 Computer Graphics**

Hours 3

Display memory, generation of points, vectors, etc. Interactive versus passive graphics, analog storage of images on microfilm, etc. Digitizing and digital storage, pattern recognition by features, syntax tables, and random nets. The mathematics of three dimensions, projections, and the hidden-line problem. Students who have successfully completed CS 435 may not also receive credit for CS 535.

**CS538 Computer Comm & Networks**

Hours 3

This course provides a graduate level presentation of Computer Communications and Networks. The student of the issues related to Computer communications. Topics include physical topologies, switching, error detection and correction, routing, congestion control, and connection management for global networks (such as the Internet) and local area networks (such as Ethernet). In addition, network programming and applications will be considered. Students who have successfully completed CS 438 may not also receive credit for CS 538.

**CS542 Cryptography**

Hours 3

This course will cover algorithms and concepts in cryptography and data security. We will undertake an examination of algorithms and concepts in cryptography and data security, such as symmetric ciphers, asymmetric ciphers, public-key cryptography, hash functions, message authentication codes, key management and distribution, etc.

**CS543 Digital Forensics**

Hours 3

Digital Forensics is an area of study that is rapidly growing in importance and visibility. It involves preserving, identifying, extracting, documenting and interpreting digital data. Though sometimes misunderstood, digital forensics is like other types of investigation. With the continuous rise of computer-related incidents and crimes, and the increased emphasis on homeland defense in this country, there is a growing need for computer science graduates with the skills to investigate these crimes. This course will introduce the topics of computer crime and digital forensics. Students will be required to learn different aspects of computer crime and ways in which to uncover, protect and exploit digital evidence.

**CS544 Software Security**

Hours 3

This course is an introduction to software security principles and practices. Topics for this course will include but not be limited to security architectures, defensive programming, web security, secure information flow, and common software vulnerabilities.

**CS545 Software Reverse Engineering**

Hours 3

Software Reverse Engineering is an area of study that is rapidly growing in importance and visibility. This course will reveal to students the challenges of monitoring and understanding software systems. During the course students will become familiar with the practice of software reverse engineering files by utilizing static and dynamic techniques, and methods in order to gain an understanding as to what impact a file may have on a computer system.

**CS548 Network Security**

Hours 3

Concepts concerning network security, including an examination of network security concepts, algorithms, and protocols.

**CS551 Data Science**

Hours 3

This course introduces fundamental concepts & techniques in data science as well as develops practical skills for data analysis in real-world applications. Given the multi-disciplinary nature of data science, the course will primarily focus on the advantages and disadvantages of various methods for different data characteristics, but will also provide some coverage on the statistical or mathematical foundations. Topics to cover include data preprocessing, data exploration, relationship mining, prediction, clustering, outlier detection, deep learning, spatial and spatiotemporal data analysis, text data analysis, and big data.

Prerequisite(s): MATH 237 with a grade of C- or higher, (MATH 355 or GES 255) with a grade of C- or higher

**CS552 Information Retrieval**

Hours 3

This course is an introduction to information retrieval principles and practices. The course will cover several aspects of Information Retrieval including; indexing, processing, querying, and classifying data. Also, retrieval models, algorithms, and implementations will be covered. Though the class will focus primarily on textual data, other media including images/videos, music/audio files, and geospatial information will be addressed. Topics for this course will include but not be limited to: text processing and classification, web search development techniques, and document clustering.

**CS555 Social Media Data Analytics**

Hours 3

The world is experiencing rapid growth in the amount of published data which come from different sources, including Social Media platforms. The availability of programming interfaces to these platforms allows for near real-time processing of these data for various purposes. This course will reveal to students the inherent challenges of analyzing Social Media data and introduce tools and techniques that are available to address them.

**CS557 Database Management Systems**

Hours 3

This course provides a graduate level presentation of Database Management Systems. Constituent parts of database management (design, creation, and manipulation of databases), client-server, relational, and object-oriented data models.

Prerequisite(s): CS 200, CS 201, and ECE 383 each with a minimum grade of C-

**CS560 Introduction To Autonomous Robotics**

Hours 3

Issues involved with the implementation of robot control software including motion, kinematics, simulation testing, sensor incorporation and unmodeled factors. Students who have successfully completed CS 460 may not also receive credit for CS 560.

Prerequisite(s): CS 300 or CS 426

**CS561 Brain Computer Interface**

Hours 3

This course involves the exploration of new forms of Human-Computer Interaction (HCI) based on passive measurement of neurophysiological states (cognitive and affective). These include the measurement of cognitive workload and affective engagement.

**CS565 Artificial Intelligence**

Hours 3

The advanced study of topics under the umbrella of artificial intelligence including problem solving, knowledge representation, planning and machine learning.

**CS567 Computer Systems Architecture**

Hours 3

Computer architectures, computer design, memory systems design, parallel processing concepts, supercomputers, networks, and multiprocessing systems.

**CS570 Computer Algorithms**

Hours 3

This course provides a graduate level presentation of Introduction to Computer Algorithms. Construction of efficient algorithms for computer implementation. Students who have successfully completed CS 470 may not also receive credit for CS 570.

**CS575 Formal Languages & Machines**

Hours 3

Regular expressions and finite automata. Context free grammars and pushdown automata. Recursively enumerable languages and turing machine. The Chomsky hierarchy. Students who have successfully completed CS 475 may not also receive credit for CS 575.

**CS580 Computer Simulation**

Hours 3

Introduction to simulation and use of computer simulation models; simulation methodology, including generation of random numbers and variants, model design, and analysis of data generated by simulation experiments. Students who have successfully completed CS 480 may not also receive credit for CS 580.

**CS581 High Performance Computing**

Hours 3

This course provides students with knowledge and fundamental concepts of high performance computing as well as hands-on experience of the core technology in the field. The objective of this class is to understand how to achieve high performance on a wide range of computational platforms. Topics include: optimizing the performance of sequential programs based on modern computer memory hierarchies, parallel algorithm design, developing parallel programs using MPI, analyzing the performance of parallel programs.

**CS583 Computational Foundations of Machine Learning**

Hours 3

This course offers a comprehensive overview of machine learning, encompassing both theoretical foundations and practical algorithmic approaches from multiple perspectives. The curriculum includes foundational learning theory, supervised learning with a particular emphasis on modern deep learning techniques, unsupervised learning, and reinforcement learning.

Prerequisite(s): GES 255 or MATH 355 or consent of instructor.

**CS584 Reinforcement Learning**

Hours 3

This course covers fundamental principles, algorithms, and implementations of reinforcement learning, including the design of computational agents based on machine learning and control theory. The typical methods include reinforcement algorithms, dynamic programming, approximate functions, and temporal difference learning for policy evaluation and control problems. The course will involve the application of these concepts and methods in simulation or real-world problems as well as potentially in the context of psychology and neuroscience.

**CS591 Special Topics In CS**

SP

Hours 3

Formal courses that cover new and innovative topics in computer science and do not yet have their own course numbers. Specific course titles will be announced.

Special Topics Course

**CS592 Independent Study**

SP

Hours 1-12

This course requires a written proposal that must be approved by the sponsoring faculty member before registration.

Special Topics Course

**CS598 Non-Thesis Research**

Hours 1-6

*No description available***CS599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Computer Science. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CS606 Analys Operating Systems**

Hours 3

Design of operating systems; advanced examination of synchronization, deadlock, virtual memory, and security; and parallel and distributed systems.

Prerequisite(s): CS 300

**CS609 Database Management**

Hours 3

An advanced view of database management systems, addressing both practical and theoretical aspects of database systems. The implementation and performance of the relational and NoSQL models will be examined, along with system techniques associated with transaction processing and recovery. Distributed databases, database security, and databases in clouds will also be discussed.

Prerequisite(s): CS 301

**CS613 Adv Computer Comm & Networks**

Hours 3

Study of computer networks, including telecommunications and related data transmission techniques. Network philosophy, design, and implementation.

Prerequisite(s): CS 438 or CS 538

**CS618 Wireless Mbile Netwrk Protocol**

Hours 3

Network protocol design and analysis in wireless and mobile networks. Topics include ad hoc.

Prerequisite(s): CS 438 or CS 538 or CS 613

**CS630 Empirical Software Engineering**

Hours 3

Introduction to empirical research methods in software engineering. Focus on measuring processes and designing experiments.

**CS642 Modern Cryptography**

Hours 3

This course offers a comprehensive introduction to Modern Cryptography, and, specifically, its main formalisms, solutions, and open questions, with a heavy focus on application aspects, including case studies for real-life uses of Modern Cryptographic Protocols.

Prerequisite(s): CS 442 or CS 542

**CS648 IoT and IoT Security**

Hours 3

Concepts and technologies in IoT and IoT security, including introduction to IoT applications, IoT protocols, threats and countermeasures.

**CS691 Special Topics**

SP

Hours 3

Formal courses that cover new and innovative topics in computer science and do not yet have their own numbers; specific course titles will be announced.

Special Topics Course

**CS692 Independent Study**

SP

Hours 1-12

This course requires a written proposal that must be approved by the sponsoring faculty member before registration.

Special Topics Course

**CS698 Preparing Dissertation Proposal**

Hours 1-12

This independent research course is designed for Ph.D. students in Computer Science who have completed their coursework and the Ph.D. Qualifying Exam, but have not been admitted to Ph.D. candidacy. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology to prepare the dissertation proposal.

**CS699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the Ph.D. degree in Computer Science. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**ECE508 Communications**

Hours 3

Analog and digital communication systems, random signals, sampling, filtering, analog-to-digital encoding, advanced digital modulation/demodulation, source encoding/decoding, channel encoding/decoding, multiplexing, system performance analysis.

Prerequisite(s): ECE 370 and MATH 355

**ECE509 Communications Lab**

Hours 1

Modeling and design of communication systems. Familiarization with specialized communications equipment and techniques. Proper use of laboratory instruments.

Prerequisite(s): ECE 370 and MATH 355

Prerequisite(s) with concurrency: ECE 508

**ECE530 Solid State Devices**

Hours 3

Solid state physics for semiconductor devices, PN junction, metal semiconductor, JFET/MESFET, MOSFET, BJT, and non-ideal behaviors of solid state devices. Organic thin film devices, including organic solar cells, thin film transistors, light emitting diodes, and their application for flexible displays.

Prerequisite(s): ECE 330

**ECE539 Thin Film Technology**

Hours 3

Crystal structure and defects, film nucleation and growth models, growth of polycrystalline and epitaxial films, vacuum science technology, physical and chemical vapor deposition, solution based methods, thin film characterization techniques.

Prerequisite(s): ECE 225 or PH 253

**ECE540 Electromagnetic Waves**

Hours 3

Mathematics and physics of the radiation, propagation and scattering of electromagnetic waves. Boundary value problems involving finite and infinite structures, waveguides, antennas and media.

Prerequisite(s): ECE 340

**ECE551 Power Electronics**

Hours 3

Detailed study on the theory and operation of power electronic converters and systems. Overview of enabling power semiconductor switching devices. Introduction to feedback control of converters. Machine drives fundamentals.

Prerequisite(s): ECE 332 and ECE 350

**ECE552 Power Electronics Laboratory**

Hours 1

Laboratory experience in three phase power systems and electric machinery. Laboratory experience on the theory and operation of power electronic converters, systems and machine drives.

Prerequisite(s): ECE 350 and ECE 332

Prerequisite(s) with concurrency: ECE 551

**ECE553 Power Systems**

Hours 3

Basic power systems concepts and per unit quantities; transmission line, transformer and rotating machine modeling; power flow; symmetrical component of power systems; faulted power system analysis.

Prerequisite(s): ECE 350

**ECE554 Power Systems Laboratory**

Hours 1

Test and analysis of power systems and machine devices and the design of systems using devices.

Prerequisite(s): ECE 350

Prerequisite(s) with concurrency: ECE 553

**ECE555 Electromechanical Systems**

Hours 3

Static and dynamic modeling, analysis, and simulation of mechanical, electrical, hydraulic, and mixed systems. MATLAB and SIMULINK model development and simulation.

Prerequisite(s): ECE 225 and MATH 238

**ECE562 Semiconductor Optoelectronics**

Hours 3

Elemental and compound semiconductors; fundamentals of semiconductors physical properties, solid state physics, optical recombination and absorption, light emitting diodes, quantum well lasers, quantum dots lasers, blue lasers, semiconductor modulators, photodetectors, semiconductor solar cells and semiconductor nanostructure devices.

Prerequisite(s): PH 253

**ECE563 Magnetic Materials & Devices**

Hours 3

Diamagnetism and Paramagnetism, Ferromagnetism, Antiferromagnetism, Ferrimagnetism, magnetic anisotropy, domains and the magnetization process, fine particles and thin films, magnetization dynamics.

Prerequisite(s): ECE 340

**ECE575 Control System Analysis**

Hours 3

Classical and modern feedback control system analysis and methods, including stability, root locus, Bode plot, frequency response, and computer analysis.

Prerequisite(s): ECE 326 OR ECE 327

**ECE576 Control Systems Lab**

Hours 1

This course will provide students with practical and experimental analysis and design of feedback control systems and components, including electrical, mechanical, and electromechanical systems.

Prerequisite(s): ECE 326 OR ECE 327

Prerequisite(s) with concurrency: ECE 575

**ECE579 Digital Control Systems**

Hours 3

Frequency and time domain methods in discrete time control systems; sampling of continuous-time signals, stability, transform design techniques, state variable analysis, and design techniques.

Prerequisite(s): MATH 237 and ECE 370 and ECE 475

**ECE580 Digital Systems Design**

Hours 3

Digital systems design with hardware description languages, programmable implementation technologies, electronic design automation design flows, design considerations and constraints, design for test, system on a chip designs, IP cores, reconfigurable computing and digital system design examples and applications.

Prerequisite(s): ECE 383 and CS 101 Corequisite: ECE 581

**ECE581 Digital Systems Design Lab**

Hours 1

Logic design and simulation via hardware description languages, use of electronic design automation tools, and CPU design.

Prerequisite(s): ECE 383 and CS 101 Corequisite: ECE 580

**ECE582 Comp Visn Dig Image Proc**

Hours 3

Introduction to computer vision and digital image processing with an emphasis on image representation, transforms, filtering, compression, boundary detection, and pattern matching.

Prerequisite(s): MATH 355 and CS 124

**ECE583 Introduction to Machine Learning**

Hours 3

Machine learning studies methods that allow computers to learn from the data and act without being explicitly programmed. This course provides an introduction to machine learning and covers various supervised and unsupervised learning techniques, methods of dimensionality reduction, and assessment of learning algorithms.

Prerequisite(s): MATH 355 or consent of instructor

**ECE584 Computer Architecture**

Hours 3

Computer architectures, computer design, memory systems design, parallel processing concepts, supercomputers, networks, and multiprocessing systems.

Prerequisite(s): ECE 383 and CS 101

**ECE586 Embedded Systems**

Hours 3

Integration of microprocessors into digital systems. Includes hardware interfacing, bus protocols and peripheral systems, embedded and real-time operating systems, real-time constraints, networking and distributed process control.

Prerequisite(s): ECE 383 and CS 101 Corequisite: ECE 587

**ECE587 Embedded Systems Laboratory**

Hours 1

Design and implementation experience with microcontrollers, interfacing, digital control systems, bus protocols and peripheral systems, real-time constraints, embedded and real-time operating systems, distribution process control.

Prerequisite(s): ECE 383 Corequisite: ECE 586

**ECE588 Computational Intelligence**

Hours 3

Computational Intelligence is a discipline that relies on biologically inspired computation to solve real-world problems that otherwise are infeasible or impossible to solve using classical engineering approaches. The course will cover the fundamental techniques of computational intelligence and study practical applications in real-world engineering problems.

Prerequisite(s): MATH 355 or consent of instructor.

**ECE593 Special Topics**

SP

Hours 1-5

Advanced topics of a specialized nature.

Special Topics Course

**ECE598 Non-Thesis Research**

Hours 1-6

*No description available*

.

**ECE599 Thesis Research**

Hours 1-12

*No description available*

.



**ECE637 Fund Solid State Engineering**

Hours 3

Fundamentals of solid state physics and quantum mechanics are covered to explain the physical principles underlying the design and operation of semiconductor devices. The second part covers applications to semiconductor microdevices and nanodevices such as diodes, transistors, lasers and photodetectors incorporating quantum structures.

Prerequisite(s): PH 253

**ECE662 Advanced Nanoscience**

Hours 3

Advanced quantum physics; basics of nanotechnology, molecular and nanoelectronics; fundamentals in nanophotonics; interaction of light and matter; nanostructure characterization; bionanotechnology.

Prerequisite(s): PH 253

**ECE663 Spin Electronics**

Hours 3

Electron spin. Giant magnetoresistance theory. Spin-tunneling phenomena in magnetic tunneling junctions. Spin structure to spin electronics. Image of magnetization configuration. Magnetic materials for spin electronic devices. Spin transport to design of magnetic nanodevices.

Prerequisite(s): ECE 463 or ECE 563

**ECE693 Special Topics**

SP

Hours 1-9

Advanced topics of a specialized nature.

Special Topics Course

**ECE695 Graduate Research Seminar**

Hours 1

This course exposes the faculty, researchers, and students in the ECE department to current research in all areas of Electrical and Computer Engineering. This seminar series focuses on science, technology, and innovation topics studied through the embedded systems, electromechanical and energy systems, devices and materials, and electromagnetics foci within the department. The seminar speakers will be invited from the ECE faculty and graduate students, national research laboratories, other universities, and industry.

**ECE698 Non-Dissertation Research**

Hours 1-12

Independent study; general research activities; no credit toward Ph.D.; no substitution for ECE 699. This course serves as an introduction to Ph.D.-level research prior to Ph.D. candidacy. It involves early-stage research activities to prepare students for more focused dissertation research taken as ECE 699 once admitted to Ph.D. candidacy.

**ECE699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral level research dissertation hours toward the Ph.D. in Electrical and Computer Engineering. The course is conducted under the guidance of the Ph.D. advisor. Materials covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be focused on readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**GES500 Engineering Statistics**

Hours 3

Probability and basic statistical concepts. Discrete and continuous distributions; the central limit theorem; sampling distributions; point and interval estimation; hypothesis testing; regression and correlation analysis; analysis of variance.

**GES551 Matrix And Vector Analysis**

Hours 3

This course provides a graduate level overview of linear algebra and vector analysis. Topics covered include; linear simultaneous equations, eigenvalues and eigenvectors, matrix functions, computer techniques, and transformations, vector calculus, the Laplacian, and integral theorems such as the theorems of Green and Stokes.

**GES554 Partial Diff Equations**

Hours 3

This course examines the solution of partial differential equations by focusing on three specific equations: (1) the heat equation, (2) the wave equation, and (3) Laplace's equation. Topics covered include: Fourier transforms, Sturm-Liouville problems, classification of partial differential equations, Bessel functions, and numerical methods for solving partial differential equations.

**GES555 Nonlinear Partial Differential Equations**

Hours 3

An introduction to nonlinear partial differential equations. Exact solutions, approximate solutions, and numerical solutions will all be considered. The course content is supported by numerous applications.

Prerequisite(s): GES 554

**IDGR598 Capstone Project Practicum**

Hours 3-6

A workplace-based internship or practicum during which the principles learned in Interdisciplinary Master's coursework will be integrated into a real-world setting, to solve a problem (the "capstone project"). Under the supervision of the advisory committee, students will develop and present the results of their Capstone Project in both written and oral form.

**IDGR599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required research hours toward a Plan I interdisciplinary master's degree. A minimum of 6 thesis research hours are required, at 1-6 hours per semester. The course is conducted under the guidance of the primary advisor, with support from the advisory committee. Material covered will be of an advanced nature aimed at providing students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be focused on readings of research articles and development of research methodology, with the aim of producing an original thesis evidencing research capacity, independent thought, integration of the disciplines represented in the plan of study, and the student's ability to interpret research materials in the student's field.

**IDGR601 GTA Assistant Only**

Hours 1-12

*No description available***IDGR602 GTA Teaching**

Hours 1-12

*No description available***IDGR603 GRA Research**

Hours 1-12

*No description available***IDGR604 GA-Student, Admin or Other**

Hours 1-12

*No description available***IDGR605 Graduate Internship**

Hours 4.5

*No description available***IDGR650 Preparing Future Faculty and Scholars**

Hours 1

The Preparing Future Faculty & Scholars course is designed to provide Doctoral and MFA students with a series of topics, discussions, and activities that expose them more fully to the realities of post-graduate life inside and outside of academia. Through participation in coursework, workshops, online training, and/or mentoring, this course increases students' awareness of expectations for pre-tenure faculty performance, in addition to the foundational information needed to find, sustain, and enhance their future in academia and/or non-academic careers.

**IDGR651 Innovation and Commercialization in Academic Research**

Hours 1

This advanced graduate seminar course is designed for doctoral students who aspire to transform their scientific research into marketable innovations. It provides a comprehensive overview of the journey from laboratory discovery to commercial product or service. The curriculum blends theoretical knowledge with practical insights, equipping students with the tools and strategies necessary for successful commercialization.

**IDGR699 Dissertation Research**

Hours 1-12

Dissertation Research.

**ME501 Mech Engr Analysis I**

Hours 3

This course is designed to provide the graduate students with fundamental concepts of advanced mathematical analysis of continuous and discrete mechanical engineering systems. The course includes intensive discussion of ordinary differential equations, Fourier analysis, and advanced vector calculus with applications to dynamic systems, heat transfer as well as fluid and solid mechanics.

**ME506 Found Thermal Power Gen**

Hours 3

Thermal power systems; components, process analysis and modeling, fuels, combustion, environmental aspects, and availability analysis in steam and gas turbine plants. Examination of recent trends such as cogeneration and combined cycles.

**ME508 Non-Equilibrium Gas Dynamics**

Hours 3

This course covers basics of the kinetic theory of gases, methods of solving the problems formulated in terms of the Boltzmann equation, as well as their applications in engineering and technology. The course focuses on the direct simulation Monte Carlo (DSMC) method as the primary practical tool for simulations of non-equilibrium gas flows.

**ME509 Intermed Heat Transfer**

Hours 3

A first course in heat transfer at graduate level. Review of undergraduate treatment of conduction, convection, and radiation modes of energy transfer, with emphasis on theoretical concepts. Topics may include separation of variables solutions, superposition concepts, development of boundary layer equations, similarity solutions, spectral dependence of surface radiative properties, radiation exchange in diffuse, gray enclosures.

Prerequisite(s): ME 309 and AEM 311

**ME511 Computational Heat Transfer and Fluid Flow**

Hours 3

An introductory course providing computational background and experience to solve realistic heat transfer and fluid flow problems. Course will provide background on numerical techniques, and exposure to computer programming and commercial computational fluent dynamics (CFD) software.

**ME514 Principles of Combustion I**

Hours 3

Energy sources, combustion systems, fuels and emissions, combustion thermodynamics, chemical kinetics, 1D reactors, combustion phenomena (ignition, flashback, blow-off, deflagration, detonation, etc.), laminar and turbulent premixed and non-premixed flames, and heterogeneous combustion.

**ME516 Fnd Energy Conserv & Mgt**

Hours 3

Analysis and management of energy use in residential, commercial, and industrial applications, including lighting, heating and cooling, controls, and energy management systems. Topics include economics, auditing, energy management, and alternative energy sources.

**ME517 Sustainable Energy**

Hours 3

The course is presenting the thermodynamics, heat transfer, and fluid mechanics aspects of renewable energy systems and applications. An overview of common systems and applications for renewable energy sources are provided. Renewable energy systems are described, and their fundamental analyses are discussed. The course provides insight into both the scientific foundations and the engineering practice of renewable energy systems. The course covers both technical and economic analyses of renewable systems. The analysis will be done through practical examples. The general energy picture of the world is presented with an introduction to renewable energy systems and comparison with various fossil fuels. Fundamentals and applications of solar energy systems are analyzed followed by wind, hydro, geothermal, biomass, and ocean energies. Hydrogen is introduced as an energy carrier and the principles of fuel cells are described. The engineering economic analyses of renewable energy projects are also discussed. Finally, environmental effects of energy are covered in this course.

**ME520 Gas Turbines**

Hours 3

Build understanding of aviation and industrial gas turbines, their components, design, and performance. The course will also cover improvements being made in the industry to make gas turbines environment friendly and a discussion of future options.

Prerequisite(s): ME 305

**ME522 Reliability Maint & TPM**

Hours 3

*No description available***ME526 Internal Combustion Engines**

Hours 3

This course introduces how internal-combustion engines work, and links analysis and testing techniques used for their design and development to subjects presented within the mechanical engineering curriculum. Laboratory activities serve to reinforce and illustrate analysis application as well as provide visual reference to common internal-combustion engine components.

Prerequisite(s): ME 305

**ME530 Fuzzy Set Theory & Application**

Hours 3

The course covers the basic concepts in fuzzy set theory, fuzzy logic, and approximate reasoning. Relation between fuzzy set theory, probability theory, and possibility theory is discussed. Applications of fuzzy set theory in manufacturing systems are outlined. Basic knowledge of probability theory and set theory is expected. Students need to be conversant with calculus and basics of matrix-vector manipulations.

**ME538 Modeling of Deformation Processes Part I**

Hours 3

Introduction to the finite element method with a special focus on linear elastic deformation modeling with application to solids and structures. This course will cover the mathematical formulation of the strong form, weak form, and finite element solution, along with techniques for the computational implementation of the finite element method. Operational experience with programming (MATLAB or equivalent) is strongly recommended.

Prerequisite(s): MATH 237 or MATH 510 or GES 551 or instructor approval

**ME540 Failure of Engineering Materials**

Hours 3

Understand how structural components fail and apply the proper techniques for a failure analysis investigation. Demonstrate the ability to identify and differentiate fractographic features of material failure including overload and progressive failures (ductile, brittle, fatigue, creep, corrosion, wear). Practical failure analysis project experience included.

**ME542 Multiscale Material Design**

Hours 3

This course covers an introduction to materials modeling, terminology, and fundamentals of modeling/simulations in engineering systems, modeling materials at atomic scales using molecular dynamics techniques, statistical methods, mesoscale simulations using phase-field, largescale simulations using continuum mechanics, and finite element method. It also provides basic training on the software tools used in the field – e.g., COMSOL, LAMMPS, VMD, ParaView. Students will learn to develop analytical material models across different scales, build associated numerical codes, perform computer simulations, visualize the data, and analyze the results.

**ME544 Forming Processes**

Hours 3

This course covers the mechanics of materials in application to forming processes. It includes an introduction to index notation and tensor algebra, the kinematics of motion, stress and strain tensors, constitutive models, balance laws and governing equations, boundary conditions, and an overview of solution methods for material forming processes.

**ME546 Atomistic Modeling of Materials**

Hours 3

This course focuses on the classical molecular dynamics method as a universal tool for calculation of properties of matter in solid, liquid, and gaseous states. The course includes both lectures and a computer practicum that requires elementary programming in C and use of the LAMMPS molecular simulator. An introduction into C programming is provided as a part of the course.

Prerequisite(s): ME 501

**ME548 Biomechanics of Human Movement**

Hours 3

An overview of the broad field and major challenges of movement bio mechanics; II. the principles of classical mechanics, anatomy, and physiology to describe, analyze, and assess human motion; and III. the engineering tools and the mathematical approaches applied to perform bio mechanical analysis of moving bodies.

**ME550 Advanced Machine Design**

Hours 3

The theory and application of creep, high temperature fatigue, fretting fatigue, contact mechanics, and fracture mechanics to design against catastrophic failures in structures are studied.

Prerequisite(s): ME 350

**ME552 Fundamentals of Automotive Systems**

Hours 3

Description of a generic vehicle development process. Full vehicle concepts. Performance and fuel efficiency calculations. Fundamentals of internal combustion engines, thermodynamic principles, vibrations. Transmission and drive train design.

Prerequisite(s): MATH 238 Differential equations.

**ME556 Mechatronics**

Hours 3

This is the introductory course to the field of Mechatronics and Robotics. It covers fundamentals of electronics required for mechatronics systems, introduction to microcontroller (Arduino/Beaglebone/Raspberry pi) programming and interfacing, data acquisition, sensing and actuation. The course is a mix of instructional theory and lab, coupled with an independent exploratory project.

**ME558 Modeling and Simulation of Automotive Systems**

Hours 3

Introduction to modeling and simulation of automotive systems with various components including internal combustion engine, transmission, battery, electric motor, and chassis dynamics. Energy efficiency and dynamic performances of conventional, hybrid electric, and full electric vehicles are covered.

Prerequisite(s): ME 349: Engineering Analysis ME 372: Dynamic Systems

**ME560 Thermal Fluid Measurement and Analysis**

Hours 3

Methods for acquisition and analysis of thermal systems-based measurements and actuator controls. Practical applications of various programming interfaces and embedded devices. Assignments focus on thermal-fluid measurement/actuator control topics applied to student's research topics. Assignment and lecture material will be supported by benchtop demonstrations of sensors and actuators in-class as appropriate.

**ME562 Intermediate Dynamics**

Hours 3

Dynamics of systems in moving coordinate frames; Lagrangian formulation and Hamilton's principle; stability and perturbation concepts for rigid body motion; motion of systems of rigid bodies in three dimensions.

**ME564 Additive Manufacturing of Metals by Design**

Hours 3

This course delves into the world of design of components and processes to be built using Additive Manufacturing techniques. Students explore design principles, advanced techniques, and material selection for crafting intricate metal components. The course empowers participants to harness cutting edge technologies in metal fabrication, fostering creativity and expertise in the field.

**ME570 Mechanical Vibrations**

Hours 3

Formulation and solution of free and forced vibration problems for undamped and damped systems with single and multiple degrees of freedom. An introduction to modeling vibrations in continuous systems is also included. Superposition methods utilizing waveform decomposition, such as Fourier Series, are presented for use in both solution methods and system analysis. Experimental techniques of vibration measurement are also introduced.

**ME571 Fundamentals Of Acoustics**

Hours 3

Fundamental physical principles underlying wave propagation and resonance in mechanical systems. The course introduces modeling, applications, and provides experience in acoustic and audio measurements and the associated instrumentation. The human auditory transduction mechanism is also studied along with physical parameters that describe how humans hear.

**ME572 Introduction to Robotic Kinematics**

Hours 3

This course covers the fundamental concepts of robotics that will enable students to perform kinematic and static force analyses of robotic systems. Rigid-body motion in three-dimensional space is analyzed using rotation and transformation matrices. Screw theory approach is used for representing and conducting forward kinematics of manipulators (product of exponentials). Inverse kinematics of open-chain manipulators is examined using analytical and numerical techniques. Jacobian-based methods are discussed for conducting velocity and static force analyses.

**ME575 Control Systems Analysis**

Hours 3

Classical feedback control system analysis, Laplace transform, transfer function, time response, proportional-integral-derivative control, root locus, frequency response, and computerized analysis. Also includes a brief introduction to modern control techniques.

**ME577 Advanced Linear Control**

Hours 3

Modern techniques for the analysis and design of linear control systems. Matrix formulation; multivariable control systems; state-variable concepts; discrete-time systems; optimization; and statistical design methods.

**ME583 Additive Manufacturing**

Hours 3

Introduction to Additive Manufacturing (AM) and Rapid Prototyping. This course will cover the various techniques for AM such as Liquid AM, Sheet AM, Wire AM, and Powder AM. Students will compare physical and mechanical properties of additively manufactured parts and explore a broad range of 3D-Printing applications including biomedical, aerospace, army, and consumer products.

**ME585 Microfabrication**

Hours 3

Microelectromechanical Systems (MEMS) are miniature devices comprising of integrated mechanical (levers, springs, deformable membranes, vibrating structures, etc.) and electrical (resistors, capacitors, inductors, etc.) components designed to work in concert to sense and report on the physical properties of their immediate or local environment, or, when signaled to do so, to perform controlled physical interaction or actuation with their immediate or local environment. Microfabrication technology is the science behind this miniaturization. Most microfabrication techniques have similar roots to those developed originally for the fabrication of integrated circuits. MEMS and Microfabrication cut across a large number of industries and applications, which is part of why their potential is so compelling. Lightweight computers, cellular phones, digital cameras, microneedles for painless drug deliveries, airbag sensors, etc. would not be here without advancements in MEMS and microfabrication technology. This course brings together the basic understanding of various microfabrication processes, different MEMS devices, and how they can be exploited in a wide range of engineering applications. The physics behind the operation of different fabrication tools will be covered, and the fabrication and operation of real-world examples will be explained.

**ME591 Special Problems**

SP

Hours 3

This course covers topics not currently covered by an existing course in the catalog and is usually associated with a faculty member's specialty area. Content varies by section and semester.

Special Topics Course

**ME594 Special Project**

SP

Hours 2-6

Planning, executing, and presenting results of an individual project involving a research design, analysis, or similar undertaking.

Special Topics Course

**ME598 Non-Thesis Research**

Hours 1-3

*No description available***ME599 Thesis Research**

Hours 1-12

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Mechanical Engineering. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field. Variable hours.

**ME605 Classical Thermodynamics**

Hours 3

Classical macroscopic thermodynamic analysis of systems, pure substances, mixtures, and reacting systems.

**ME607 Conduction Heat Transfer**

Hours 3

Transient, multidimensional heat conduction in various geometries, and the mathematical and numerical means to analyze them.

**ME618 Princ Of Combustion II**

Hours 3

Parameters of confined combustion; evaporation of fuel, velocity of flames, detonation, and chamber design; dynamic effects; and measuring techniques. Assigned papers.

**ME638 Modeling of Deformation Processes Part 2**

Hours 3

Introduction to topics regarding non-linear finite element modeling. This course will cover the deformation modeling of solids and structures where the problem exhibits non-linear behavior, with a special focus on non-linear elasticity, plasticity, and the iterative solution methods necessary to solve such problems. Operational experience with programming (MATLAB or equivalent) is strongly recommended.

Prerequisite(s): ME 538

**ME670 Advanced Vibrations**

Hours 3

Covers advanced concepts in mechanical vibration analysis. Topics include introduction to variational approach and energy methods applied to motions of deformable body in three dimensions; vibrations of distributed-parameters systems including strings, bars, shafts, beams, membranes, and plates. Covers approximate methods, Rayleigh's Quotient, Rayleigh-Ritz method, method of functions expansion, Galerkin's and assumed mode methods, design and analysis of a variety of vibration-control systems, and recent advances in vibration of micro- and nano-scale systems.

Prerequisite(s): ME 470 or ME 570

**ME674 Nonlinear Control Systems**

Hours 3

Analysis of nonlinear systems. Nonlinear controller design techniques. State variables, phase plane analysis, describing functions, and Lyapunov stability theory.

Prerequisite(s): ME 475 OR ECE 475

**ME691 Special Problems**

SP

Hours 1-6

*No description available*

Special Topics Course



**ME694 Special Project**

SP

Hours 2-6

Planning, executing, and presenting results of an individual project involving a research design, analysis, or similar undertaking.

Special Topics Course

**ME695 Graduate Seminar**

Hours 1

This is a first course in Graduate Research Seminar series offered by the Department of Mechanical Engineering. Students are exposed to a variety of lectures.

**ME696 Graduate Seminar**

Hours 1

This is a second course in Graduate Research Seminar series offered by the Department of Mechanical Engineering. Students are exposed to a variety of lectures.

Prerequisite(s): ME 695

**ME697 Graduate Seminar**

Hours 1

This is a third course in Graduate Research Seminar series offered by the Department of Mechanical Engineering. Students are exposed to a variety of lectures.

Prerequisite(s): ME 695 and ME 696

**ME699 Dissertation Research**

Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree in Mechanical Engineering. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**MTE501 Introduction to the Fundamentals of Materials Science**

Hours 3

The course provides graduate students from non-materials disciplines with a graduate-level introduction to the fundamentals of materials science. This class is not intended for those possessing materials science related degrees. Topics include crystallography, defects, diffusion, basic thermodynamics and kinetics, phase equilibria and transformations, electronic properties and basic microstructure analysis techniques.

Prerequisite(s): Permission of instructor

**MTE510 Crystalline Defects in Materials**

Hours 3

Advanced work of an investigative nature. Credit awarded is based on the work accomplished. Defects in materials contribute significant to various properties including but not limited to deformation mechanisms, phase transformation pathways, and transport properties. This course provides a fundamental and quantitative overview of point, line, and interfacial imperfections in crystalline materials. In particular, the thermodynamic contributions, structure, and migration of these types of defects will be discussed and their impact on material behavior and/or properties.

**MTE515 Introduction to Electron and Ion Microscopy**

Hours 3

The course provides students an introduction to electron and ion microscopy theory and application to materials science with an emphasis towards scanning and transmission electron microscopy methods.

**MTE519 Solidification Science**

Hours 3

Overview of the principles of solidification processing, the evolution of solidification microstructure, segregation, defects and the use of analytical and computational tools for the design, understanding and use of solidification processes.

**MTE539 Metallurgy Of Welding**

Hours 3

Thermal, chemical, and mechanical aspects of welding using the fusion welding process. The metallurgical aspects of welding, including microstructure and properties of the weld, are also covered. Various topics on recent trends in welding research.

Prerequisite(s): MTE 380

**MTE550 Plasma Processing of Thin Films**

Hours 3

This course will cover fundamental technology involved in thin film processing. Plasma deposition and etch technology will be discussed. The basics of plasma processing equipment will be detailed, with special emphasis on sputtering tools. A range of thin film applications will be explored, with examples of magnetics, semiconductor, optical, and medical applications. The fundamentals of process optimization using a Design of Experiments will be taught with a test case of process optimization for the final exam.

Prerequisite(s): PH 105 or with permission of instructor.

**MTE556 Advanced Mechanical Behavior**

Hours 3

Topics include elementary elasticity, plasticity, and dislocation theory; strengthening by dislocation substructure, and solid solution strengthening; precipitation and dispersion strengthening; fiber reinforcement; martensitic strengthening; grain-size strengthening; order hardening; dual phase microstructures, etc.

Prerequisite(s): MTE 455

**MTE562 Metallurgical Thermodyn**

Hours 3

Laws of thermodynamics, equilibria, chemical potentials and equilibria in heterogeneous systems, activity functions, chemical reactions, phase diagrams, and electrochemical equilibria; thermodynamic models and computations; and application to metallurgical processes.

Prerequisite(s): MTE 362

**MTE565 Atom Probe Tomography**

Hours 3

This course introduces the theoretical background and practical information necessary to investigate materials using atom probe microscopy techniques. Topics will include the origins of the technique through field emission microscopy and its evolution into current atom probe tomography methods and instruments. The fundamentals of field emission, evaporation, desorption and other related behaviors is provided to establish an understanding of the physics of how atom probe microscopy operates. The course will also emphasize processes for assessing atom probe data quality, how to represent such data, advancements and limitations in data interpretation, and proper implementation of advanced data mining algorithms. Course instruction will be through lectures and assignments to assess student progress.

**MTE567 Strengthening Mechanisms in Materials**

Hours 3

Mechanisms and micromechanics of strengthening in engineering materials. This course covers the physical phenomena that contribute towards high mechanical strength in engineering materials. Principles for designing high strength materials will be addressed.

Prerequisite(s): MTE 455 or equivalent: or permission of instructor

**MTE579 Advanced Physical Metallurgy**

Hours 3

Graduate-level treatment regarding how metallurgical processing controls phase transformations and its outcomes on microstructure stability and mechanical strengthening mechanisms found in such microstructures.

**MTE581 Diffractometry of Materials**

Hours 3

The course provides graduate students an introduction to governing principles and equations for quantitative assessment of X-ray, electron, and neutron diffraction.

**MTE583 Adv Structure Of Metal**

Hours 3

Graduate-level treatments of symmetry, crystallography, crystal structures and defects in crystals. Application of analytical techniques to study crystal structures and textures in materials.

**MTE585 Materls At Elevd Temps**

Hours 3

Influence of temperatures on behavior and properties of materials.

**MTE587 Corrosion Science & Engr**

Hours 3

Fundamental causes of corrosion problems and failures. Emphasis is placed on tools and knowledge necessary for predicting corrosion, measuring corrosion rates, and combining this with prevention and materials selection.

Prerequisite(s): MTE 271 and CH 102 or CH 118

**MTE591 Special Problems**

SP

Hours 1-4

Advanced work of an investigative nature. Credit awarded is based on the work accomplished.

Special Topics Course

**MTE592 Special Problems**

SP

Hours 1-3

Advanced work of an investigative nature. Credit awarded is based on the work accomplished.

Special Topics Course

**MTE598 Non Thesis Research Hours**

Hours 1-12

Credit is based on the amount of work undertaken on non-thesis related research in a metallurgical and materials engineering area, the outcome of which is a define result presented in a report, paper, manuscript, or formal presentation at a conference or an MTE seminar. Instructor permission required. No prerequisites required.

**MTE599 Thesis Research**

Hours 1-12

*No description available*

**MTE602 Fracture of Brittle Materials**

Hours 3

This course explains fracture from atomistic, energy balance and fracture mechanics points of view and directs this knowledge towards the development and application of brittle materials.

**MTE610 Defects in Crystalline Materials**

Hours 3

Defects in materials contribute significant to various properties including but not limited to deformation mechanisms, phase transformation pathways, and transport properties. This course provides a fundamental and quantitative overview of point, line, and interfacial imperfections in crystalline materials. In particular, the thermodynamic contributions, structure, and migration of these types of defects will be discussed and their impact on material properties.

**MTE655 Transmission Electron Microscopy**

Hours 3

The course provides graduate students an introduction to electron and ion microscopy theory and application to materials science with an emphasis towards scanning and transmission electron microscopy methods.

Prerequisite(s): MTE 515

**MTE670 Scanning Electron Microscopy**

Hours 3

Theory, construction, and operation of the scanning electron microscope. Both imaging and x-ray spectroscopy are covered. Emphasis is placed on application and uses in metallurgical engineering and materials-related fields.

**MTE680 Advanced Phase Diagrams**

Hours 3

Advanced phase studies of binary, ternary, and more complex systems; experimental methods of construction and interpretation.

**MTE684 Fund Solid State Engineering**

Hours 3

Fundamentals of solid state physics and quantum mechanics are covered to explain the physical principles underlying the design and operation of semiconductor devices. The second part covers applications to semiconductor microdevices and nanodevices such as diodes, transistors, lasers, and photodetectors incorporating quantum structures.

Prerequisite(s): MTE 271 or ECE 332

**MTE687 Microstructure Evolution of Materials**

Hours 3

The course will cover the fundamentals and state-of-the-art techniques used in mathematical modeling and computer simulation of microstructure formation and control during the solidification and solid state transformations of materials. The concepts and methodologies covered in this course for net-shape casting and ingot remelt processes can be applied, with some modifications, to model other materials processes such as welding, deposition, and heat treatment processes. Modeling and simulation of microstructure evolution requires complex multi-scale computational areas, from computational fluid dynamics macroscopic modeling through mesoscopic to microscopic modeling, as well as strategies to link various length-scales emerged in modeling of microstructural evolution.

**MTE691 Special Problems**

SP

Hours 1-3

Credit awarded is based on the amount of work undertaken.

Special Topics Course

**MTE698 Non Dissertation Research**

Hours 1-12

Credit is based on the amount of work undertaken on non-dissertation related research in a metallurgical and materials engineering area, the outcome of which is a define result presented in a report, paper, manuscript, or formal presentation at a conference or an MTE seminar. Instructor permission required.

**MTE699 Dissertation Research**

Hours 1-12

*No description available*

## College of Human Environmental Sciences Courses

**ATR500 Fundamentals of Professional Practice**

Hours 3

Study and discussion of topics and clinical skills related to the prevention; examination, assessment and diagnosis; immediate and emergency care; and therapeutic intervention of injuries and illnesses. Introduction to healthcare administration.

Prerequisite(s) with concurrency: ATR 503

**ATR503 Patient-Centered Care**

Hours 2

Study and discussion of topics related to the influence of cultural, environmental and intrapersonal factors on health; and the role of athletic trainers acting within their scope of practice to advocate for patients and incorporate outcomes measures in providing patient-centered care.

Prerequisite(s) with concurrency: ATR 500 and ATR 505 and ATR 507 and ATR 510

**ATR505 Examination & Diagnosis I: Lower Extremity**

Hours 3

Study of the lower extremity as it relates to the prevention; examination, assessment and diagnosis; immediate and emergency care; and therapeutic intervention of injuries and illnesses.

Prerequisite(s): ATR 500, ATR 503

Prerequisite(s) with concurrency: ATR 507 and ATR 510

**ATR507 Examination and Diagnosis II: Medical Conditions**

Hours 2

Study of acute and chronic illnesses and medical conditions as they relate to the prevention; examination, assessment and diagnosis; immediate and emergency care; and therapeutic intervention of injuries and illnesses.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 510, &amp; ATR 535

Prerequisite(s) with concurrency: ATR 509 and ATR 511 and ATR 513 and ATR 520

**ATR509 Examination & Diagnosis III: Upper Extremity**

Hours 3

Study of the upper extremity as it relates to the prevention; examination, assessment and diagnosis; immediate and emergency care; and therapeutic intervention of injuries and illnesses.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 510, &amp; ATR 535

Prerequisite(s) with concurrency: ATR 507 and ATR 511 and ATR 513 and ATR 520

**ATR510 Integration of Clinical Skills in Athletic Training I**

Hours 1

Acquisition, evaluation, synthesis and application of clinical skills in the prevention; examination, assessment and diagnosis; immediate care and emergency care and therapeutic intervention of injuries and illnesses, with an emphasis on the lower extremity and general body systems. Clinical experiences under the direct supervision of BOC Certified Athletic Trainers.

Prerequisite(s) with concurrency: ATR 500 and ATR 503 and ATR 505 and ATR 535

**ATR511 Examination & Diagnosis IV: Head, Spine, Thorax & Abdomen**

Hours 3

Study of the head, neck, face, lumbar and thoracic spines, thorax and abdomen as they relate to the prevention; examination, assessment and diagnosis; immediate and emergency care; and therapeutic intervention of injuries and illnesses.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 510, &amp; ATR 535

Prerequisite(s) with concurrency: ATR 507 and ATR 509 and ATR 513 and ATR 520

**ATR513 Therapeutic Intervention I: Therapeutic Modalities**

Hours 2

Current theories, methods, and techniques in the application of therapeutic modalities during the therapeutic intervention for injuries and illnesses. The examination, assessment and diagnosis of injuries relative to therapeutic modalities.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 510, & ATR 535

Prerequisite(s) with concurrency: ATR 507 and ATR 509 and ATR 511 and ATR 520

**ATR517 Therapeutic Intervention II: Rehabilitation & Reconditioning**

Hours 2

Methods, theories and techniques in the rehabilitation of injuries. The examination, assessment and diagnosis of injuries relative to rehabilitation.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 511, ATR 513, ATR 510, ATR 520, & ATR 535

**ATR519 Advanced Trauma Management**

Hours 1

Study of the recognition, assessment, treatment and referral of advanced, acute emergent and traumatic injury and illness.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 520, ATR 530 & ATR 535

Prerequisite(s) with concurrency: ATR 521 and ATR 525 and ATR 531 and ATR 533 and ATR 540

**ATR520 Integration of Clinical Skills in Athletic Training II**

Hours 1

Acquisition, evaluation, synthesis and application of clinical skills in the prevention; examination, assessment and diagnosis; immediate care and emergency care and therapeutic intervention of injuries and illnesses, with an emphasis on the upper extremity, head, spine, thorax & abdomen. Clinical experiences under the direct supervision of BOC Certified Athletic Trainers.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 510, & ATR 535

Prerequisite(s) with concurrency: ATR 507 and ATR 509 and ATR 511 and ATR 513

**ATR521 Therapeutic Intervention III: Injury Care Planning**

Hours 3

Application methods of comprehensive therapeutic intervention for injuries & illnesses commonly sustained by the physically active.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 519 & ATR 520

Prerequisite(s) with concurrency: ATR 525 and ATR 530

**ATR525 Research in Athletic Training**

Hours 1

Introduction to research in athletic training with a focus on conducting a literature review, developing a PICO question, constructing testable hypotheses, selecting variables and identifying appropriate methodology to answer the question.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 520, ATR 530 & ATR 535

Prerequisite(s) with concurrency: ATR 519 and ATR 521 and ATR 531 and ATR 533 and ATR 540

**ATR530 Clinical Immersion I: Non-Sport Patient Care**

Hours 2

Acquisition, evaluation, synthesis and application of clinical skills in the prevention; examination, assessment and diagnosis; immediate care and emergency care and therapeutic intervention of injuries and illnesses, with an emphasis on acute and chronic medical conditions and post-surgical rehabilitation. Clinical experiences under the direct supervision of trained preceptors.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 520, & ATR 535

**ATR531 Therapeutic Intervention IV: Pharmacology & Behavioral Medicine**

Hours 3

The study of behavioral health conditions and their management with pharmacologic and non-pharmacologic interventions, including referral for appropriate care. Discussion of agents used in the management of acute and chronic illnesses; their response to, and impact on, physical activity; and the impact of physical activity on acute and chronic illnesses.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 520, ATR 530 & ATR 535

Prerequisite(s) with concurrency: ATR 519 and ATR 521 and ATR 525 and ATR 533 and ATR 540

**ATR533 Therapeutic Intervention V: Optimizing Patient Outcomes**

Hours 2

The study of agents used in the prevention; examination, assessment and diagnosis; and intervention of acute and chronic illnesses and medical conditions.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, & ATR 520, ATR 530 & ATR 535

Prerequisite(s) with concurrency: ATR 519 and ATR 521 and ATR 525 and ATR 531 and ATR 540

**ATR535 Health Care Administration**

Hours 3

Current theories, methods and techniques in the organization and administration of athletic training programs.

Prerequisite(s) with concurrency: ATR 500 and ATR 503 and ATR 505 and ATR 510

**ATR540 Integration of Clinical Skills in Athletic Training III**

Hours 1

Acquisition, evaluation, synthesis and application of clinical skills in the prevention; examination, assessment and diagnosis; immediate care and emergency care and therapeutic intervention of injuries and illnesses, with an emphasis on behavioral health issues. Clinical experiences under the direct supervision of BOC Certified Athletic Trainers.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 520, ATR 530 & ATR 535

Prerequisite(s) with concurrency: ATR 519 and ATR 521 and ATR 525 and ATR 531 and ATR 533

**ATR541 Therapeutic Intervention VI: Manual Therapy**

Hours 2

Current theories, methods, and techniques in the application of manual therapy during the therapeutic intervention for injuries and illnesses. Emphasis on the appropriate integration of manual therapy skills and traditional rehabilitation techniques into a comprehensive treatment plan. The examination, assessment and diagnosis of injuries relative to manual therapy.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 517, ATR 519, ATR 520, ATR 521, ATR 525, ATR 530, ATR 531, ATR 533, ATR 535, ATR 540

Prerequisite(s) with concurrency: ATR 545 and ATR 550

**ATR545 Seminar in Athletic Training**

Hours 2

Discussion of current issues in athletic training with an emphasis on the application of current research to the practice of athletic training.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 519, ATR 521, ATR 525, ATR 530, ATR 531, ATR 533, ATR 535 & ATR 540

Prerequisite(s) with concurrency: ATR 541 and ATR 550

**ATR550 Clinical Immersion II: Culminating Experience**

Hours 2

Acquisition, evaluation, synthesis and application of clinical skills in the prevention; examination, assessment and diagnosis; immediate care and emergency care and therapeutic intervention of injuries and illnesses. Clinical experiences under the direct supervision of trained preceptors.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 519, ATR 521, ATR 525, ATR 530, ATR 531, ATR 533, ATR 535, ATR 540

Prerequisite(s) with concurrency: ATR 541 and ATR 545

**ATR552 Seminar in Athl. Training**

Hours 3

A review of historical developments in the field of athletic training with emphasis on current challenges in the profession.

**ATR558 Applied Rsrch in Athl. Trng.**

Hours 3

The acquisition and application of advanced literature search and scientific literature interpretation skills. The refinement of scientific writing skills as they relate to the development and completion of a literature review paper.

**ATR598 Non-Thesis Research**

Hours 2

Experimental or analytical investigation of athletic training research-related research question.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 519, ATR 520, ATR 521, ATR 525, ATR 530, ATR 531, ATR 533, ATR 535 & ATR 540

Prerequisite(s) with concurrency: ATR 541 and ATR 545 and ATR 550

**ATR599 Thesis Research**

Hours 3

Thesis research focusing on experimental or analytical investigation of athletic training research-related research question.

Prerequisite(s): ATR 500, ATR 503, ATR 505, ATR 507, ATR 509, ATR 510, ATR 511, ATR 513, ATR 517, ATR 519 & ATR 520

Prerequisite(s) with concurrency: ATR 521 and ATR 525 and ATR 530

**CSM500 Personal Insurance Plan & Mgt**

Hours 3

Survey of the myriad of personal risks facing consumers and families throughout the life cycle. An emphasis is placed on the fundamentals of risk management. Includes a comprehensive study of insurance products.

Prerequisite(s): CSM 204 or CSM 205

**CSM501 Consumer Protection**

Hours 3

Study of laws and agencies affecting the consumer's well-being, sources of consumer information, and discussion of current consumer issues.

**CSM504 Personal Investment Plan & Mgt**

Hours 3

Focus on personal investing in marketable securities. Covers the basics of investing, including detailed definitions of investment terms, descriptive materials on how securities are purchased and sold, theoretical models of security valuation and practical examples of how to calculate growth rates.

Prerequisite(s): CSM 204 or CSM 205

**CSM505 Public Policy**

Hours 3

A detailed analysis of U.S. public policy, recognizing the broader social and economic impacts of selected policies. Students will develop a better understanding of how and why specific policies are implemented and assess the strengths and weaknesses of different policy structures.

**CSM506 Consumer Mgt Quality Assurance**

Hours 3

Provides in-depth coverage of the primary theories and methods necessary for quality assurance in a wide range of organizational settings.

**CSM507 Consumr Qual Mgt Facilitn Skil**

Hours 3

Provides a comprehensive study of facilitation skills necessary to lead an organization in continuous improvement.



**CSM508 Consumer Quality Mgt Systems**

Hours 3

Provides an in-depth analysis of management systems as a method of organizing and leading business, educational, and health care institutions. Covers the primary issues related to management systems.

**CSM509 NY Wall Street Stdy Tour**

Hours 3

Provides an overview of the American financial system with emphasis on financial service providers, products and markets. Includes a 6-day tour of New York's financial district, presentations by financial professionals, team activities, assignments and stock market analysis.

**CSM510 Pers Retire Plan Empl Benefits**

Hours 3

Fundamentals of personal retirement planning and the selection of employee benefits.

Prerequisite(s): CSM 204 or CSM 205

**CSM511 Building Employee Engagement**

Hours 3

This course provides a comprehensive overview of the theory and methods necessary for promoting employee engagement. The role of employee engagement in improving service, product quality, and consumer satisfaction are explored. Methods used to promote a culture of quality and customer care through continuous improvement methods, Six Sigma implementation, and socio-technical systems redesign are addressed.

**CSM512 Analysis in Quality Control**

Hours 3

This course introduces quantitative tools and concepts that are useful for process analysis and quality control. Conceptual understanding and data analysis using software is required and emphasized throughout the course.

**CSM514 Personal Investment Planning & Management II**

Hours 3

This course builds on Personal Investment Planning and Management I with a focus on the valuation of investments and the management of investment portfolios. Financial securities analyzed include equities, derivatives, fixed income, and alternative investments.

Prerequisite(s): CSM 504 or permission of instructor

**CSM515 Customer Service Management**

Hours 3

Course provides an in-depth study of the functions and structures of customer relations as it relates to business and government agencies. Course analyzes consumer needs, complaints, and education.

**CSM517 Financial Planning Foundations**

Hours 1

Foundational financial planning principles and practice for graduate students without exposure to financial planning as an undergraduate student. Topics include time value of money, financial goal setting, budgeting, risk management, savings, and investments.

**CSM518 Statistics Foundations for Consumer Sciences**

Hours 1

Foundational statistics for consumer sciences graduate students. Topics include descriptive measures, statistical testing and inference, confidence intervals, bivariate correlation, and regression analysis. Examples and exercises emphasize real-world applications.

**CSM519 Consumer Economics Foundations**

Hours 1

Foundational consumer economics principles for graduate students without exposure to elementary microeconomics as an undergraduate student. Topics include consumer and producer behavior, market structures, equilibrium, elasticity, efficiency/welfare, externalities, and public goods.

**CSM520 Personal Estate Planning**

Hours 3

Techniques of personal estate planning within the family life cycle.

Prerequisite(s): CSM 204 or CSM 205

**CSM525 Conflict Resolution for the Workplace**

Hours 3

This course provides skill building and practical methods for handling organizational and personal conflicts. Appropriate for the student who has received no formal preparation in managing conflict, and also for the professional who is educated in conflict theory and negotiation strategy, but needs grounding in basic interpersonal communication and management skills, such as rapport building, empathic listening, behavior modeling, reframing, problem solving, and decision making.

**CSM527 Emotional Intelligence: The Personal Qualities of the Negotiator**

Hours 3

This course teaches students to accurately identify and express emotions, and to develop and improve the emotional intelligence skills essential to managing conflict successfully. Students are directed through a series of self-evaluations to determine their current skill levels, learn the characteristics of specific skills, and apply and model the new learning. Students learn to break the habit of emotional reactivity and to model emotional proactivity.

**CSM528 Processes of Negotiation**

Hours 3

This course deepens students' understanding of negotiation skills that can be used across a variety of settings. Students explore best practices in negotiation and learn to identify and apply optimal strategies. The dynamics of negotiating across diverse cultures and contexts are also examined.

**CSM530 Family & Consumer Law for Non-Lawyers**

Hours 3

The study of family law for non-lawyers. Topics include marriage, divorce, custody, child support, alimony and property division, and the role of alternative dispute resolution in the family law setting, including mediation, private judges, and collaborative practice. Students will acquire a general understanding of legal terms, resources, and the legal system and its adversarial proceedings.

**CSM535 Psychology Of Money**

Hours 3

Innovative study of financial behaviors and their relationship to money management with emphasis placed on both theory and its application.

**CSM537 Developing The Leader Within**

Hours 3

An in-depth look at leadership principles, qualities, styles, and models with a focus on developing leadership skills and potential within the individual students. Designed to assist students in identifying opportunities for improvement.

**CSM549 Professional Social Networking**

Hours 3

The course content is focused on current genre of communication tools identified as 'social media'. Content includes an overview of the origins of the current social media tools, definitions and terminology, and case studies of current uses of social media in specific settings. The social media tools selected are examined as discrete units and as components of larger initiatives within organizations. Connections of these tools to the functions of various organizations and individual professional initiatives are explored; the applications presented are those within large organizations, smaller groups and individual, professional offices. Popular press items on these tools as well as research foundations are included as background for the selection and use of social media. Case studies from a range of disciplines will be used as primary instructional tools. The precise suite of tools is revised each term.

Prerequisite(s): Good standing in The Graduate School and/or permission of instructor.

**CSM550 Consumer Economics**

Hours 3

Examination of the role of the consumer in the economy; economic analysis of market and non-market consumption activities, incorporating relevant social, psychological, political, and ecological considerations.

**CSM551 Consumer Demographics**

Hours 3

This course will focus on developing students' ability to understand consumer demographics and impacts from these demographic changes. The course will cover basic concepts and measurement issues of demography as it relates to consumer and families. This class will also develop student's ability to adapt to changing trends in a dynamic world. Writing proficiency is required for a passing grade in this course.

Prerequisite(s): N/A

**CSM554 Personal Income Tax Mgt Plang**

Hours 3

Analysis of personal income tax management and planning as it relates to consumers and families throughout the life cycle.

Prerequisite(s): CSM 204 or CSM 205

**CSM555 Research Methods and Analysis**

Hours 3

Introductory research methods emphasizing non-experimental research designs. Examples and exercises are drawn from real-world research applications that inform consumer behavior and policy. Topics include: research design, measurement, sampling, data management, descriptive statistics, data visualization, and statistical inference.

**CSM558 Spreadsheets in Fin. Decisions**

Hours 3

Focus is on developing a working knowledge of Microsoft Excel as it may be used to analyze problems related to personal financial planning with an emphasis on life-cycle planning and computer literacy.

Prerequisite(s): CSM 204 or CSM 205 or HSM 474 or AC 210 or AC 211

**CSM559 Tech of Counsl in Cons Science**

Hours 3

Introduces students to basic interactional interviewing skills and strategies. Course is beneficial to those entering the fields of financial planning, business, management, sales or any commercial activity that involves interpersonal communication. Students who plan to supervise and manage others would benefit by expanding theory with practical application. Students with career goals involved counseling families, couples and individuals regarding life decisions will benefit from this course.

Prerequisite(s): CSM 204

**CSM560 Finan Plan Case Study Capstone**

Hours 3

A systems approach to financial management for individuals and families from the perspective of planner/counselor. Focuses on analytical techniques. Emphasizes identification and development of strategies for meeting client goals.

Prerequisite(s): CSM 558

**CSM561 Managing in a High Performance Organization**

Hours 3

This course will provide an interactive exploration of management skills that enable an individual to effectively communicate, build and lead teams, delegate, make presentations and manage priorities to achieve success.

**CSM562 Cognition Strategy & Technology**

Hours 3

This course lays some of the cornerstones of the program emphasis in interactive technology, guiding students in the development of their philosophy and understanding about the use of technology in teaching and learning as well as human interactions. Topics include synchronous vs. asynchronous learning, paradigm shifts in how people learn, and a review of the theory serving to underpin this topic.

**CSM564 Digital Tools**

Hours 3

The focus of this course is the use of a broad range of digital tools, including the skills considered core skills required to function in the asynchronous environment of this online degree program, the digital workplace, and in today's global economy. Building a collaborative environment, a course goal, requires this specific skill set. Computer mediated communications applied to collaborative, web-based environments are emphasized.

**CSM572 Needs Assessment Plan & Evaltn**

Hours 3

Course outcomes include demonstrated understanding of program evaluation strategies based on a systems theory model for comprehensive planning, formative and summative evaluation. These evaluation activities focus on e-learning environments and applications in a wide-range of settings. Planning models are also introduced around which projects and action research can be structured.

**CSM574 Technology Privacy & Security**

Hours 3

This course is an introduction to some of the basic issues confronting technology users, especially those in today's workplaces. It is designed for entrepreneurs, small business owners and managers, freelance consultants, and anyone who works with technology but in organizations which may or may not have IT departments. It is also appropriate for those working remotely at home or concerned about privacy and security in personal technology use. The topics include threats to computer and communication systems and privacy concepts; basic security defense techniques; web and network security issues; portable device security; operating systems security issues; email security; and security issues for home networks and smaller work environments such as privately-held companies and non-profit groups.

**CSM576 Collaborative Tools for Project Management**

Hours 3

This course is an introduction to the use of collaborative tools for project management. Many professionals use collaborative tools but this class emphasizes their use specifically for project management, as using collaborative tools for project management is emerging as a managerial skill set. In today's global economy, the ability to work virtually is paramount, because organizations are increasingly distributed, with remote members and locations. Just knowing how to use virtual communication tools does not equate specifically to project management. Communication techniques in these organizations are no longer the same as they were when all members were located in the same building. Traditional managerial communication techniques do not apply to distributed teams, where in-person meetings may occur but are limited. Further, even employees who are geographically co-located need to communicate and plan using virtual means. Online collaboration tools provide opportunity for project success and will be covered, using examples and case studies from project management. Social media tools offer exciting opportunities to improve team communication, efficiency, and success and will be discussed. While online tools and strategies may be familiar to enrollees, this class focuses on the particular use of these for project management. Project management is significantly different from even usual business communications, something emphasized in the materials provided and the learning activities used in the class.

**CSM580 E-Commerce@Ches**

Hours 3

Sound advice and vital practical help on developing an idea into a business on the internet. Addresses the different aspects of designing a web site, internet marketing, the role of search engines, measuring the effectiveness or an internet strategy.

**CSM581 Practicum**

Hours 3

Supervised experience in a related business, industry, or social agency.

**CSM582 Non-thesis Research**

Hours 3

Course focuses on preparation and planning for the Capstone Project, including examination and analysis of collateral research studies. Students will prepare articles for possible submission to a referred journal or presentation at a professional conference or online module.

**CSM584 Portfolio**

Hours 3

A culminating experience for Consumer Sciences students designed to increase knowledge of current and emerging issues in the field. With the instructor, students identify specific learning goals and provide evidence of achievement relative to these jointly-established criteria.

Prerequisite(s): Consumer Sciences graduate student and permission of instructor.

**CSM586 Principled Negotiation**

Hours 3

An in-depth study of principled, interest-based negotiation, which replaces adversarial approaches with problem-solving. Students formulate a personal strategy of thoughtful introspection with the goal of satisfying interests on all sides of a conflict and strengthening relationships among conflict partners.

Prerequisite(s): CSM 525

**CSM590 Spec Prob Consmr Affairs**

SP

Hours 2-6

*No description available*

Special Topics Course

**CSM591 Spec Prob Cons/Fam Econ**

SP

Hours 3

This course gives the graduate student the opportunity to work directly with a professor in the graduate program to explore a problem related to technology in Consumer Sciences.

Special Topics Course

**CSM592 Prob Fam Fin Plan Couns**

SP

Hours 2-6

*No description available*

Special Topics Course

**CSM593 Special Problems in Technology**

SP

Hours 3

This course is open to qualified graduate students who will study special problems in technology.

Special Topics Course

**CSM599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree in Consumer Sciences. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**CTD546 Cult Dynam Apparel Text**

Hours 3

Examination of the impact of cultural dynamics on apparel and textile production and marketing.

**CTD548 History Of Costumes**

Hours 3

Study of costume development from prehistoric to modern times; includes cultural forces in relation to the evolution of costume.

**CTD549 Social Psychological Aspects of Clothing**

SP

Hours 3

Application of behavioral science theories to clothing.

Special Topics Course

**CTD561 Quality Control for Textiles**

Hours 3

This course offers the opportunity for graduate fashion retailing and apparel design students to develop a deeper and broader understanding of textile materials.

Prerequisite(s): CTD 261

**CTD581 Practicum Cloth & Text**

Hours 1-3

Supervised experience in a business related to the major field of study.

**CTD590 Spec Prob Clothing**

SP

Hours 1-4

Independent investigation of selected topics in clothing.

Special Topics Course

**CTD591 Spec Prob Interior Design**

Hours 1-4

Independent investigation of selected topics in interior design.

**CTD592 Spec Prob In Textiles**

Hours 1-4

Independent investigation of selected topics in textiles.

**CTD593 Readings Cloth Textiles**

SP

Hours 3

Comprehensive review and critical evaluation of the literature in clothing and textiles.

Special Topics Course

**CTD595 Ctd Research I**

Hours 3

Discussions emphasizing contemporary issues, trends, relevant research, professional problems, and interests of students.

**CTD599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required master's-level research thesis hours toward the master's degree. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**HD500 Lifespan Human Development**

Hours 3

This course will advance students' knowledge of the theories and research in human development across the lifespan. Major areas of study include: developmental theory and physical, cognitive, social and emotional development.

**HD501 Child Development**

Hours 3

Covers principles of growth and development, chief areas of concern in the field, and supporting research.

**HD512 Adult Development**

Hours 3

Theories of and research on development throughout adulthood; young adulthood, middle years and aging are presented.

**HD535 Parent/Child Relationship**

Hours 3

Theories and research on parent/child relationships and an examination of how the parent/child relationship influences aspects of child development. Basic models of parent education and parent involvement are also examined.

**HD550 Hospitalzd Child & Youth**

Hours 3

The developmental and psychological theories involved in the practice of child life in health care settings.

**HD551 Loss And Bereavement**

Hours 3

Provides students with a general overview of the grief processes as they impact children and families. Examines issues surrounding children's grief/bereavement and studies issues surrounding complicated mourning.

**HD561 Theories Family Studies**

Hours 3

Historical overview of and contemporary theoretical approaches for understanding family behavior. Theoretical perspectives (such as systems, exchange, developmental, behavioral, and symbolic interaction) are applied to family research and practice.

**HD562 Dynamics Of Family Reltn**

Hours 3

Study of interaction within the family, with emphasis on historical changes, major issues, marriage success and family strengths, and family processes such as communication and conflict patterns. A focus on ethnic and racial family forms is also included.

**HD567 Pract Marriage Family Therapy**

Hours 3

Provides students with preliminary supervised experience in a professional setting.

**HD568 Pract I Marriage Family Thery**

Hours 3

Provides students with supervised practice in marriage and family therapy.

**HD576 Sem Human Sexuality**

Hours 3

Discussion and analysis of underlying issues in human sexuality research.

**HD580 Children and Divorce**

Hours 3

Theory and research regarding effects of parental divorce on children's cognitive and social-personality development.

**HD591 Sp Prob Hum Dev Fam Stdy***SP*

Hours 1-6

Provides an opportunity to pursue special needs and interests. Students work primarily on their own, but under supervision.

Special Topics Course

**HD598 Research Practicum**

Hours 1-6

Participation in a cooperative faculty/student research project related to human development.

**HD599 Thesis Research**

Hours 1-6

This independent research course partially fulfills required research hours toward a Plan I master's degree in HDFS. The course is conducted under the guidance of the thesis advisor. Material covered will be of an advanced nature aimed at providing master's students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**HD601 Advanced Child Development**

Hours 3

Advances student's knowledge of the theories and research in child development. Major areas of study include: developmental theory and physical, cognitive and social development.

**HD602 Adv Infant Development**

Hours 3

Examination of theoretical bases for behavior in infancy, and review of research literature on attachment behavior and various topics of major concern.

**HD603 Advanced Adolescent Development**

Hours 3

Covers biological, cognitive, social-emotional, and moral development of adolescents in school, home, and community settings.

**HD631 Readings Human Developmt***SP*

Hours 3

With an interdisciplinary approach to issues and concerns in life-span development, the course examines theory and research on selected topics.

Special Topics Course

**HD633 Special Topics in Human Development and Family Studies***SP*

Hours 1-3

In-depth understanding of contemporary research and practice topics in human development and family studies.

Special Topics Course

**HD636 Special Topics in Child Life***SP*

Hours 1-3

In-depth understanding of contemporary research and practice topics in child life.

Special Topics Course

**HD637 Special Topics in Marriage and Family Therapy***SP*

Hours 1-3

In-depth understanding of contemporary research and practice topics in marriage and family therapy.

Special Topics Course

**HD640 Couple and Sex Therapy**

Hours 3

This course is designed to introduce students to the diverse and complex dynamic of clinical work with couples. The course will provide an overview of two evidenced-based approaches to couples therapy (Gottman Method Couples Therapy & Integrative Behavioral Couples Therapy), and special issues related to couples therapy, sex therapy and infidelity. Throughout the course, students will develop intervention skills related to these approaches, and skills related to working with couples of diverse backgrounds.



**HD641 Ethics and Professional Issues in Marriage and Family Therapy**  
Hours 3

This course is designed to examine in-depth the American Association for Marriage and Family Therapy's Code of Ethics as the primary guide to the ethical practice of Marriage and Family Therapists. Students will explore the legal, ethical, and professional issues affecting therapists in various practice settings. A major emphasis will be on students' development of their own process for ethical decision-making.

**HD642 Systemic Assessment and Diagnosis of Psychopathology in MFT**  
Hours 3

This course will include a systemic and culturally sensitive overview of the major mental health disorders and other conditions that may be the focus of mental health treatment. Psychopharmacology will be introduced with discussion of common psychotropic medications used to treat mental health disorders. While the focus of this course is on diagnosis and assessment, treatment issues will be briefly touched on in reference to the disorders discussed.

Prerequisite(s): HD 641

**HD643 Evidence-Based Psychotherapy**  
Hours 3

This course will focus on the systemic/relational examination and application of contemporary, evidenced based practices for working with diverse clientele.

**HD645 Cultural Diversity in Marriage and Family Therapy**  
Hours 3

This course explores areas of cultural diversity relevant to the practice of marriage and family therapy. Learning to respond in a culturally sensitive manner and recognizing contextual and systemic dynamics as related to establishing productive therapeutic alliance and delivering successful intervention are included.

**HD650 Evidence-based Approaches to Treating Substance Use Disorders**  
Hours 3

Graduate seminar covering evidence-based approaches to treating substance use disorders.

**HD656 Child Life Practicum**  
Hours 1-3

Child life specialists are members of the healthcare team who provide psychosocial support to pediatric patients and their families with the goal of promoting resiliency and decreasing stress during healthcare encounters. Child Life Practicum is a clinical experiential learning opportunity in which child life students are provided the opportunity to become familiar with the roles of child life specialists and to develop introductory skills for supporting pediatric patients and their families in the clinical setting. Course combines observational learning and supervised interactions with pediatric patients to further child life students' skills and knowledge in offering therapeutic play interventions, completing development and psychosocial assessments, and building rapport with patients and families.

**HD664 Family Therapy**  
Hours 3

Examination and application of Family Therapy methodological and theoretical counseling principles. Emphasis is on helping families overcome stresses and develop strategies in response to normative and non-normative life events.

**HD665 Advanced Family Therapy**  
Hours 3

Theoretical underpinnings of emotionally focused therapy (EFT), narrative therapy, and experiential family therapy are presented. Students will become competent in the conceptualization and application of these models to individuals, couples, and families.

Prerequisite(s): HD 664, Family Therapy

**HD667 Pract II Marriage Family Ther**  
Hours 3

Advanced supervised practice in marriage and family therapy.

Prerequisite(s): HD 567 and HD 568

**HD668 Intern Marriage Family Therapy**  
Hours 1-6

Supervised field experience in an appropriate job setting in marriage and family therapy.

**HD670 Internship in Child Life**  
Hours 1-12

Internship for students in the Child Life concentration. Permission of the instructor.

Prerequisite(s): Permission of the instructor.

**HD689 Practicum Human Developm**  
Hours 3-6

Experience with human development in classroom teaching or agency settings.

**HD699 Dissertation Research**  
Hours 1-12

This independent research course partially fulfills required doctoral-level research dissertation hours toward the doctoral degree. The course is conducted under the guidance of the dissertation advisor. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest research and current developments within the field. Discussion and advisor guidance will be directed towards readings of research articles and development of research methodology, with the aim of producing an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

**HES509 Research Methods**  
Hours 3

This course is an introduction to scientific methods appropriate for human sciences. It is designed to acquaint students with types of research, methods, and materials necessary for scientific inquiry and to provide students with practical steps to conduct and understand scientific research. Emphasis will be placed on quantitative, qualitative, and mixed methods designs appropriate for research in human sciences.

**HES554 Management and Administration in Sports Business Management**

Hours 3

This course is designed for sport professionals desiring to increase their knowledge and understanding of management and administration issues in the sport industry.

Prerequisite(s): Graduate student in Human Environmental Sciences

**HES565 Legal and Ethical Issues in Sports Business Management**

Hours 3

This course is designed for student/prospective sport industry professional desiring to increase their knowledge and understanding of current legal and ethical issues in sports business management and the sport industry. This class (HES 565) uses Blended (Hybrid) Delivery Methods of readings, classroom presentations and online and residential exams to present critical topics.

Prerequisite(s): Graduate student in Human Environmental Sciences

**HES570 Fellowship in Sports Business Management**

Hours 3

Under the supervision of an approved and qualified sports business management professional, the graduate student will experience activities related to job specific tasks in sports business management. This full-time work experience/fellowship in the sport industry must take place in a professional organization, in which the student has been selected and offered a fellowship.

Prerequisite(s): Graduate student in Human Environmental Sciences

**HES590 Special Problems in Human Environmental Sciences**

SP

Hours 3-6

A detailed examination of a discipline-specific issue, topic or problem that impacts the lives of individuals, families or communities.

Special Topics Course

**HES591 Special Problems in Human Sciences**

SP

Hours 3

This course is open to qualified graduate students who will study special problems in human sciences.

Special Topics Course

**HES592 Special Problems in Sports Business Management**

SP

Hours 3

Under the supervision of an approved and qualified sport management professional, the graduate student will experience activities related to job specific tasks in sport management. This full-time work experience/fellowship in the sport industry must take place in a professional organization, in which the student has been selected and offered a fellowship.

Prerequisite(s): Graduate student in Human Environmental Sciences

Special Topics Course

**HES598 Non-Thesis Research**

Hours 1-6

Development of a professional paper on a topic selected by the student and approved by the graduate committee.

Prerequisite(s) with concurrency: CSM 562 and HES 509 and CSM 564 and CSM 572

**HES650 Special Topics In Hes**

SP

Hours 3

Critical analysis of current issues in selected areas of human environmental sciences. May be taken up to a total of four times.

Special Topics Course

**HHE506 Tech Research In Health**

Hours 3

Designed to acquaint the student with the types of research and the methods and materials necessary for scientific inquiry; includes development of a research proposal, with emphasis on form and style.

**HHE512 Advanced Foundations of Public Health**

Hours 3

This course provides foundational knowledge in the profession and science of public health. Course content also addresses factors related to human health, examines public health and health care systems, and explores emerging research and application areas in the field.

Prerequisite(s) with concurrency: HES 509

**HHE515 Advanced Foundations of Health Promotion**

Hours 3

This course provides an overview of the history, principles, and philosophy of health education/promotion. Key issues in health education and health promotion will be discussed for various age groups and by site of implementation (schools, communities, worksites, and medical care settings).

Prerequisite(s) with concurrency: HES 509

**HHE520 Theories of Health Behavior**

Hours 3

Designed to review research literature regarding health behavior and to analyze various models developed to explain health behavior.

Prerequisite(s): HHE 515

Prerequisite(s) with concurrency: HHE 515

**HHE521 Basic Epidemiology**

Hours 3

A course for students in health-related fields. The basic epidemiologic approach is developed; principles and methods are learned through readings (text and published studies), lectures, discussions, and the preparation of a research design by each student.

**HHE526 Biostatistics**

Hours 3

A course in statistical methods and concepts particularly appropriate for biomedical research and health-related subjects. Topics include descriptive statistics, probability, parametric and nonparametric procedures for one-group and two-group problems, contingency tables, and computer applications.

**HHE530 Health Promotion Techniques**

Hours 3

Study of current health promotion techniques and programs, designed to facilitate health behavioral change. Emphasis on review of scientific literature concerning the development, implementation, and evaluation of health promotion schemes.

Prerequisite(s): HHE 515

Prerequisite(s) with concurrency: HHE 515 or HHE 565 or HHE 520

**HHE565 Planning Health Promotion Programs**

Hours 3

Study of planning and evaluation methods and procedures for health education and promotion programs; emphasis on review of current scientific literature.

Prerequisite(s): HHE 520

**HHE566 Program Evaluation in Health Promotion**

Hours 3

The purpose of this course is to provide an overview of the processes and skills required to effectively measure and evaluate health education and promotion programs.

Prerequisite(s): HHE 515 HHE 520 HHE 530

Prerequisite(s) with concurrency: HES 509 or HHE 565

**HHE570 Critical Issues in Global Health**

Hours 3

This course explores contemporary issues, problems, and controversies in global health. It examines the social, economic, political, and environmental factors that affect global health. The course also exposes students to opportunities in global health programs and research.

**HHE580 Capstone - Applied Practice Experience I**

Hours 1

Coordination and proposal of field experience in an external agency or organization (government, not-for-profit, for-profit) under the direction of a site supervisor and health science faculty member.

Prerequisite(s): HHE 512, HHE 515

Prerequisite(s) with concurrency: HHE 520 and HHE 530 and HHE 565

**HHE581 Capstone - Applied Practice Experience II**

Hours 2

Supervised field experience in an external agency or organization (government, not-for-profit, for-profit) under the direction of a site supervisor and health science faculty member.

Prerequisite(s): HHE 580

**HHE584 Worksite Health Promotion Programs**

Hours 3

Workplace health promotion program design, implementation, and evaluation that is grounded in health theory, evidence-based, and promotes health equity while addressing health care cost concerns.

**HHE586 Environmental Health Promotion**

Hours 3

This course provides a careful study of the physical and human environment and its influence on health and disease. The course also examines implications for environmental health promotion.

**HHE587 Health Disparities**

Hours 3

The purpose of this project is to examine a case study detailing a unique cultural view/experience of the American health system. It also serves to provide health education and promotion strategies to engage diverse populations in interventions.

**HHE588 Sexuality Education: Theory and Practice**

Hours 3

Sexuality Education: Theory and Practice deals with contemporary issues in sexuality education in all settings. Issues include how sexuality education should be handled by parents, teachers, and community leaders; controversies surrounding sexuality education; pros and cons of various forms of sexuality education; and, the importance of understanding your own sexuality.

**HHE589 Women and Health**

Hours 3

The purpose of this course is to emphasize the importance of understanding women's experiences and life circumstances when planning, implementing and evaluating health programs or interventions.

**HHE590 Cert Hlth Ed Specialist Study**

Hours 3

Course is designed to help students develop and/or refine skills related to the planning, implementation, and evaluation of health education programs in various settings. Completion of the course is also intended to prepare students for the Certified Health Education Specialist examination.

**HHE596 Independent Study**

SP

Hours 1-6

Designed to provide the opportunity for independent research in any area of health education.

Special Topics Course

**HHE598 Non-Thesis Research**

Hours 3

Experimental or analytical investigation of health promotion problems.

**HHE599 Thesis Research**

Hours 1-6

Research study in a selected area of health promotion.

**HHE602 Readings In Health**

SP

Hours 3

An independent readings course for doctoral students.

Special Topics Course

**HHE603 Spec Projects In Health**

SP

Hours 3

Experimental or analytical investigations of problems in health education. Arranged on an independent basis for doctoral students.

Special Topics Course

**HHE604 Seminar In Health**

SP

Hours 3

Critical and emerging issues in health education and health promotion.

Special Topics Course

**HHE605 Theor Sci Basis Hlth Edu**

Hours 3

Examination of theoretical, scientific, historical, and philosophical issues that serve as a basis for health education and health promotion.

**HHE606 Plan Admin Hlth Ed Prog**

Hours 3

A comprehensive examination of models for planning health education and health promotion programs.

**HHE626 Advanced Biostatistics in Health Research**

Hours 3

To assist the student in understanding and applying basic statistical concepts and procedures in health-related research.

**HHE627 Multivariate Methods in Health Statistics**

Hours 3

This courses will examine the appropriate use and implementation of multivariate methods for the analysis of data with multiple dependent and independent measures.

Prerequisite(s): HHE 626

**HHE628 Qualitative Research Methods in Health Promotion**

Hours 3

Approaches to designing qualitative research studies for the development and evaluation of public health programs. Emphasis is on the practice of collecting and analyzing data from individual interviews, focus group discussions, and observations.

**HHE667 Advanced Evaluation In Health Education and Health Promotion**

Hours 3

This course provides an indepth analysis of evaluation and measurement techniques applied in health promotion and health education programs (HPE).

**HHE685 Field & Lab Experience**

Hours 3-6

Arranged on an independent basis for doctoral students. Participation and research in schools, communities, or work site settings.

**HHE698 Research**

Hours 3

Experimental or analytical investigation of problems in health.

**HHE699 Dissertation Research**

Hours 1-12

Design, research, and/or analytical investigation of a problem in the area of health to satisfy the dissertation requirement for the doctoral degree.

**HSM500 Sport Management Principles and Practices**

Hours 3

This course focuses on management theories and practices required to successfully manage sport organizations in a variety of different settings.

**HSM521 Hospitality Law and Risk Management**

Hours 3

Exploration of legal problems facing the hospitality industry. Legal cases related to restaurants, hotels, and meeting facilities are examined. Concerns and problem-solving for issues of risk management are explored.

**HSM551 Sport Properties and Venue Management**

Hours 3

This course is designed for the sport professional to increase their knowledge and understanding of principles and practices associated with managing a public assembly venue and the nature of the venue business.

**HSM552 Sport Business Management - Trends & Issues**

Hours 3

This course is designed for sport professionals desiring to increase their knowledge and understanding of trends and issues in international sport programs. It provides students with an opportunity to engage with, explore, and immerse themselves in the extant contemporary literature relating to trends and issues in interscholastic and intercollegiate athletics, as well as youth, professional sports, and recreation. Current trends and issues in the sport business management field will be researched and discussed. Emphasis will be placed on approaches to proactively manage issues posed by contemporary trends. Specific course content will vary with the evolution of the field of sport business management.

**HSM555 Sports Sales & Entrepreneurship**

Hours 3

This course is designed for sport professionals desiring to increase their knowledge and understanding of sports sales and entrepreneurship in the sport industry.

**HSM559 International Strategies in Sport**

Hours 3

This course is designed for sport professionals desiring to increase their knowledge and understanding of management and administration issues in the international sport industry. This course looks at sport as a global phenomenon, not only by focusing on the influences that sport has over culture, politics, and economics but also by examining how the opposite process influences the development and growth of sport worldwide.

**HSM560 Fellowship in Sports Business Management**

Hours 3

This course is designed for sport professionals desiring to increase their knowledge & understanding of the sport industry. Under the supervision of an approved and qualified sports industry professional, the graduate student will experience activities related to job specific tasks in sports and hospitality. This full-time work experience/fellowship in the sport industry must take place in a professional organization, in which the student has been selected and offered a fellowship.

**HSM561 Marketing, Sales, & Public Relations in Sports**

W

Hours 3

This course is designed for sport professionals desiring to increase their knowledge & understanding of marketing, sales, and public relations in the sport industry. Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course.

Writing

**HSM570 Leadership in Hospitality & Sport**

Hours 3

An examination of contemporary leadership and management theories and practices used in the hospitality and sport industries.

**HSM575 Sport & Hospitality Financial Management**

Hours 3

This course will focus on the application of financial management tools used to assist managers in the sport and hospitality industries. Financial concepts will be examined as they relate to management decision making. Emphasis will be on interpreting financial data and communicating results to operation managers. Students should have completed an undergraduate course in Accounting or Finance prior to registering for this course.

**HSM576 Strategic Management in Hospitality and Tourism**

W

Hours 3

Formulation, development, and implementation of strategic management in the hospitality and tourism industry. Writing proficiency is required for a passing grade in this course. A student who does not write with the skill normally required of an upper-division student will not earn a passing grade, no matter how well the student performs in other areas of the course.

Writing

**HSM580 Consumer Behavior in the Hospitality & Tourism**

Hours 3

In the hospitality industry, consumer behavior acts as a foundation for companies' strategies and plans. This course aims to explore how various factors influence consumer behavior and their decision-making process in the hospitality industry.

**HSM592 Special Topics in Hospitality Management**

Hours 1-6

Problems related to the operations of hospitality organizations such as hotel, restaurants, clubs and conventions and meeting management facilities.

**HSM596 Seminar Hospitality Management**

Hours 3

Discussion, reading, and exploration of operational issues related to the hospitality industry.

**HSM598 Non-Thesis Research**

Hours 3

Experimental or analytical investigation of a topic in restaurant, hotel, or meeting management.

Prerequisite(s): HES 509

**HSM599 Thesis Research**

Hours 1-6

This is a faculty mentored development of graduate thesis research course.

Prerequisite(s): HES 509

**NHM509 Research Methods in Nutrition**

Hours 3

This course is an introduction to scientific methods appropriate for nutrition research. Approaches to designing, conducting, and evaluating nutrition research are discussed along with strategies for applying research into practice.

**NHM530 Advanced Nutrition Counseling**

Hours 3

Focuses on advanced skills in nutrition counseling that incorporates behavioral theory and motivational interviewing.

**NHM550 Advanced Community Nutrition I**

Hours 3

Focuses on principles, problems, and programs in community nutrition with an emphasis on community needs assessment.

Prerequisite(s): None.

**NHM551 Advanced Community Nutrition II**

Hours 3

Explores the techniques and strategies used in community nutrition; focuses on facilitation of community interventions, development of community partnerships and collaborative programs.

Prerequisite(s): NHM 550

**NHM555 Maternal and Infant Nutrition**

Hours 3

This course will focus on the scientific evidence that supports nutrition recommendations that result in optimal health for mothers and their infants. Methods of assessing nutritional status are included. The impact of insecurity and obesity on the nutritional status of mothers and their infants will be discussed.

**NHM556 Child and Adolescent Nutrition**

Hours 3

Discussion of the scientific evidence that supports nutrition recommendations that result in optimal health for young children and adolescents. Explores determinants of nutritional status and public health strategies for prevention of prevalent nutritional concerns.

Prerequisite(s): NHM 555

**NHM557 Childhood Obesity**

Hours 3

Focuses on the physiological, genetic, environmental, and behavioral factors that predispose children and adolescents to obesity; explores the clinical and public health strategies for treatment and prevention.



**NHM558 Nutrition in the Prevention and Treatment of Chronic Disease**  
Hours 3

Evidence-based solutions in the prevention and treatment of the most prevalent nutrition-related chronic diseases are discussed. Current research is translated into health promotion and disease prevention strategies and plans.

**NHM561 Advanced Vitamins and Minerals Metabolism**  
Hours 3

Lectures and reports on the physiological functions, metabolism, and interpretation of current research in vitamins and minerals.

**NHM562 Metabolism of Energy Nutrients**  
Hours 3

In-depth discussion of carbohydrates, lipids, and protein metabolism. Discussion and interpretation of recently published research in peer-reviewed journals.

**NHM564 Nutrition in Interprofessional Practice**  
Hours 1

The focus of this course is to prepare clinicians to work in interprofessional practice teams to meet the complex and multidimensional needs of Veterans and rural populations, with a special emphasis on the effects of multiple chronic conditions.

Prerequisite(s): NHM 566, NHM 567, or other similar MNT-oriented advanced course, RD status preferred. Admission by permission of Instructor only.

**NHM565 ID Mgmt of Chronic Disease**  
Hours 2

The focus of this course is to train clinicians to work in interprofessional practice teams to meet the complex and multidimensional needs patients with multiple chronic conditions living in rural areas. Instructor permission only.

Prerequisite(s): NHM 564

**NHM566 Adv Clinical Nutrition**  
Hours 3

Critical review of the physiological basis for nutritional management in the prevention and/or treatment of diseases of the cardiovascular, gastrointestinal, endocrine, hepatic, and renal systems.

**NHM567 Nutr Support Critical Ill**  
Hours 3

Methods of assessing nutritional requirements of the critically ill patient and of delivering and monitoring enteral and parenteral nutrition are presented.

**NHM568 Nutrition for the Older Adult**  
Hours 3

Methods of assessing nutritional requirements and a review of nutrition and disease topics specifically relevant to the care of the older adult.

**NHM572 Metabolism of Energy Nutrients**  
Hours 3

Metabolism of energy-yielding nutrients and their regulation in physiological processes.

**NHM573 Advanced Vitamins and Minerals**  
Hours 3

Metabolism and function of vitamins and minerals in physiological processes.

Prerequisite(s): NHM 572

**NHM574 Supervised Practice in Community Health & Wellness**  
Hours 3

Supervised community and wellness nutrition experience in the community health setting. This course is only for students admitted to the Coordinated Program in Dietetics.

Prerequisite(s): Admission to the Coordinated Program in Dietetics.

**NHM575 Supervised Practice in Long Term Care**  
Hours 3

Supervised clinical dietetics experience in the long-term care setting. This course is only for students admitted to the Coordinated Program in Dietetics.

Prerequisite(s): NHM 574 and admission to the Coordinated Program in Dietetics

**NHM576 Supervised Practice in Food Service Management**  
Hours 3

Supervised food service operations experience in a healthcare or commercial setting. This course is only for students admitted to the Coordinated Program in Dietetics.

Prerequisite(s): NHM 574 and admission in the Coordinated Program in Dietetics

**NHM577 Supervised Practice in Medical Nutrition Therapy**  
Hours 3

Supervised clinical dietetics experience in the hospital setting applying knowledge and skills learned from clinical coursework. This course is only for students admitted to the Coordinated Program in Dietetics.

Prerequisite(s): Admission in the Coordinated Program in Dietetics and Supervised Practice in Long-Term Care.

**NHM578 Capstone Supervised Practice in Food Service Management**  
Hours 3

The application of theory, functions and principles of management through supervised practice in healthcare facilities. Emphasis on personnel and financial management, problem analysis, and quality assurance.

Prerequisite(s): NHM 576 and admission in the Coordinated Program in Dietetics

**NHM579 Capstone Supervised Practice in Community Health & Wellness**  
Hours 3

Supervised community nutrition experience in a variety of settings that includes nutrition education and the delivery of nutrition services in the community. This course is only for students admitted to the Coordinated Program in Dietetics.

Prerequisite(s): Wellness & Health Promotion rotation, Clinical 1 rotation, and admission in the Coordinated Program in Dietetics

**NHM580 Capstone Supervised Practice in Medical Nutrition Therapy**  
Hours 3

Application of the principles of clinical nutrition in specific disease conditions during supervised practice in health care facilities and under the direct supervision of a Registered Dietitian. This course is only for students admitted to the Coordinated Program in Dietetics.

Prerequisite(s): Clinical 1 rotation and admission in the Coordinated Program in Dietetics

**NHM585 Clinical Nutrition Management**  
Hours 3

This course covers management principles for nutrition professionals who plan, coordinate, and manage the work operations of the clinical nutrition staff in healthcare facilities.

**NHM587 Integrat Food System Mgt**  
Hours 3

Current problems in food systems management are presented, with emphasis on theories of management and integration of management functions.

**NHM588 Advanced Food Service Systems Management**  
Hours 3

This course covers foodservice organizational theory and leadership principles for nutrition professionals who oversee and direct the distribution of food, manage human and financial resources, and maintain quality control in quantity food service systems.

**NHM590 Special Prob Nutrition**  
SP

Hours 1-6

Instructor permission required.

Prerequisite(s): Instructor permission required.

Special Topics Course

**NHM591 Spec Prob Food Science**  
SP

Hours 3-6

*No description available*

Special Topics Course

**NHM597 Human Nutrition Master's Capstone Course**  
Hours 3

The Human Nutrition Master's Capstone Course is the required Capstone Experience for students in the Human Nutrition Master's Program who are not completing a thesis or non-thesis research project. The course focuses on professional development, integration of nutrition knowledge, and community engagement.

**NHM598 Non-Thesis Research**  
Hours 3

Experimental or analytical investigation of a food or nutrition-related issue. This course may be the capstone experience for the masters degree under Plan II and should be the last course the student takes prior to graduating.

**NHM599 Thesis Research**  
Hours 1-6

Faculty mentored development of graduate thesis research.

**NHM601 Contemporary Research in Translational Nutrition Science**  
Hours 3

This course will explore two fast-developing topics in the field of nutrition science: nutrigenomics and the gut microbiome. Students will become familiar with core concepts related to these areas in order to critically evaluate emerging research related to both.

**NHM602 Methods in Integrative Nutrition Assessment**  
Hours 3

Analytical methodologies routine to nutrition assessments are discussed and implemented in accordance with standard research protocols in a lab setting.

**NHM603 Nutrition Intervention**  
Hours 3

This course focuses on developing competence in the planning, design, and execution of randomized clinical trials involving nutrition-focused behavioral interventions.

**NHM605 Critical Analysis of Primary Literature in Translational Nutrition Research**  
Hours 3

Course focus is on interpretation and evaluation of translational research in nutrition.

**NHM610 Nutrition and Health Disparities**  
Hours 3

This course is designed to explore health disparities in minority populations, societal factors that impact their health and dietary intake, the differing needs and metabolism of nutrients by population, and educational techniques and healthcare management strategies to maximize the nutritional health of minority populations.

**NHM611 Nutritional Neuroscience**  
Hours 3

This course teaches the molecular mechanisms at work in brain cells, and how intracellular events influence physiological and pathological processes in the brain. This course also covers the relationship between nutrients and neurological disorders and the various nutritional approaches to improve brain function will be discussed using recent publications.

**NHM625 Nutritional Epidemiology**  
Hours 3

This course is intended for graduate students in health-related professions. Principles of epidemiology are discussed and their application to nutrition. This course provides information on research methods to assess exposure through collection of dietary and biological data, evaluate quality of these data, conduct appropriate analyses, and draw valid conclusions.

**NHM635 Adv Prac. in Post Sec. Diet Ed**  
Hours 3

Focuses on developing Competency in Learning system design, with special emphasis on dietetics education at the college level.

**NHM648 Secondary Analysis Survey Data**

Hours 3

An applied seminar in the secondary analysis of survey data.

**NHM690 Doctoral Studies Seminar**

Hours 1

The purpose of this course is to provide doctoral students with information and skills needed for successful doctoral study and an independent research career.

**NHM691 Grant Writing for Translational Nutrition Research**

Hours 3

Grant writing for translational nutrition research aimed at extending healthy life and reducing the burdens of chronic disease.

**NHM692 Special Topics in Nutrition**

SP

Hours 3

In-depth understanding of sub-disciplines of food and nutrition that are fundamentals of nutritional sciences and the basic research philosophy of structure-function relationships in food and nutrition research.

Special Topics Course

**NHM695 Interpretation of Nutrition Research**

Hours 3

This course covers research methodology in nutrition research, and the evaluation of current nutrition research through the systematic review process.

**NHM698 Non-Dissertation Research**

Hours 1-15

Participation in a cooperative faculty-student research project related to nutrition or food science.

**NHM699 Dissertation Research**

Hours 1-12

Design, research, and/or analytical investigation of a problem in the area of nutrition to satisfy the dissertation requirement for the doctoral degree.

## College of Nursing Courses

**NUR505 Advanced Health Assessment**

Hours 3

This course will assist the graduate nursing student to further develop health assessment skills for obtaining and recording a systematic health history as well as advanced holistic health assessment of individuals across the life span.

**NUR510 Basic Concepts of Teaching Diabetes Self-Management Techniques**

Hours 3

This online elective course is open to any graduate student in the health or social sciences. The course focuses on: Diabetes Self-Management Techniques (DSMT) and instructs the provider in what manner to impart information that has immediate application for people living with diabetes. The course focuses on application of clinical guidelines for exercise and fitness, nutrition and diet, and the techniques, products, and strategies that help patients learn diabetes self-management techniques that empower them to take charge of their well-being and live healthier lives.

Prerequisite(s): Permission by Instructor

**NUR513 Special Topics**

SP

Hours 1-4

This course focuses on selected MSN topics under the sponsorship of a nursing faculty member with relevant expertise.

Special Topics Course

**NUR516 Advanced Diabetes Management: An Interdisciplinary Approach Across the Lifespan**

Hours 3

This online elective course is open to any graduate student in the health or social sciences. The course focuses on the primary, secondary, and tertiary prevention and management of diabetes mellitus offering expanded content suitable to students pursuing graduate study in nursing, medicine, nutrition, and other social sciences. Building on the basic and advanced science and clinical management courses a multi-disciplinary approach is offered for the prevention of pre-diabetes, metabolic syndrome, type 2 diabetes, management of both types 1 and 2 diabetes mellitus across the lifespan. Special emphasis is placed on the prevention and management of the complications and co-morbid conditions potentially resulting from diabetes mellitus.

**NUR517 Graduate Independent Study**

SP

Hours 1-4

*No description available*

Special Topics Course

**NUR521 Advanced Pharmacology**

Hours 3

This course will assist the graduate nursing student to further develop knowledge of evidence-based clinical pharmacology. Course content will include basic principles of pharmacology as they apply to drug therapy across the lifespan. A prototype approach will be used to present content covering selected drugs affecting the peripheral nervous system, central nervous system, cardiovascular system, renal system, endocrine system, immune system, musculoskeletal system, respiratory system, gastrointestinal system, and chemotherapy for infection and cancer.

**NUR529 Advanced Pathophysiology**

Hours 3

This course will explore the biologic basis of disease at the cellular, organ and system level with an emphasis on applications for health professionals. It is a required course in the MSN curriculum of the Capstone College of Nursing and may be taken as an elective by graduate biology majors with an interest in health professions based on space available.

**NUR531 Nursing Faculty Roles and Responsibilities**

Hours 3

This online course will provide an introduction to the roles and responsibilities of nursing faculty. This course will prepare students to participate in the processes of designing, implementing, and evaluating a nursing curriculum. This course will include roles and responsibilities of faculty in teaching, scholarship, service, and practice.

**NUR532 Instructional Media for Nursing Education**

Hours 3

This course will provide students with an overview of instructional technology and media that can be used in undergraduate and graduate level instruction in nursing education programs. This course will provide students with skills to begin on site and online instruction. It will explore the use of computers, software, models, simulators, and other instructional media.

Prerequisite(s): AIL 600 and AIL 602

Prerequisite(s) with concurrency: AIL 600 and AIL 602

**NUR541 Foundations in Nursing Care and Assessment**

Hours 4

This course is an introduction to fundamental nursing concepts and processes that are foundational to nursing care. Content included an introduction to professional nursing; the nursing process; ethics, theories and models of communication and factors that affect interpersonal communication in health care settings; health assessments and the application of assessment skills and documentation; basic care planning and clinical nursing skills.

Prerequisite(s) with concurrency: NUR 542 and NUR 543

**NUR542 Pathophysiology Basic**

Hours 4

This course is an introduction to fundamental pathophysiology of the human body. This course examines physiological change that results in disruptive adaptive responses throughout the lifespan. These disruptive responses are approached in a systematic manner. A combination of identified cellular concepts and body systems approach is used to structure course content. Included are basic cellular processes in human pathology, pathology associated with the major body systems, and physiology associated with the aging process.

Prerequisite(s) with concurrency: NUR 541 and NUR 543

**NUR543 Nursing Care Across the Adult Lifespan I**

Hours 4

This course is the clinical companion course for NUR 541: Foundations in Nursing Care. Clinical skills related to communication, collaboration, adult assessment, and basic nursing care techniques will be developed through a variety of simulation and clinical placement activities. Students will engage in real-world experience and practice working with clients, client families, peers/colleagues, and members of the interdisciplinary healthcare team. Students are required to complete 180 clinical hours during this course.

Prerequisite(s) with concurrency: NUR 541 and NUR 542

**NUR544 Adult Health Nursing**

Hours 4

This course prepares the student to provide care to adult patients experiencing common and/or complex physiological alterations and responses. The course addresses concepts, theories, and research findings essential to promote and restore health of adults from culturally diverse populations.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543

Prerequisite(s) with concurrency: NUR 545 and NUR 547 and NUR 546

**NUR545 Mental Health Nursing**

Hours 3

This course prepares the student to provide quality care while improving the mental health of culturally diverse persons and preventing further disability. This course presents the biological, environmental, cultural, and interpersonal factors affecting individuals with mental health conditions. The course is organized around evidence that contributes to a holistic understanding of mental health conditions and effective intervention strategies that assist the individual and family to adapt, recover, and grow through these difficulties. The social, legal, and ethical implications of providing nursing care to culturally diverse individuals with mental health conditions are integrated throughout the content.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543

Prerequisite(s) with concurrency: NUR 544 and NUR 547 and NUR 546

**NUR546 Nursing Care Across the Adult Lifespan II**

Hours 3

This course is the clinical companion course for NUR 544: Adult Health Nursing and NUR 545 Mental Health Nursing. Clinical skills related to the holistic care of adults will be developed through a variety of simulation and clinical placement activities. Students will engage in real-world experience and practice working with clients, client families, and members of the interdisciplinary healthcare team. Students are required to complete 135 clinical hours during this course.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543

Prerequisite(s) with concurrency: NUR 544 and NUR 545 and NUR 547

**NUR547 Conceptual Foundations for Nursing**

Hours 3

This course prepares the student for concepts and issues relevant to professional nursing practice. Emphasis is placed on concepts related to professional values; legal and ethical responsibilities of the professional nurse; an introduction to interprofessional teams, teamwork, and collaboration; and care of the psychosocial integrity of culturally diverse individuals and populations across the lifespan.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543

Prerequisite(s) with concurrency: NUR 544 and NUR 545 and NUR 546

**NUR548 Population and Rural Health**

Hours 4

This course is the clinical companion course for NUR 559: Health Promotion and Community Health. The course focuses on the knowledge and skill competencies required for community/public health nursing practice. Educational and clinical experiences are community-based, community-oriented, and population-focused. Health promotion, risk reduction and management, and disease prevention for culturally diverse individuals, families, and populations in rural and urban community settings are emphasized. The course also emphasizes knowledge and practice of illness and disease management in non-institutional environments. Students are required to complete 180 clinical hours during this course.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543 and NUR 544 and NUR 545 and NUR 546 and NUR 547 and NUR 514

Prerequisite(s) with concurrency: NUR 559 and NUR 557

**NUR549 Roles & Leadership in Nursing Administration**

Hours 3

The purpose of this course is to provide the student with the tools and resources to embrace the role of the Nurse Administrator and successfully balance leadership and management cohesively. This course will comprehensively cover leadership concepts to include working collaboratively in interdisciplinary teams, professional roles and scopes of practice, human resource management, staffing, conflict resolution, sustainable change, and decision-making practices.

Prerequisite(s): Co-requisite: NUR 550

**NUR550 Roles & Leadership in Nursing Administration Practicum**

Hours 3

The purpose of this clinical course is to provide the student with the opportunity to apply concepts and theory from NUR 549 in an authentic clinical environment to narrow the theory practice gap through application and experiential learning. The focus is on application of leadership concepts to include working collaboratively in interdisciplinary teams, professional roles and scopes of practice, human resource management, staffing, conflict resolution, sustainable change, and decision-making practices.

Prerequisite(s): Co-requisite: NUR 549

**NUR551 US Healthcare Systems and Quality & Safety**

Hours 3

The purpose of this course is to prepare future nurse administrators for the complexities of healthcare management by giving them the tools and resources to understand and critically appraise the unique dynamics of the U.S. healthcare system. This course will include information related to healthcare delivery, quality improvement, public policy, laws, accrediting bodies, and regulatory statutes.

Prerequisite(s): Co-Requisites: NUR 552

**NUR552 US Health Care Systems and Quality & Safety Practicum**

Hours 3

The purpose of this clinical course is to provide the nursing administrator student with the opportunity to apply concepts and theory from NUR 551 in an authentic clinical environment to narrow the theory practice gap through application and experiential learning. The focus is on the application of public policy, laws, accrediting bodies, and regulatory statutes as they relate to the delivery of health care in the U.S.

Prerequisite(s): Co-Requisites: NUR 551

**NUR553 Advanced Financing and Strategic Planning in Health Care**

Hours 3

The purpose of this course is to prepare future nurse administrators to be highly effective and influential strategic planners and financial leaders within the organization. This course addresses principles of strategic planning and fiscal resource management to include SWOT analyses, business plans, reimbursement models, cost analysis, budgeting, contract development, financial aspects of program development and evaluation, and cost accounting and tracking.

Prerequisite(s): Co-Requisites: NUR 554

**NUR554 Advanced Financing and Strategic Planning in Health Care Practicum**

Hours 3

The purpose of this clinical course is to provide the student with the opportunity to apply concepts and theory from NUR 553 in an authentic clinical environment narrowing the theory practice gap through application and experiential learning. The focus is on the application of the principles of strategic planning and fiscal resource management to include SWOT analyses, business plans, reimbursement models, cost analysis, budgeting, contract development, financial aspects of program development and evaluation, and cost accounting and tracking.

Prerequisite(s): Co-Requisites: NUR 553

**NUR557 Epidemiology**

Hours 3

This course introduces students to the epidemiological principles and methods used for measuring population health. Focus is on critically reading the public health literature and applying the evidence to understand the social determinants that impact culturally diverse individuals, families, and populations.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543 and NUR 544 and NUR 545 and NUR 546 and NUR 547 and NUR 514

Prerequisite(s) with concurrency: NUR 559 and NUR 548



**NUR559 Health Promotion & Community Health Nursing**

Hours 2

This course prepares the students with an introduction to health promotion and community-based nursing principles. The course addresses concepts, theories, and research findings essential to promote health of culturally diverse aggregates, populations, or communities.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543 and NUR 544 and NUR 546 and NUR 547 and NUR 514

Prerequisite(s) with concurrency: NUR 548 and NUR 557

**NUR560 Family Based Nursing**

Hours 3

This course prepares the student to provide care to children with acute and chronic health problems and to childbearing families experiencing normal maturational processes as well as related acute/chronic health problems. The course addresses concepts, theories, and research findings essential to promote health and/or reduce the consequences of disease in children and to provide holistic, patient-centered care to childbearing families from culturally diverse populations.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543 and NUR 544 and NUR 545 and NUR 546 and NUR 547 and NUR 548 and NUR 557 and NUR 559

Prerequisite(s) with concurrency: NUR 561

**NUR561 Family Based Nursing Practicum**

Hours 2

This course is the clinical companion course for NUR 560: Family Based Nursing. The course teaches and evaluates clinical skills necessary to provide culturally-competent care to children and childbearing families from culturally diverse populations.

Prerequisite(s): NUR 542 and NUR 541 and NUR 543 and NUR 544 and NUR 545 and NUR 546 and NUR 547 and NUR 548 and NUR 557 and NUR 559

Prerequisite(s) with concurrency: NUR 560

**NUR562 Preparation for Licensure**

Hours 1

The focus of this course is to support students to assess their individual knowledge acquisition and to implement strategies to address identified deficiencies and maximize learning with faculty assistance. Through this course students will use individual, group, and technology-based methods to facilitate critical thinking and problem-solving using client case studies. Students will also complete the NCLEX licensure application process.

Prerequisite(s) with concurrency: NUR 563

**NUR563 Rural Health Preceptorship**

Hours 2

This course is co-requisite with NUR 562 Preparation for Licensure and taken after successful completion of all other MENP courses. This precepted clinical practicum is a 90-hour intensive designed to focus on essential leadership and management principles. Clinical experiences will allow students to apply and integrate clinical reasoning, critical thinking, and delegation skills with the knowledge derived from didactic and clinical courses with a special emphasis on rural health care.

Prerequisite(s) with concurrency: NUR 562

**NUR567 Family Nurse Practitioner Role & Issues**

Hours 3

This course includes the professional role of the Family Nurse Practitioner (FNP) serving diverse populations across the lifespan. Emphasis is on the influence of nurse practitioners on outcomes at the systems level. Students will assess complex demands; plan coordinated, multidisciplinary, evidence-based collaborative approaches to care; and appraise strategies for evaluation of outcomes.

Prerequisite(s): NUR 505, NUR 521, NUR 529 - with a grade of B or better

Prerequisite(s) with concurrency: NUR 568 with a B or Better

**NUR568 Clinical Readiness**

Hours 3

The purpose of this clinical readiness course is to prepare students for clinical care, prior to engaging in direct patient care.

Prerequisite(s): NUR 505 and NUR 521 and NUR 529

Prerequisite(s) with concurrency: NUR 567 OR NUR 591

**NUR569 Family Nurse Practitioner I**

Hours 3

This course integrates theoretical, and evidence-based foundational knowledge in health promotion, disease prevention, diagnosis, and management of adults in a primary care setting with a particular focus on rural and medically underserved populations.

Prerequisite(s): NUR 567 Corequisite: NUR 570 With grade of B or better

**NUR570 Family Nurse Practitioner Clinical I**

Hours 3

In this clinical course, the FNP student will apply the theoretical and evidence-based foundational knowledge in health promotion, disease prevention, diagnosis, and management of adults in a primary care setting with a particular focus on rural and medically underserved populations. There are 180 clinical hours required for course completion.

Prerequisite(s): NUR 567 with a grade of B or better Corequisite: NUR 569

**NUR571 Family Nurse Practitioner II**

Hours 3

This course integrates theoretical, and evidence-based foundational knowledge in health promotion, disease prevention, diagnosis, and management of women and children in a primary care setting with a particular focus on rural and medically underserved populations.

Prerequisite(s): NUR 569 - Must have a B or better. NUR 570 - Must have a B or better. Corequisite: NUR 572

**NUR572 Family Nurse Practitioner Clinical II**

Hours 3

In this clinical course, the FNP student will apply the theoretical and evidence-based foundational knowledge in health promotion, disease prevention, diagnosis, and management of women and children in primary care with a particular focus on rural and medically underserved populations. There are 180 clinical hours divided equally between the two populations are required for course completion.

Prerequisite(s): NUR 569 - Must pass with a B or better. NUR 570 - Must pass with a B or better.

**NUR573 Family Nurse Practitioner III**

Hours 3

This course integrates theoretical, and evidence based foundational knowledge in health promotion, disease prevention, diagnosis, and management of care across the lifespan with a particular focus on rural and medically underserved populations.

Prerequisite(s): NUR 571, NUR 572 - All prereqs must be completed with a B or better Corequisite: NUR 574

**NUR574 Family Nurse Practitioner Clinical III**

Hours 3

In this clinical course, the FNP student will apply the theoretical and evidence-based foundational knowledge in health promotion, disease prevention, diagnosis, and management of care across the lifespan with a particular focus on rural and medically underserved populations. There are 180 clinical hours required for course completion.

Prerequisite(s): NUR 571, NUR 572 - Prerequisites must be completed with a B or better Corequisite: NUR 573

**NUR575 Family Nurse Practitioner IV Review (Didactic) and Clinical Immersion**

Hours 5

This immersive course incorporates a concentrated clinical practice experience that prepares the FNP student for full scope of practice and supports preparation for licensure and certification. . Using an evidence-based practice framework the student will apply health promotion, disease prevention, and in the provision of patient-centered care in rural medically underserved areas. There are 240 clinical hours in Across the Lifespan population required for course completion. Students will demonstration knowledge of advanced pathophysiology, and pharmacologic interventions according to current standards of care across the lifespan in primary health care clinical settings while learning the family nurse practitioner's role and responsibilities in the provision of patient-centered, ethical, culturally competent care.

Prerequisite(s): NUR 573 NUR 574

**NUR576 Teaching & Learning Strategies**

Hours 3

This course will prepare students to apply evidence-based adult teaching and learning strategies in academic and clinical settings designed to enable the student to teach nursing content, promote effective learning environments, and evaluate academic success in a variety of contexts. The student will learn the pedagogy of delivering nursing content in environments that include face-to-face and distance formats, incorporating a variety of technologies, and didactic methods that include the cognitive, affective, and psychomotor domains of learning.

**NUR577 Academic Immersion**

Hours 4

This course will provide students the opportunity to apply concepts and skills in clinical teaching and evaluation methods within the academic nurse educator role. The student will apply specialized, hands-on, educational concepts within specialized academic clinical and practice lab settings. The student will work with a preceptor to complete 3 credit hours of practical experience in the academic nurse educator role and 1 credit hour in seminar.

Prerequisite(s): NUR 576

**NUR578 Clinical Immersion**

Hours 4

This course will provide students the opportunity to apply concepts and skills in curriculum development, didactic teaching, and evaluation methods as well as responsibilities within the academic nurse educator role. The student can choose from a variety of academic settings in which to interface with students, faculty, administrators, and support services within the chosen academic institution. Practicum hours involve observational and hands on teaching experiences. The student will work with a preceptor to complete 3 credit hours of practical experience in the academic nurse educator role and 1 credit hour in seminar.

Prerequisite(s): NUR 577

**NUR591 Psychiatric Mental Health Nurse Practitioner Roles and Issues**

Hours 3

The purpose of this course is to focus on concepts, theories and research underlying advanced practice psychiatric mental health nursing. The scope and standards of psychiatric-mental health nursing practice will be presented. Mental health treatment modalities across the lifespan including psychotherapy, psychopharmacological interventions, community interventions, case management and consult-liaison activities will be examined. Psychological, biological, social, and cultural influences on coping responses of individuals, families, groups, and communities of people/populations at risk are explored. Intervention models, including preventive care and health promotion are introduced.

Prerequisite(s): NUR 505, NUR 521, NUR 529 with a B or better

**NUR592 Psychiatric Mental Health Nurse Practitioner IV Review and Clinical Immersion**

Hours 5

The purpose of this course is to provide an immersive clinical experience in which the PMHNP student demonstrates competencies for full scope of practice and supports preparation for licensure and certification utilizing evidence-based practice, the student will provide patient-centered mental health care that is culturally congruent. Students will demonstrate competence in the provision of mental health across the treatment trajectory from health promotion and disease prevention to emergent crisis care and chronic illness management across the lifespan. Students will complete 240 clinical hours in across the lifespan population care.

Prerequisite(s): NUR 597 and NUR 598

**NUR593 Psychiatric Mental Health Nurse Practitioner I**

Hours 3

The purpose of this course is to focus on the study of Psychiatric Mental Health Nurse Practitioner (PMHNP) conceptual frameworks, theories, and research findings related to common psychiatric disorders among children and adolescent (birth to 17) patients in urban, suburban, and rural settings. Biological and pharmacologic theories, developmental issues of children and adolescent (birth to 17) patients, psychotherapeutic modalities, primary prevention, and evaluation of treatment will be emphasized.

Prerequisite(s): NUR 591 with a grade of B or better Corequisite: NUR 594

**NUR594 Psychiatric Mental Health Nurse Practitioner Clinical I**  
Hours 3

The purpose of this clinical course is to provide the student with the ability to apply treatment of psychopathology. The role of the Psychiatric Mental Health Nurse Practitioner (PMHNP) in the assessment, diagnosis, and treatment of children, adolescents, young adults, and families in urban, suburban, and rural settings will be explored. This course will also provide students the opportunity to apply psychobiological information in conjunction with the use of psychopharmacological and psychotherapeutic interventions with patients. Students must complete 180 clinical hours working with children and adolescents from birth to 17.

Prerequisite(s): NUR 591 with a B or better Corequisite: NUR 593

**NUR595 Psychiatric Mental Health Nurse Practitioner II**  
Hours 3

The purpose of this course is for Psychiatric Mental Health Nurse Practitioner (PMHNP) students to learn how to critically appraise theoretical approaches for psychotherapeutic interventions with adult and elderly patients and families in urban, suburban, and rural areas. This course provides a theoretical basis for advanced practice of Psychiatric Mental Health Nursing. This course will also provide the student with an understanding of the dynamics, epidemiology, and treatment of selected psychopathology, specifically focused on adult and elderly patients. In addition, the role of the PMHNP in the assessment, diagnosis, and treatment of adult and elderly patients with mental disorders will be explored.

Prerequisite(s): NUR 593, NUR 594 with a B or better Corequisite: NUR 596

**NUR596 Psychiatric Mental Health Nurse Practitioner Clinical II**  
Hours 3

The purpose of this clinical course is for Psychiatric Mental Health Nurse Practitioner (PMHNP) students to critically appraise and apply theoretical approaches for psychotherapeutic interventions with adult and elderly patients and families in urban, suburban, and rural areas. This course will also provide the student with an opportunity to apply the dynamics, epidemiology, and treatment of selected psychopathology, specifically focused on adult and elderly patients. In addition, the role of the PMHNP in the assessment, diagnosis, and treatment of adult and elderly patients with mental disorders will be applied. Students must complete 180 clinical hours providing psychopharmacotherapeutic and psychotherapeutic interventions to adults, elderly and their families.

Prerequisite(s): NUR 593, NUR 594; must complete with a B or better Corequisite: NUR 595

**NUR597 Psychiatric Mental Health Nurse Practitioner III**  
Hours 3

The purpose of this course is for Psychiatric Mental Health Nurse Practitioner (PMHNP) students to demonstrate comprehension of multiple theoretical approaches for psychotherapeutic interventions across the lifespan in urban, suburban, and rural areas. This course also covers the dynamics, epidemiology, assessment, diagnosis, and treatment of selected psychopathologies. Appropriate evidence-based psychopharmacological and psychotherapeutic (individual, family and group) interventions are examined.

Prerequisite(s): NUR 595, NUR 596; must complete with a B or better Corequisite: NUR 598

**NUR598 Psychiatric Mental Health Nurse Practitioner Clinical III**  
Hours 3

The purpose of this clinical course is for Psychiatric Mental Health Nurse Practitioner (PMHNP) students to demonstrate application of multiple theoretical approaches for psychotherapeutic interventions across the lifespan in urban, suburban, and rural areas. This course provides PMHNP students an opportunity to apply clinical skills in the assessment, diagnosis, and treatment of selected psychopathologies. Students will apply appropriate evidence-based psychopharmacological and psychotherapeutic (individual, family and group) interventions in a wide range of clinical settings. Students must complete 180 clinical hours treating patients across the lifespan (with a minimum of 40 child and adolescent).

Prerequisite(s): NUR 595, NUR 596 must receive a B or better Corequisite: NUR 597

**NUR599 Master's Thesis**  
Hours 3-6

This course is designed to assist the student in selecting a foundational area of inquiry or phenomenon of interest, and creating original scholarship written under the direction of the faculty advisor. It is expected that the project will culminate in the production of a research product (thesis) that evidences originality, appropriate organization, clarity of purpose, critical analysis, and accuracy and completeness of documentation. The work shall involve an analysis or study related to a professional nursing phenomenon of interest such as, but not limited to: direct patient care concerns, systems level quality improvement, healthcare policy, or nursing administration.

**NUR620 Curriculum Theory & Practice**  
Hours 3

This is primarily an online, web-based course. It critically examines historical and contemporary discourses necessary to understand curriculum as a synergetic field of study and an area of professional practice. Factors related to organizing curriculum will be considered based on analysis, interpretation and synthesis of contextual data. Students will determine directions, outcomes, and goals for curriculum and course design. Methods for curriculum evaluation and a dashboard for successful implementation will be emphasized. Students will demonstrate their ability to develop and critique curriculum in the context of instruction through reflection, observation, documentation, and descriptive analysis and to relate ethical, moral, and social justice concerns to curriculum practice.

Prerequisite(s): NUR 531

**NUR621 Nurse Educator Practicum**  
Hours 4

This is an elective course for nurse educator students who have limited teaching experience or graduate nursing students who desire additional direct experience. The two didactic credits and two clinical credits (120 contact/clock hours) in this practicum provide opportunities to become embedded as a faculty member for one semester. Students implement classroom and clinical teaching and evaluation strategies grounded in education theory and evidence-based practice, and are devised for differing learner needs to produce desired learning outcomes. Students explore the scholarship of education and develop or refine a research trajectory. Then relate that trajectory to life-long professional development and targeted faculty, community, and professional service.

Prerequisite(s): NUR 531, NUR 532

**NUR696 Doctoral Seminar in Research**

Hours 3

Students are expected to utilize knowledge from quantitative methodology and statistics in this course. The seminar will provide students with opportunities to synthesize knowledge gained in this and other courses in order to address topics of for research in nursing education.

**NUR700 Clinical Data Management and Analysis**

Hours 3

This required course provides students with the knowledge base to understand, collect, manage, and measure clinical data. Students will explore data collection and management processes, levels of measurement, basic statistics, and measurement for improvement in order to effectively use clinical data. Data entry exercises employed through analytical tools and statistical software packages will allow the students practice and apply the basic data management and analysis skills needed for the evaluation of clinical data and evidence-based practice.

**NUR701 Writing for Publication**

Hours 3

This course concerns the development of skills in writing, editing, and preparing manuscripts for publication from initial idea to submission of a publishable manuscript. The course emphasizes a writing process that encourages productivity and collegial peer review. Legal and ethical aspects of authorship prepare students for responsible practices expected of scholars. Students should have mastered basic writing skills, e.g., grammar, syntax, and computer skills, prior to enrolling in this course.

**NUR706 Introduction to Writing**

Hours 1

The purpose of this course is to provide students with an introduction and foundation to the basic principles of scholarly writing with focus on writing for a clinically focused student. The student will explore APA guidelines, the principles of plagiarism, the foundational concepts of writing, and basic guidance in writing for academic/scholarly publications.

**NUR713 Special Topics**

SP

Hours 1-4

This course focuses on selected DNP topics under the sponsorship of a graduate nursing faculty member with relevant expertise.

Special Topics Course

**NUR717 DNP Independent Study - Special Topics**

SP

Hours 1-4

The independent study option provides an opportunity for students to identify, structure, implement and evaluate learning experiences consistent with personal learning needs and career plans that are in addition to the current curriculum.

Special Topics Course

**NUR727 Foundations of Implementation Science and Evidence-Based Practice**

Hours 3

The purpose of this course is to provide students with foundations for implementation science and evidence-based practice (EBP). Students learn to formulate clinical questions in answerable format, and search for and identify best research evidence. The focus of the course is to evaluate and critically appraise evidence for rigor and applicability to the clinical problem and is designed to improve clinical outcomes. Students will translate the evidence into practice environments for safe quality care, gain access to information that will support optimal clinical decision-making, and identify models and theories to support clinical change.

**NUR728 Evidence-Based Project Methods and Evaluation**

Hours 3

The purpose of this course is to synthesize knowledge related to translational/implementation science models and strategies to improve health outcomes. The emphasis in the course is the use of project evaluation as a strategic planning tool to achieve positive changes in health status, to initiate quality improvement, to engage in risk anticipation, management and to facilitate organizational and system level changes.

Prerequisite(s) with concurrency: NUR 727 with a B or Better

**NUR729 EBP Design and Translation**

Hours 3

The purpose of this course is to provide students with models for evidence-based practice (EBP) design and improvement translation. Students learn to formulate clinical questions in answerable format, and search for and identify best research evidence. The focus of the course is to evaluate and critically appraise evidence for rigor and applicability to the clinical problem and is designed to improve clinical outcomes. Students will translate the evidence into practice environments for safe, quality care. Students will gain access to information that will support optimal clinical decision-making. Improvement translation sciences will also be introduced.

**NUR731 Philosophical, Theoretical, and Conceptual Foundations for Advanced Practice Nursing**

Hours 3

This required core course for the Doctor of Nursing Practice program provides an understanding of the use of theory and conceptual foundations to guide the complexity of specialty nursing practice at the doctoral level. The content is derived from the philosophical and scientific underpinnings of nursing, natural, and psycho-social sciences.

**NUR733 Informatics for Advanced Practice Nursing**

Hours 3

This required course focuses on the collection, organization, analysis, and dissemination of information in nursing and health care. Students are introduced to the specialty of nursing informatics, the information system life-cycle, telemedicine, and the use of technology to enhance nursing care delivery and patient safety. Also, students learn how to design, use, and manipulate large and small patient databases for the analysis of patient outcomes.

**NUR734 Advanced Experiential Clinical Course**

Hours 1-7

This course is designed to validate Master's level competencies in clinical and organizational leadership. The course is required for post-master's DNP students who are graduates of programs in nursing with less than 500 clinical hours.

**NUR735 Population Health in Advanced Practice Nursing**

Hours 3

This course prepares the student to implement specialty population-based disease prevention and health promotion activities to achieve national and international goals of improving worldwide health status. The course focuses on a spectrum of issues affecting health, which include emerging infectious diseases, emergency preparedness, disparities in health and healthcare services, and the impact of behavior and lifestyle choices on health.

**NUR737 Interdisciplinary Leadership and Role Development for Practice Excellence**

W

Hours 3

This course prepares students for organizational and systems leadership and knowledge and skills critical to role development in independent and inter and intra-disciplinary practice. Content includes communication, conflict resolution, collaboration and negotiation, leadership, and team functioning to maximize success in the establishment of safe, effective patient-centered care in complex environments.

Writing

**NUR740 Health Policy & Politics: Implications in Health Care**

Hours 3

This course focuses on the basic principles of health policy and the influence of the political process as a systematic approach to health care in the United States and internationally. The course prepares students to assume complex leadership roles in order to advance specialty practice and health. This course focuses on the unique challenges of engaging and influencing healthcare policy in the U.S. and internationally. It is designed to develop skills, techniques, and approaches to the critical analysis of health policy proposals, health policies, and related issues from the perspective of consumers, nursing, other health professions, and other stakeholders in policy and public forums. The health policy framework is analyzed from a governmental, institutional, and organizational perspective.

**NUR742 Project Evaluation and Methods**

Hours 3

The purpose of this course is to synthesize knowledge related to translational/implementation science models and strategies to improve health outcomes. The emphasis in the course is the use of project evaluation as a strategic planning tool to achieve positive changes in health status, to initiate quality improvement, to engage in risk anticipation, management and to facilitate organizational and system level changes.

**NUR743 EBP Strategies**

Hours 3

NUR 743 is a required core Doctor of Nursing Practice Program course, which expands on foundational evidence-based practice concepts to refine a problem statement and derive a searchable and answerable clinical question. Content includes identification and selection of methods, strategies, tools and metrics needed to complete a successful scholarly project. The course also addresses targeted strategies for disseminating evidence associated with scholarly projects.

**NUR744 Curriculum and Evaluation Concepts**

Hours 3

This course focuses on concepts important to nursing program curriculum development and evaluation. The course will introduce the learner to various curriculum-related concepts including higher education organizational structure, published curriculum guidelines, policy development and adoption, and accreditation. This course will also focus on evidence-based methods for program, course, and student evaluation.

Prerequisite(s): Students must be participants in the Nurse Faculty Loan Program

**NUR745 Teaching Strategies for Clinical Learning**

Hours 3

This course will assist the graduate nursing student to examine teaching theory and strategies which may be applied to clinical instruction and problem solving. Course content will include basic principles of adult learning, and learning preferences as applied to teaching multigenerational learners. Strategies useful for clinical supervision and the importance of development of clinical learning sites are identified. The necessity of crafting clinical assignments in order to promote optimal learner outcomes is presented. Illustration of multiple uses of clinical simulation in order to improve team building, interdisciplinary collaboration, and clinical reasoning are depicted. The use of debriefing models to enhance clinical judgement in both simulation and clinical practice will be examined. Resources and technology for clinical teaching will be evaluated.

Prerequisite(s): Students must be participants in the Nurse Faculty Loan Program

**NUR795 DNP Project Seminar**

Hours 1

This required course is designed to assist the student to develop professional competencies related to the DNP project. Students participating in the seminar will obtain guidance, be involved in discussion, and receive peer suggestions about the DNP project. Funding opportunities will be explored, presentation preparation will be initiated, and project dissemination will be reviewed. The student will start the development and design of the professional portfolio with current professional information and achievements.



**NUR796 DNP Project Immersion I**

Hours 3

This required course is the first clinical course in the Doctor of Nursing Practice course of study. The practice residency is conducted in a specialty area of the student's choice and guided by the DNP Essentials. Students will participate in weekly online group discussions regarding their progress providing peer feedback. An organizational needs assessment is conducted while the final project is selected and planned by the student and the Faculty Advisor. IRB training and preparation is completed. The final project proposal is completed and approved by the Faculty Advisor in this course.

Prerequisite(s): A clinical facility contract and clinical advisor must be approved and in place prior to enrollment in this course.

**NUR797 DNP Project Immersion II**

Hours 3

This required course is the continuation of the clinical courses in the Doctor of Nursing Practice course of study. The practice residency is conducted in a specialty area of the student's choice and guided by the DNP Essentials. Students will participate in weekly online group discussions regarding their progress providing peer feedback. The DNP Project will be submitted for IRB review and revised until accepted by all required IRB entities. The DNP project will be implemented and evaluated by the student, with guidance from the Faculty Advisor.

Prerequisite(s): NUR 796 A clinical facility contract and clinical advisor must be approved and in place before enrollment in this course.

Prerequisite(s) with concurrency: NUR 795

**NUR798 DNP Project Immersion III**

Hours 3

This required course is the culmination of the clinical courses in the Doctor of Nursing Practice course of study. The practice residency is conducted in a specialty area of the student's choice and guided by the DNP Essentials. Students will participate in weekly online group discussions regarding their progress providing peer feedback. The final project is evaluated, analyzed, and disseminated by the student with Faculty and Clinical Advisor guidance in the form of a professional presentation. The final DNP Project report is completed and approved by the Faculty Advisor. Students are strongly encouraged to submit a completed manuscript for publication based on the DNP Project in collaboration with the Faculty Advisor when deemed ready by the Faculty Advisor.

Prerequisite(s): NUR 796 and NUR 797 with a B grade or better

**NUS713 Special Topics**

SP

Hours 3

This course is designed to offer Joint PhD program students a range of nursing-science focused special topic courses.

Special Topics Course

**NUS741 BSN-PhD Research Seminar I**

UAH

Hours 1

The purpose of this course is to prepare BSN-PHD students with the foundational skills of deep reading, comprehensive literature review and critique, critical thinking, and writing skills necessary for successful advancement in a doctoral program. This course will further help students by providing more individualized support and structure to facilitate successful progression through the PhD program.

Prerequisite(s): Admission to the Graduate Program

UA-Huntsville Course

**NUS742 BSN-PhD Research Seminar II**

UAH

Hours 1

The purpose of this course is to aid BSN-PHD students in developing skills to assess scientific rigor, develop an argument, critique published research, professionally present (verbally and written) critique findings, develop a manuscript for publication, and will provide an opportunity to obtain hands on research experience. This course will further help students by providing more individualized support and structure to facilitate successful progression through the PhD program.

Prerequisite(s): Admission to the Graduate Program

UA-Huntsville Course

**NUS743 BSN-PhD Research Seminar III**

UAH

Hours 1

The purpose of this course is to prepare BSN-PHD students with the foundational skills of systematically appraising the literature to develop an appropriate and comprehensive significance section, analyzing health policy that directly relates to the students' research areas of interest, and evaluating research methodology and accompanying statistical analyses. These are important for successful advancement in a doctoral program. This course will further help students by providing more individualized support and structure to facilitate successful progression through the PhD program.

Prerequisite(s): Admission to the Graduate Program

UA-Huntsville Course

**NUS750 Philosophy of Science**

UAH

Hours 3

The purpose of this course is to explore the evolution of philosophy and science. Epistemology, knowledge generation, knowledge acquisition, and ways of knowing will be examined. Scientific inquiry will include reasoning, logic, and persuasive argument development.

Prerequisite(s): Admission to the Program

UA-Huntsville Course

**NUS752 Informatics**

UAH

Hours 3

The purpose of this course is to prepare nurse scientists to use informatics, electronic tools, and healthcare technologies for the purposes of nursing research. The course will focus on the use of informatics in the data management of individuals, groups, and organizations as the nurse scientist plans and executes a program of research.

Prerequisite(s): Admission in the Joint Nursing Science PhD Program

UA-Huntsville Course

**NUS754 Ethical Conduct and Legal Issues in Research**

Hours 3

The purpose of this course is to introduce the student to doctoral scholarship in support of beginning a program of responsible conduct of research. This course explores current ethical and legal issues in the science of nursing research. The course will delve into best practices in research design with regard to ethics, authorship, data management and record keeping, intellectual property and ownership of data, and human subjects research. In addition, the course will cover conflicts of interest, mentoring, collaborations, peer review, research misconduct, and current ethical issues in research.

Prerequisite(s): Admission to the Joint Nursing Science PhD Program

**NUS756 Application of Theoretical Models**

UAH

Hours 3

The purpose of this course is to provide students a foundation for contributing to theory development processes, analyzing and critiquing theoretical foundations of research, and applying theoretical models to nursing research. This course addresses the relationship between theory and research and provides an understanding of the use of theoretical models and conceptual foundations to guide nursing research and practice.

Prerequisite(s): NUS 750

UA-Huntsville Course

**NUS758 Quantitative Research Methods and Designs**

Hours 3

The purpose of this course is to provide students with foundational knowledge related to quantitative research design and methods, and the skills to develop research proposals using these designs and methods. Students will progress from learning quantitative research approaches, to understanding the process and components of quantitative research. Students will end the course by integrating these new principles into a written, defensible, National Institutes of Health-style Research Strategy. Additional content will focus on the evolving role of nurses in quantitative research, the renewed focus on research rigor and reproducibility, and being a nurse scientist on interdisciplinary research teams. Special emphasis will be placed on clinical nursing designs including observational studies, quasi-experimental studies, and repeated-measures intervention studies.

Prerequisite(s): NUS 750

**NUS760 Statistics I**

UAH

Hours 3

The purpose of this course is to provide the student with the skills to conduct and interpret statistical data. Emphasis will be placed on describing types of variables, testing hypotheses, selecting appropriate parametric and nonparametric statistical tests, analyzing data, and interpreting results.

Prerequisite(s): NUS 758

UA-Huntsville Course

**NUS762 Healthcare Policy for Rural and Medically Underserved Populations**

Hours 3

The purpose of this course is to explore the policy environment that influences and shapes public health and health care service delivery, including rural and medically underserved communities. Students will develop skills, techniques, and approaches to identify gaps, critically analyze and research health related issues. Utilization and delivery of data to promote and impact healthcare policy changes will be an important measure of outcome. Students will develop the ability and confidence to critically assess current health policy issues in a thoughtful, comprehensive and rigorous manner and to engage in the policy process.

Prerequisite(s): Admission in the Joint Nursing Science PhD Program

**NUS764 Scientific Writing**

UAH

Hours 3

The purpose of this course is to develop writing skills to produce scientific writing that is clear, concise and logical. This course will also explore the publication to include abstract and manuscript development and the submission process. Additional pathways to dissemination of nursing content will be explored as well.

Prerequisite(s): Admission to the Joint Nursing Science PhD program

UA-Huntsville Course

**NUS766 Epidemiology**

Hours 3

The purpose of this course is to introduce epidemiological methods for measuring population health, designing and implementing observational and experimental studies, critically reading the public health literature, and applying research findings to global and community health.

Prerequisite(s): NUS 760

**NUS768 Statistics II**

Hours 3

The purpose of this course is to provide advanced coursework in applied statistical approaches to data management and analysis with an emphasis on multivariate statistical approaches. Students will develop improved skills in conceptualizing, executing, analyzing, and interpreting advanced analytic strategies and to enhance their ability to propose strong, tailored analytic approaches for specific study designs and research aims. Students will gain proficiency in using statistical software to enhance their knowledge of regression, ANCOVA, MANOVA/MANCOVA, discriminant analysis, exploratory and confirmatory factor analysis, structural equation modeling, multilevel modeling, and advanced categorical approaches. Emphasis will be placed on the understanding of the mathematics, logic, and application of these techniques.

Prerequisite(s): NUS 760

**NUS770 Grant Writing**

Hours 3

The purpose of this course is to prepare students in the foundations of writing grants for federal external funding. This course will help students identify a step-wise process to develop a grant proposal through federal funding sources. Strategies for successful grant writing include identifying funding sources for the topic, writing a competitive grant application, developing a collaborative team of researchers for the project, and understanding the review process.

Prerequisite(s): NUS 764

**NUS772 Qualitative Research Methods**

UAH

Hours 3

The purpose of this course is to assist the student in using selected qualitative research methods. Learning modules will explore qualitative approaches, sampling, data collection, data analysis and dissemination. The course will review and explore the use of technology to assist the qualitative researcher.

Prerequisite(s): NUS 750, NUS 756, NUS 758

UA-Huntsville Course

**NUS776 Advanced Research Methods**

UAH

Hours 3

The purpose of this course is to assist students in developing the knowledge and skills to design a mixed methods research (MMR) study. MMR is an advanced method for collecting, analyzing, and "mixing" both quantitative and qualitative data within a single study, to understand a research problem more completely.

Prerequisite(s): NUS 752, NUS 758, NUS 760, NUS 768, NUS 772

UA-Huntsville Course

**NUS780 Introduction to Omics**

UAH

Hours 3

The purpose of this course is to introduce the revolution of omics and discuss the role nurse scientists can play in precision health development. Nurse scientists are in a position to provide a unique contribution to person-centered health approaches by broadening their understanding of molecular advances to improve health outcomes. A variety of different omics will be explored and the practical advantages, limitations, and challenges in individualized health promotion will be discussed.

Prerequisite(s): Admission in the Joint Nursing Science PhD program

UA-Huntsville Course

**NUS781 Omics in Nursing Research**

UAH

Hours 3

The purpose of this course is to provide an overview of advanced concepts of omics research by utilizing a biobehavioral systems approach in nursing science. The National Institute of Nursing Research's strategic plan for Genomic Nursing Science is used as the framework for integrating omics and nursing research. Practical application in omics theories, methodologies, technology, bioinformatics, and responsible conduct of research is discussed. Additionally, resources in building capacity for the next generation of omics scientists are reviewed.

Prerequisite(s): NUS 780

UA-Huntsville Course

**NUS782 Curriculum Development and Program Evaluation for Nurse Educators**

UAH

Hours 3

The purpose of this course is to examine the procedures for designing, implementing, and evaluating nursing education curriculum. The process will be examined beginning with the program mission. Educational theories, philosophy, concepts, and program evaluation will be explored. The nurse educator's role in curriculum design and program evaluation is assessed.

Prerequisite(s): Admission in the PhD program

UA-Huntsville Course

**NUS783 Instructional Methods and Assessments in Nursing Education**

Hours 3

The purpose of this course is to discover teaching styles and implement instructional technologies to promote learning in diverse populations of students. Throughout the semester, students will explore didactic and clinical learning activities and evaluation strategies to demonstrate transfer of learning.

Prerequisite(s): NUS 782

**NUS784 Applied Technology in Healthcare Research**

UAH

Hours 3

The purpose of this course is to apply emerging technologies within the healthcare environment. The course prepares the nurse scientist to engage with other researchers in the areas of data analytics, simulation, telehealth, robotics, and other technologies to translate science from the bench to the bedside. Translation of technology to the healthcare setting will be emphasized with the goal of improving patient outcomes.

UA-Huntsville Course

**NUS785 Research and Development (R&D) of Innovative Health Care Technology**

UAH

Hours 3

The purpose of this course is to develop the scientific skills to move an innovation from concept to implementation following a research and development (R&D) process. The course prepares the scientist to engage with researchers inside and outside health care fields, solicit input from end-users early and often, create patentable intellectual property, and fund the development of products with federal grants or investors.

Prerequisite(s): NUS 784 or permission from professor

UA-Huntsville Course

**NUS799 Dissertation Hours**

Hours 1-12

The purpose of this course is initiation, continuation, or completion of the dissertation for the Doctor of Philosophy (PhD) in Nursing Science degree. This course must be repeated each semester consecutively up to 24 credit hours until successful defense of the dissertation.

Prerequisite(s): Successful completion of 45 hours of NUS courses

**College of Social Work Courses****SW500 Social Welfare Policy**

Hours 3

Overview of the evolution of social welfare policies and services, and of how social problems affect societal groups. Includes examination of the tools and approaches that social workers might use in analysis and policy formulation.

**SW501 Social Welfare Advanced Policy Analysis**

Hours 3

The focus of this course is on social welfare policy analysis with particular emphasis on the influence of economic and political issues. This course emphasizes comparative research at both state and national levels.

Prerequisite(s): SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW506 Planning and Program Development**

Hours 3

Application and analysis of theory applicable to the field of planning and developing social services and programs.

Prerequisite(s): Set 1 (60hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW510 Human Behav Social Envir I**

Hours 3

Critical concepts, theories, and research related to human bio-psycho-social development across the life span; human development and behavior in the environmental contexts of family, groups, organizations, and communities; and the impact of human diversity on human development and behavior. This course is part of a two course sequence and focuses on earlier stages of human development from conception through adolescence.

**SW511 Human Behav Social Envir II**

Hours 2

This course introduces students to an overarching conceptual framework and selected theories for understanding human behavior across the life course. This course is part of a two-course sequence and focuses on the later stages of human development from young adulthood to advanced old age.

Prerequisite(s): SW 510

**SW513 Social Work Practice in Health Care**

Hours 3

This course prepares students for advanced social work practice in health care settings. Using the Life Course Perspective, health and health care issues relevant to health care social work are addressed.

Prerequisite(s): Set 1 (60 hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW514 Chem Depend Knowledge Interven**

Hours 3

This survey course introduces students to major theories of substance use, information concerning the physiological and psychological consequences of this use, and information concerning the effects of this use on families and communities. Selected state, international, and federal policies regarding the control of drugs are reviewed. The course includes an overview of several models of prevention and intervention, with specific attention being paid to their application to special populations such as the homeless, clients from different cultures, and clients of different sexual orientations.

Prerequisite(s): Set 1 (60 hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW515 Psychopathology**

Hours 3

Presents diagnostic criteria used in recognition and treatment of mental disorders, and theory and research on the etiology of these disorders.

Prerequisite(s): Set 1 SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 SW 570, SW 577, SW 578, SW 579

**SW523 Family Preservation**

Hours 3

Overview of family preservation theory and practice. Students demonstrate skills with high risk children and families in their home setting.

Prerequisite(s): Set 1 (60 hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced Standing) SW 570, SW 577, SW 578, SW 579

**SW525 Evaluation Research**

Hours 3

Students learn to design a practice or program evaluation project, demonstrating the link between designing and conducting research and the practice of social work.

Prerequisite(s): Set 1 (60 hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW528 Spirituality In Social Work Practice**

Hours 3

Provides an overview of major issues relevant to spiritually sensitive social work practice with emphasis on the role of spirituality in interventions.

Prerequisite(s): Set 1 (60 Hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW529 Advanced Clinical Social Work Practice**

Hours 3

The course provides advanced level information about the application of selected theoretical frameworks and models of practice, assessment strategies and techniques, the formulation of treatment plans, practice interventions, and practice evaluation.

Prerequisite(s): Set 1 (60 Hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW532 SW Pract w/Adults Mental Hlth**

Hours 3

This course emphasizes evidence-based practice models and methods of intervention for effective social work practice with adults experiencing mental health problems.

Prerequisite(s): SW 590 or (SW 570 and SW 577 and SW 578 and SW 579)

**SW533 Mod/Meth Gerontologl SW Pract**

Hours 3

Focuses on evidence-based practice models and methods of social work intervention with older persons and their families.

Prerequisite(s): SW 590 or (SW 570 and SW 577 and SW 578 and SW 579)

**SW534 Integrative Seminar I-A**

Hours 1

The first of two integrative seminars designed to prepare students for generalist social work practice. This seminar provides students structured learning opportunities that emphasize the integration of knowledge acquired in foundation courses; expand knowledge beyond the scope of their practicum setting; and examine the values and ethics of social work practice. The seminar also serves as an additional opportunity to examine evidence-based models of social work practice and selected social work practice theories and to improve upon social work practice skills and relationships characterized by collaboration and respect for the client system. Students will examine how their agency serves persons who are subject to discrimination, economic deprivation, and oppression, including women, elderly persons, people of color, and gay and lesbian persons. Students will explore how their agency prepares them to work competently with diverse populations. This course will focus on the Life Course Perspective when dealing with clients.

Prerequisite(s): SW 511 and SW 540

Prerequisite(s) with concurrency: SW 590

**SW535 Integrative Seminar I-B**

Hours 1

The second of two integrative seminars designed to prepare students for generalist social work practice. This seminar provides students structured learning opportunities that emphasize the integration of knowledge acquired in foundation courses; expand knowledge beyond the scope of their practicum setting; and examine the values and ethics of social work practice. The seminar also serves as an additional opportunity to examine evidence-based models of social work practice and selected social work practice theories and to improve upon social work practice skills and relationships characterized by collaboration and respect for the client system. Students will examine how their agency serves persons who are subject to discrimination, economic deprivation, and oppression, including women, elderly persons, people of color, and gay and lesbian persons. Students will explore how their agency prepares them to work competently with diverse populations. This course will focus on the Life Course Perspective when dealing with clients.

Prerequisite(s): (A co-requisite with SW 591)

**SW536 Social Service Program and Agency Administration**

Hours 3

Students learn selected theoretical frameworks and apply the knowledge and skills for administration of social service programs and agencies.

Prerequisite(s): Set 1 (60 Hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW537 Forensic Social Work**

Hours 3

This course is designed to provide students with the knowledge and critical thinking skills necessary for specialized practice in the area of forensic social work.

Prerequisite(s): Set 1 (60 Hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -OR- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579



**SW540 SW Practice with Indiv & Famly**

Hours 3

Theory and practice of social work with individuals and families are explored.

Prerequisite(s) with concurrency: SW 510

**SW541 Social Work Practice with Groups**

Hours 3

The course provides a framework for systematic study of components and issues involved in the practice of social work with groups.

Prerequisite(s): SW 500, SW 510, SW 540, SW 534, SW 590

Prerequisite(s) with concurrency: SW 542 and SW 570 and SW 591 and SW 535

**SW542 Social Work Practice with Communities and Organizations**

Hours 3

Exploration of theories of social work practice for intervention at the community level, including selected macro-models of practice, and community practice within human-service organizations.

Prerequisite(s): SW 511 and SW 540

**SW549 Crisis Intervention**

Hours 3

Focuses on treatment theories and models of intervention that provide a focused approach to the client in crisis.

Prerequisite(s): Set 1 (60 hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -Or- SW 570, SW 577, SW 578, SW 579

**SW553 Independent Study**

SP

Hours 1-6

Independent learning experience, under faculty direction, with a contract for an outcome such as a publishable research document.

Prerequisite(s): SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570, SW 577, SW 578, SW 579

Special Topics Course

**SW557 Selected Topics in Social Work Practice**

SP

Hours 1-6

Intensive study of an area of or specific approach to social work practice. Topics vary from semester to semester. May be repeated.

Special Topics Course

**SW559 Pediatric Pulmonary Health Care**

Hours 3

Introduces social work students to pediatric pulmonary diseases and to research literature in this area of health care. Offered according to demand.

**SW564 SW Prac Child Adol Ment Hlth**

Hours 3

This course emphasizes evidence-based practice models and methods of intervention for effective social work practice with children, adolescents, and their families experiencing mental health problems.

Prerequisite(s): SW 590 or (SW 570 and SW 577 and SW 578 and SW 579)

**SW565 SW Prac Child Welfare Fam Serv**

Hours 3

This course emphasizes evidence-based practice models of intervention for effective social work practice in child welfare and family services settings.

Prerequisite(s): SW 590 or (SW 570 and SW 577 and SW 578 and SW 579)

**SW570 Research-Informed Practice**

Hours 3

This is the first course in a two-course sequence that is designed to enable students to engage in research-informed practice. The MSW themes of evidence-based practice and critical thinking are emphasized in this course. Graduate standing with admission to the MSW Program. With special permission of the Program Chair, graduate students outside the School of Social Work may take this course.

Prerequisite(s): SW 510 OR

Prerequisite(s) with concurrency: SW 578

**SW577 Human Development and Social Systems**

Hours 3

Provides students with instruction in the major psychological and sociological theories of human behavior that support and enhance social work practice.

**SW578 Social Welfare Policy and Delivery Systems**

Hours 3

Prepares advanced standing students for second-year policy and policy-related courses.

**SW579 Social Work Practice**

Hours 3

Designed to provide a foundation for social work practice with individuals, families, groups, and communities, in preparation for second-year practice courses.

**SW585 Geriatric Care Management**

Hours 3

The primary purpose of this course is to provide social workers interested in geriatric care management with the skills and knowledge needed to help prepare and empower family members in meeting the long term care needs of older adults and people with disabilities. The instructor for this course will offer evidenced-based information about how to conduct a care giving assessment and intervention with special attention to the complexities of the current long term care industry in the U.S. and to the many resources available to help care givers at the local and national level. This course provides specialized, yet practical, information designed to help families successfully meet the challenges of filial responsibility and other forms of care giving associated with disability. The specific tasks of care giving are organized into four categories: medical; legal-insurance-financial; family-social; and spiritual-emotional. Each task reflects a real life challenge that potentially comprises an important aspect of a care recipient's long term care plan. The model of care giving used in this course underscores the importance of timely professional consultation and the supreme value of proactive preparation that values and honors the preferences of aging parents and family members with disabilities.

Prerequisite(s): Set 1 (60 Hour) SW 500, SW 510, SW 511, SW 534, SW 540, SW 541, SW 542, SW 570 -Or- Set 2 (Advanced) SW 570, SW 577, SW 578, SW 579

**SW586 International Social Work**

Hours 3

This course is designed for students who have interest in international social work. The purpose of this class is to expose the students to the wide range of international social work issues, the contemporary debates on those issues, and the people involved in those debates. In this class the students will gain a deeper understanding of social work challenges and opportunities in other countries, as well as cross-national issues affecting the United States. The areas of concentration will include governmental and non-governmental development agencies, the role of social work in international development, human rights, refugees and immigrants, child protection and rights, global health and mental health, issues affecting women, human trafficking, and environmental justice.

Prerequisite(s): MSW concentration-year standing (completion of SW 590 or SW 576, SW 570, SW 577, SW 579, SW 500, SW 510, SW 540, SW 541, SW 542, SW 511, and SW 534) or permission of MSW program chair and instructor.

**SW589 Social Work Practice in End-of-Life and Palliative Care**

Hours 3

This course provides students with an understanding of the practical and emotional aspects of providing social work services to people who are dying and their families.

Prerequisite(s): Admission in the MSW Program or permission from the MSW Program Director and instructor.

**SW590 Field Education I-A**

Hours 1-9

The first of two foundational practica designed to prepare students for generalist social work practice. Building on a liberal arts background, Field Education IA offers students supervised opportunities to apply knowledge, skills, and values learned in foundation social work practice, social welfare policy, human behavior in the social environment, and social work research classes. Students will have an opportunity to work in agencies that provide services to diverse populations using individual, family, group, and community interventions.

Prerequisite(s) with concurrency: SW 511 and SW 540

**SW591 Field Education I-B**

Hours 1-9

The second of two foundational practica designed to prepare students for generalist social work practice. Building on a liberal arts background, Field Education IB offers students supervised opportunities to apply knowledge, skills, and values learned in foundation social work practice, social welfare policy, human behavior in the social environment, and social work research classes. Students will have an opportunity to work in agencies that provide services to diverse populations using individual, family, group, and community interventions.

Prerequisite(s): SW 534, SW 590 (co-requisite with SW 535)

**SW595 Field Education II-A**

Hours 1-9

The first of two concentration practica designed to prepare students for advanced practice. This specialization course provides the student the opportunity to integrate through direct experience in an educationally supervised environment the knowledge, values, and skills that are necessary for social work practice.

Prerequisite(s): Set 1 (60 hour) SW 500, and SW 511, and SW 510, and SW 534, and SW 535, and SW 570, and SW 540, and SW 541, and SW 542 and SW 590, and SW 591 -OR- Set 2 (Advanced) SW 570, and SW 577, and SW 578, and SW 579

Prerequisite(s) with concurrency: SW 532 and SW 533; or SW 564 and SW 565

**SW596 Field Education II-B**

Hours 1-9

The second of two concentration practica designed to prepare students for advanced practice. This specialization course provides the student the opportunity to integrate through direct experience in an educationally supervised environment the knowledge, values, and skills that are necessary for social work practice.

Prerequisite(s): Set 1 (SW 532 AND SW 533) OR (SW 564 AND SW 565) and SW 500 and SW 510 and SW 540 and SW 541 and SW 570 and SW 542 and SW 511 and SW 534 and SW 535 and SW 590 and SW 591 OR Set 2 (Advanced) (SW 532 and SW 533) OR (SW 564 and SW 565) and SW 570 and SW 577 and SW 578 and SW 579

Prerequisite(s) with concurrency: SW 501 and SW 525

**SW600 Social Welfare Policy**

Hours 3

The purpose of this course is to address the relevance of social welfare policy to social work research. The seminar will examine the history of U.S. social welfare policy as well as current research on social welfare policy and its implementation. The social work profession's role in social welfare policy will be examined. The course will encourage students to consider U.S. social welfare policy in a global context and from a critical lens that examines the role of social welfare policy in maintaining forms of oppression.

Prerequisite(s): Admission to the Ph.D. program or consent of the instructor.

**SW601 Seminar in PhD Social Work Education**

Hours 1

The purpose of this seminar is to provide students with an introduction to the PhD program, the School of Social Work, and the University of Alabama. It supports the process of student acculturation to PhD education in the School of Social Work and familiarizes students with members of the faculty and expectations for PhD level study.

Prerequisite(s): Admission to the social work PhD Program.

**SW605 Social Work Education**

Hours 3

This course focuses on the history of social work education, the current structure of social work education, pedagogical theories appropriate for social work, and other contemporary issues that are important to social work educators. Students will develop and refine skills essential as social work educators, including designing curricula, developing syllabi, facilitating classroom and field learning, and evaluating the outcomes of educational programs. The course will also examine social justice, anti-racism, and anti-oppressive values in social work education.

Prerequisite(s): SW 601

**SW620 Social Work Research: Scientific Process and Methods**

Hours 3

The purpose of this course is to provide an overview of the social science research processes, methods and the language/terminology commonly used in social work research. This course will familiarize students with the nature and processes of developing feasible, researchable research questions, theoretical and conceptual frameworks that support the questions, and how properly conducted research contributes to knowledge building in social work.

Prerequisite(s): Admission to the PhD program or consent of the instructor.

**SW622 Observation & Measurement**

Hours 3

This course focuses on the theoretical foundations of observation and measurement in social research and on practical skills required for measuring social phenomena. Students will develop knowledge and skills for measuring social, psychological, environmental, and other factors related to social work research questions. The course will also enhance students' ability to assess the psychometric properties of standardized measures used in research and design reliable and valid instruments when standardized measures are not available.

Prerequisite(s): Completion of SW 620 and SW 625 or permission of the instructor.

**SW623 Qualitative Research**

Hours 3

The purpose of this course is to introduce students to the logic, design, and techniques of qualitative methods. The course provides an overview of commonly used qualitative approaches/traditions/methods. The course also engages students in the study of key concepts in qualitative research, focusing on applications for social work practice research and evaluation. Students will learn about types of qualitative data and data collection; with introduction to the basics of qualitative data analysis.

Prerequisite(s): SW 620 and SW 640 or permission of instructor.

**SW624 Qualitative Data Analysis**

Hours 3

This course provides an opportunity for students to focus on developing skills and practicing techniques related to qualitative data analysis. Methods of coding, processes of data analysis, including simple and more in-depth description, will be covered. The course will emphasize analytic strategies useful in various types of qualitative research approaches and various methods of qualitative data collection. Data management, data display, and writing of qualitative data analysis results, along with dissemination strategies will be included.

Prerequisite(s): Completion of SW 620, SW 625, SW 623, SW 626 or permission of the instructor.

**SW625 Quantitative Research**

Hours 3

This course continues the introduction to quantitative research methods begun in SW 620. Its purpose is to provide students with the knowledge and skills necessary to design and carry out quantitative research appropriate and adequate for answering social work research questions. The course focuses on considering components of quantitative research designs, developing a design, drawing a sample, developing data collection and analysis procedures, writing the results, and selecting and implementing procedures for disseminating results and conclusions. This course builds on knowledge gained in SW 640 Historical and Philosophical Foundations of Social Work Research, SW 641 Application of Theory in the Development of Social Work Knowledge, and SW 620 Social Work Research: Scientific Process and Methods.

Prerequisite(s): SW 620

**SW626 Mixed Methods Research**

Hours 3

The purpose of this course is to provide in-depth study of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. An introductory phase of the course consists of defining mixed methods research and describing the history and foundations of this form of research. The course then examines different types of mixed methods designs and the research process as it relates to each of these designs.

Prerequisite(s): Completion of SW 620, SW 625 and SW 623, or permission of the instructor.

**SW627 Systematic Review**

Hours 3

This course introduces students to the history, purpose and process of systematic review of research. The course provides an overview of commonly used types of systematic review. Students will develop skills for the identification of research questions, analysis and synthesis of published research. Essential skills students will master include the use of electronic databases and other strategies for locating relevant research, the ability to appraise the quality of evidence, and strategies for summarizing and synthesizing existing research in order to support assertions about the state of research on specific topics of concern for social work practitioners, researchers and policy-makers.

Prerequisite(s): SW 620, SW 625, SW 623, SW 640, SW 641 or permission of the instructor

**SW628 Research Practicum: Adding to the Research Knowledge Base**

Hours 3

The course builds on previous theory, research methods, and data analysis courses by focusing on the end of the research process: translating research findings into meaningful implications for social work practice, policy and education. Students will gain knowledge and skills in the avenues through which research findings can be disseminated with the professional/academic and lay community.

Prerequisite(s): SW 620, SW 625, SW 623, SW 626 and completion of statistics requirement, or consent of instructor.

**SW629 Sp Top SW Research**

SP

Hours 3

The purpose of this course is to introduce students to an advanced quantitative or qualitative method, or mixed-methods approach, or technique. The course focuses on knowledge-building applications of the method, approach, or technique. Examples of possible topics include survey research, ethnography, program evaluation, research interviewing.

Prerequisite(s): Completion of SW 620, SW 625, SW 623, or permission of the instructor.

Special Topics Course

**SW631 Community-Engaged Research**

Hours 3

This course provides an overview of community-engaged research methodologies, including the key historical underpinnings and principles. Students will be exposed to the methodological considerations in building community partnerships; community assessment; issue analysis; research planning; data gathering; and data sharing. The course will also focus on essential strategies in building community relationships with attention to cultural competence and humility, work with diverse populations, promoting ethical values in community-engaged research.

Prerequisite(s): Completion of SW 620, SW 625, SW 623, or permission of the instructor.

**SW640 Historical and Philosophical Foundations of Social Work Research**

Hours 3

The course exposes students to various philosophical systems of thought underpinning social work research. An additional purpose of this course is to help students move through the process of articulating their own values and philosophical beliefs in support of the development of their future as researchers. The course examines the historical forces affecting research within the discipline of social work.

Prerequisite(s): Admission to the PhD Program or consent of the instructor.

**SW641 Application of Theory in the Development of Social Work Knowledge**

Hours 3

This course provides the basic knowledge and skills to prepare students to understand the relative place and contribution of theory and theoretical conceptualization to the development of knowledge for social work and social welfare. Students will evaluate the compatibility of theories used in social work with social work values and ethics, including anti-racism, social justice, and anti-oppression. Students will also gain understanding of how to develop a theoretical/conceptual model that will form the foundation of research design.

Prerequisite(s): SW 620 and SW 640 or instructor permission.

**SW648 Sp Top Sel Prof Issues**

SP

Hours 3

This course provides an opportunity for in-depth analysis of the state of knowledge as it applies to a special topic of importance to social work. The specific substantive topics will vary from semester to semester.

Prerequisite(s): SW 620, SW 623 or permission of the instructor.

Special Topics Course

**SW660 Independent Study**

SP

Hours 1-9

This independent study course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of a faculty member. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field.

Prerequisite(s): Permission of Instructor and Approval of PhD Program Director

Special Topics Course

**SW697 Post-MSW Practice Experience**

Hours 1-9

This course provides students in the social work Ph.D. program who hold an MSW the opportunity to obtain practice experience in an educationally and MSW-supervised environment. Students will work up to 20 hours per week in agencies with UA SSW field-office-approved social work supervision. (If students are seeking licensure in addition to post-MSW practice experience, students should be sure to attain appropriate supervision.)

Prerequisite(s): Holding an MSW degree. Completion of at least the first year of doctoral program coursework (22 PhD program credits).

**SW698 Non-Dissertn Research**

Hours 1-9

This independent study course is designed to allow students to pursue independent exploration of a particular field or topical area, under the guidance of a faculty member. Material covered will be of an advanced nature aimed at providing students with an understanding of current developments within the field. Discussion and advisor guidance will be focused on readings and methodologies that allow students to develop their research capacity, independent thought, and the ability to interpret professional and/or research materials in their field.

Prerequisite(s): Enrollment in the PhD Program and permission of instructor.

**SW699 Dissertation Research**

Hours 1-15

This independent research course partially fulfills required doctoral level research dissertation hours toward the Ph.D. in social work. The course is conducted under the guidance of the dissertation advisor. After completing requirements for admission to candidacy, the student registers for this course each semester until all dissertation requirements have been approved. Students will work with their advisors to form individualized goals and plans for each semester. The ultimate aim is to produce an original research contribution that represents a novel development in the field, or a novel perspective on a pre-existing topic in the field.

Prerequisite(s): PhD Candidacy

**SW700 Advanced Theories on Oppression and Disparities**

Hours 3

This course will provide an in-depth exploration of ideological, institutional, interpersonal and internal contexts of oppression, discrimination, and disparities at the macro, mezzo, and micro levels. Students will learn a number of theoretical frameworks related to privilege and oppression, including critical race theory, feminist theory, Marxism, queer theory, and health behavior theories. Students will also learn approaches to assessing institutions and policies using these theories as an analytical lens and will also learn techniques for developing new policies, programs, and interventions using these theories to promote social justice in health and human service delivery for populations that are diverse in race, ethnicity, gender, sexual orientation, and other characteristics.

Prerequisite(s): Formal acceptance into the DSW program.

**SW701 Research for Clinical and Community Practice I**

Hours 3

This doctoral-level course introduces students to the principles, methods, and analytical techniques associated with qualitative, quantitative, and mixed methods social work research. The course allows for the development of critical thinking skills by gaining an understanding of scientific, analytical, and ethical approaches utilized when conducting research for clinical and community social work practice. Students' mastery of course content prepares them to develop, use, and effectively communicate empirically-based social work research knowledge.

**SW702 Research for Clinical and Community Practice II**

Hours 3

This course builds upon the basic principles and methodologies of social work research learned in the introductory research course and prepares students to: (1) systematically evaluate a body of research related to a specific social work topic; and (2) to conceptualize how existing research findings should be used to inform social work practice in clinical and organizational settings. Students will learn how to critique methodologies used in qualitative and quantitative social work research, with an emphasis on assessing how methodological approaches may affect the quality of research findings and how methodologies promote or constrain ethical principles in research. Students will also learn how to interpret findings from existing studies. The goal of this course is not to prepare students for future careers in research, but to provide them with advanced knowledge and skills needed to appropriately incorporate evidence into practice and to evaluate interventions in practice-based settings.

Prerequisite(s): SW 701

**SW703 Neuroscience in Clinical Practice**

Hours 3

This course provides students with a basic understanding of the dynamic and inextricable interaction of the brain, mind, and body with the environment. Students will also learn about the implications of this interaction on health, development, and learning. To advance clinical practice, the course will also focus on the role that neuropsychology in the treatment of clinical disorders across the lifespan.

Prerequisite(s): Formal acceptance into the DSW program.

**SW704 Organizational Leadership Theory and Practice**

Hours 3

This doctoral seminar explores fundamental aspects of organizations and organization theory, as they pertain to the non-profit and public sectors. Students will gain an in-depth knowledge on leadership and organizational theories while also developing a skillset for applying innovative leadership techniques within real-world settings. The course will also provide a foundation for students to gain several competencies in human service management, including: Executive Leadership, Resource Management, Strategic Management, and Community Collaboration. Students will learn how perspectives of organizations and leadership have evolved throughout history as well as the current social, political, cultural, and economic contexts within which non-profit and public sector organizations operate. Ethical, practical, and legal considerations of providing health and human services will be examined. Throughout the semester, students will explore their own approaches and application of leadership theory and skills at the personal, group, organizational, and community levels.

Prerequisite(s): Formal acceptance into the DSW program.



**SW705 Advanced Advocacy and Policy Practice**

Hours 3

Globalization, social media, and changes in social and political landscapes have all shaped how people approach advocacy strategies. This course will present historical theoretical foundations and current critical issues related to client, community, and policy advocacy, as well as the importance of thorough evaluations of policy in order to develop effective advocacy strategies. In addition to exploring advanced approaches to policy advocacy with public policymakers, the course will also present strategies used of developing social movements and methods for developing advocacy leadership within organizational settings. The course will examine and evaluate historical and current practices in advocacy for social justice, as well as contemporary social movements. The course will also examine and apply theoretical frameworks for communicating about policy advocacy with a variety of stakeholders.

Prerequisite(s): Formal acceptance into the DSW program.

**SW706 Teaching Social Work Practice**

Hours 3

This course is designed to prepare students for the role of social work educator in social work education programs. Students will develop essential concepts and strategies related to curriculum design, course delivery and evaluation. This course provides a theoretical background to enable the student to better understand the teaching task in social work education and issues in the broader context of higher education including issues of equality, sustainability and students' rights, as well as laws, policies and regulations governing universities and professional social work education.

Prerequisite(s): Formal acceptance into the DSW program.

**SW720 Clinical Supervision and Ethics**

Hours 3

This course will present models of effective clinical social work supervision that are reflective of the policies of multiple professional and accrediting bodies, including: the Association of Social Work Boards, the National Association of Social Workers, and the Alabama State Board of Social Work Examiners. Further, this course will provide detailed analysis of the NASW Code of Ethics (2017 revision), including case examples. Students will examine specific ethical issues related to clinical supervision and will consider myriad solutions to ethical dilemmas from the perspectives of different ethical theories (in particular, deontological ethics, utilitarianism, and virtue ethics). Students will consider ethical issues in light of the current political climate and with respect to disparate personal ethical and moral positions that may be held by supervisors, supervisees, and clients.

Prerequisite(s): SW 700 and SW 701

**SW721 Cognitive Behavioral Therapy**

Hours 3

This course focuses on the empirically validated treatment approach, Cognitive Behavioral Therapy (CBT) and related therapeutic techniques, such as motivational interviewing (MI) and Dialectic Behavioral Therapy (DBT). It covers the theory, concepts, and advanced techniques of therapy with a particular emphasis on intervention methods that may be used by social workers to assist clients with specific problems or conditions. Students will also learn therapeutic techniques that may be used in specific social work settings (domestic violence, parenting, medical social work, etc.) as well as with clients across the lifespan. The course content reflects advanced material of current relevance for effective clinical social work practice.

Prerequisite(s): SW 700 and SW 701

**SW722 Assessment and Diagnosis in Evidence-Based Clinical Practice**

Hours 3

This course will provide students with the practical contexts of mental health disorders, the development of mental health classification systems, and advanced assessment/diagnostic techniques. Students will learn about evidence-based practice (EBP) as applied to: (a) complex clinical diagnoses; (b) utility and consequences of diagnoses, especially in regards to diverse and oppressed populations; and (c) differential diagnosis. The course will emphasize ecobiopsychosocial and person-in-environment perspectives in identifying and evaluating diagnostic and assessment tools. The course will provide historical and critical overviews of mental disorders and the development of classification systems, such as the DSM-5 and ICD-10. Students will learn how to apply and tailor multiple assessment and diagnostic methods across diverse populations and client systems. Students will learn to evaluate and apply research to support diagnostic and assessment practices.

Prerequisite(s): SW 703

**SW723 Complementary & Alternative Therapies**

Hours 3

This course is designed to introduce students to the philosophies, practitioners, techniques, uses, current paradigm and evidence of efficacy in the complementary and alternative therapies currently being used in the United States. Evidence to guide practice will derive from a variety of sources including case studies, clinical trials, observational studies and meta-analyses. The use of different types of evidence to demonstrate efficacy versus effectiveness will be distinguished and examined. A comparison of the relative strengths and weaknesses of the various forms of data will also be incorporated. A large growing percentage of Americans use complementary and alternative therapies for prevention purposes, as a supplement to conventional care or as the primary source of mental health wellness. How complementary & alternative therapies can be integrated into conventional care plans requires an ability to understand and communicate their efficacy and effectiveness with other health care providers and consumers. New and emerging approaches to generate evidence that these therapies may enhance consumers' health, functioning, safety and optimize a health care plan will be explored in depth.

Prerequisite(s): Formal acceptance into the DSW program.

**SW724 Social Work and Emotional Trauma**

Hours 3

This course builds upon prior course content provided through the core curriculum and prepares advanced-practiced social workers to work with clients who have experienced emotional trauma. Beginning with the necessity for self-care for those working with people who have experienced trauma, it covers the physiological underpinnings of how trauma affects people, and provides basic information about working with clients across the life-span. The course addresses the various contexts of practice, including micro-, mezzo-, and macro practice contexts, with a sensitivity to ethical issues and issues of diversity and difference.

Prerequisite(s): Formal acceptance into the DSW program.

**SW730 Leadership and Organizational Change**

Hours 3

In order to deliver relevant social services efficiently and effectively, social work administrators need knowledge about leadership and management of non-profit organizations. Leaders create a vision for their organization, establish a constructive climate, and overcome obstacles. Grounded in leadership theory, this course will provide opportunity for personal reflection, organizational examination, and opportunity for suggested change. Ways to deliver services mindful of ethical dilemmas, diversity, and inclusion will be highlighted.

Prerequisite(s): SW 700 and SW 701

**SW731 Leadership in Human Service Development**

Hours 3

This course will build on content from the core coursework in the DSW curriculum to present more advanced concepts and skills in designing, implementing, and evaluating new human service programs. Students will learn: (a) executive management skills related to environmental and organizational assessments needed in the design and development stage of human services; (b) resource management skills for developing and managing human services; (c) strategic management skills for successful implementation of services; and (d) community collaboration skills needed to transform and advance human service delivery. Students will hone their written and interpersonal communication skills for human service management. Students will also build upon their foundational knowledge about research methodologies to develop human service evaluations that are relevant to the management process and rigorous.

Prerequisite(s): SW 700 and SW 701

**SW732 Ethics in Community and Organizational Leadership**

Hours 3

This course will provide an in-depth exploration of ethical codes and principles established by the NASW, International Federation of Social Work (IFSW), and other theoretical frameworks as they relate to ethical concerns of social workers in the role of community and organizational leaders. Students will develop an advanced understanding on how current social, political, cultural, and other contexts influence ethical issues in health and human services, as well as how understandings of ethics have changed over time. There will be specific emphasis on The NASW Code of Ethics sets forth values, principles and standards to which social workers and social work students should aspire and their actions judged. Students will learn how ethics guides the decision-making and conduct of social workers in leadership roles regardless of the workplace, employees, clientele, or communities where their organizations operate. Throughout the semester, students will discuss ethical case dilemmas related to social, economic, political, cultural and professional issues faced by community and organizational leaders.

Prerequisite(s): SW 704

**SW733 Human Service Finance and Budgeting**

Hours 3

This is a course that provide theoretical concepts and techniques in the financial management and budgeting of public and non-profit organizations. The content will emphasize budget and finance considerations in making decisions about health and human services, as well as the common problems associated with finances in the public and nonprofit sectors. The course will include online lecture, problem-based learning exercise, and synchronous and asynchronous discussions. The goal of the course is to help practitioners become better managers and decision makers about public and nonprofit service delivery, rather than budget officers or accountants.

Prerequisite(s): Formal acceptance into the DSW program.

**SW734 Human Resource Management in the Healthcare, Public, and Nonprofit Sectors**

Hours 3

This course will present current best practices of effective human resource (HR) management in the healthcare, public (government), and nonprofit social sector settings, with emphasis on those models that are endorsed by the Society of Human Resource Management, Society for Social Work Leadership in Health Care, and the National Council of Nonprofits; further, this course will provide frameworks for ethical HR policy development and implementation within healthcare, public, and nonprofit settings that are in accordance with applicable federal employment laws and guidelines. Students will learn the major legal requirements of HR in the designated settings. Topics include employee selection, employee training and development, employee performance evaluation and management, compensation models, diversity, employee well-being, and collective bargaining.

Prerequisite(s): Formal acceptance into the DSW program.

**SW750 Introduction to Capstone Project**

Hours 1

This course represents the first of two courses that will prepare you for completing the Doctor of Social Work Capstone Project. In this course, you will gain knowledge and skills in developing a practice change project and evaluation proposal. Specifically, you will learn: (a) the common content and organization of grant and research proposals; (b) how to identify peer-review scholarship, grey literature, and human service data needed to develop a strong project or research proposal; skills in proposal writing; and skills in program and project planning. By the end of this course, you will have developed a roadmap, plan, and timeline for developing the proposal for the Capstone Project, which will be completed in the second course, SW751: Capstone Prep Independent Study Proposal.

Prerequisite(s): SW 701

**SW751 Capstone Preparation Independent Study Proposal**

*SP*

Hours 2-3

This independent practice doctorate course provides students with guided instruction and mentoring from their faculty advisor as they complete their Comprehensive Paper and receive approval to move forward with their Capstone Project. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest developments in the field, as well as the most recent research related to their Capstone Project topic. Discussion and advisor guidance will be focused on the following, as appropriate for the student's project: (a) readings of research articles, (b) additional skill development and knowledge related to social work practice, and (c) development of research/evaluation methodology. Students who are not prepared to move forward with their Capstone Project at the end of the semester will have to repeat this course until their Comprehensive Paper is approved.

Prerequisite(s): SW 750 and SW 702

Special Topics Course

**SW799 Capstone Project**

Hours 1-9

This independent practice doctorate project course partially fulfills the required doctoral-level Capstone Project hours toward the Doctor of Social Work (DSW) degree. A minimum of 9 hours are required. The course is conducted under the guidance of the DSW faculty advisor. After completing requirements for admission to candidacy, the student registers for a minimum of 3 hours per semester in this course, each semester, until all Capstone Project requirements have been approved. Material covered will be of an advanced nature aimed at providing doctoral students with an understanding of the latest developments in the field, as well as the most recent research related to their Capstone Project topic. Discussion and advisor guidance will be focused on the following, as appropriate for the student's project: (a) readings of research articles, (b) additional skill development and knowledge related to social work practice, and (c) development of research/evaluation methodology. The aim of this course is to product an original project that contributes to evidence-based social work practice.

Prerequisite(s): SW 751