CHEMISTRY, MSC

The Department of Chemistry and Biochemistry offers a thesis and non-thesis pathway to the Chemistry, MSC and all applicants should have an undergraduate major in Chemistry or Biochemistry. The plan I Masters in Chemistry requires the student to select a research advisor and write a thesis based on original research. The plan II Masters in Chemistry is a coursework degree.

Admissions

In addition to meeting the general requirements of the Graduate School, entering graduate students should have completed undergraduate coursework equivalent to a BS degree in chemistry or biochemistry.

See the Admission Criteria section of this catalog for more information.

Curricular Requirements - Thesis Option

Code and Title		Hours
Required Lecture Course Options		**12**
CH 505	Medicinal Chemistry	
CH 519	Physical/Analytical Core	
CH 520	Structure/Bonding Core	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 549	Adv Ph Ch II Atom/Mol	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 563	Biochemistry Lab	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech	
CH 584	Chem Lit & Comm	
CH 601	Adv Inor Chi:Strct Mth	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa	
Research Techniques Course		**7**
CH 570	Research Techniques Chemistry	
CH 660	Adv Research Techniques Chem	
Departmental Seminars		**5**
CH 585	Chemistry Seminars	
CH 586	Research Seminar	
Thesis Research		**6**
CH 599	Thesis Research	
Total Hours		**30**

The student will write and defend a thesis. Normally, the student must finish this program in 2.5 years

Curricular Requirements - Non-Thesis Option

Code and Title		Hours
Required Lecture Course Options		**18-24**
CH 505	Medicinal Chemistry	
CH 519	Physical/Analytical Core	
CH 520	Structure/Bonding Core	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 549	Adv Ph Ch II Atom/Mol	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 563	Biochemistry Lab	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech	
CH 601	Adv Inor Chi:Strct Mth	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa	
Literature Communication		**3**
CH 584	Chem Lit & Comm	
Research Techniques		**0-6**
CH 570	Research Techniques Chemistry	
CH 660	Adv Research Techniques Chem	
Departmental Seminar		**4**
CH 585	Chemistry Seminars	
Total Hours		**30**

Normally, the student is expected to finish this program in 2 years.

Transfer Credit

See Graduate School information on Transfer Credit.

Accelerated Master's Program

The Accelerated Master's Program (AMP) is intended for highly motivated Chemistry/Biochemistry majors whose objectives include a degree at the Master's level. Up to 12 credit hours of coursework can be applied simultaneously toward both the B.S. and M.Sc. degrees (i.e., dual credit). The remaining credit hours for each degree are completed independently, although both undergraduate and graduate courses may be taken in the same semester. Students will choose either the thesis or non-thesis (coursework) M.Sc. degree track. The curriculum requirements vary by undergraduate degree track and by the selected M.Sc. degree track, with details available in the corresponding Course List tables below. Students

in the Accelerated Master's Program may not take CH 519 Physical/Analytical Core or CH 520 Structure/Bonding Core for graduate credit.

For additional information see Graduate School information on the AMP program.

Curricular Requirements - Non-Thesis Option w/ ACS Chemistry BCh Track

Code and Title		Hours
Required Courses		
CH 549	Adv Ph Ch II Atom/Mol	3
CH 584	Chem Lit & Comm	3
CH 585	Chemistry Seminars	1
Dual Credit Course Options		**9**
Select up to 9 credit hours of cross-listed courses		
CH 505	Medicinal Chemistry	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 563	Biochemistry Lab	
CH 566	Bioorg Reac Mech	
CH 601	Adv Inor Chi:Strct Mth	
CH 609	Organometallic Chem	
CH 637	Spectroscopic Techniqa	
Graduate Elective Course Options [1]		**14**
Select at least 14 credit hours of Graduate Elective Options		
CH 505	Medicinal Chemistry	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 563	Biochemistry Lab	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech	
CH 585	Chemistry Seminars	
CH 601	Adv Inor Chi:Strct Mth	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa	
CH 660	Adv Research Techniques Chem [2]	
Total Hours		**30**

Footnotes

1. Select only listed courses not previously or concurrently taken as dual credit courses.
2. Department pre-approved research advisor required.

Curricular Requirements - Non-Thesis Option w/ ACS Biochemistry BCh Track

Graduate Course Options (Minimum 14 Credits)		Hours
Required Courses		
CH 549	Adv Ph Ch II Atom/Mol	3
CH 561	Biochemistry I	3
CH 563	Biochemistry Lab	3
CH 584	Chem Lit & Comm	3
CH 585	Chemistry Seminars	1
Dual Credit Course Options		**3**
Select one 3 credit cross-listed course.		
CH 505	Medicinal Chemistry	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 566	Bioorg Reac Mech	
CH 601	Adv Inor Chi:Strct Mth	
CH 609	Organometallic Chem	
CH 637	Spectroscopic Techniqa	
Graduate Elective Course Options [1]		**14**
Select at least 14 credit hours of Graduate Elective Options		
CH 505	Medicinal Chemistry	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 562	Biochemistry II	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech	
CH 585	Chemistry Seminars	
CH 601	Adv Inor Chi:Strct Mth	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa	
CH 660	Adv Research Techniques Chem [2]	
Total Hours		**30**

Footnotes

1. Select only listed courses not previously or concurrently taken as dual credit courses.
2. Department pre-approved research advisor required.

Curricular Requirements - Non-Thesis Option w/ Non-ACS Chemistry BS Track

Code and Title		Hours
Required Courses		
CH 563	Biochemistry Lab	3

CH 584	Chem Lit & Comm	3
CH 585	Chemistry Seminars	1
Dual Credit Course Options		**9**
Select up to 9 credit hours of cross-listed courses		
CH 505	Medicinal Chemistry	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 549	Adv Ph Ch II Atom/Mol	
CH 566	Bioorg Reac Mech	
CH 601	Adv Inor Chi:Strct Mth	
CH 609	Organometallic Chem	
CH 637	Spectroscopic Techniqa	
Graduate Elective Course Options [1]		**14**
Select at least 14 credit hours of Graduate Elective Options		
CH 505	Medicinal Chemistry	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics	
CH 531	Adv Organ Chem I-Physicl	
CH 532	Adv Org Ch II React Synt	
CH 549	Adv Ph Ch II Atom/Mol	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech	
CH 585	Chemistry Seminars	
CH 601	Adv Inor Chi:Strct Mth	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa	
CH 660	Adv Research Techniques Chem [2]	
Total Hours		**30**

Footnotes

1. Select only listed courses not previously or concurrently taken as dual credit courses.
2. Department pre-approved research advisor required.

Curricular Requirements - Thesis Option w/ ACS Chemistry BCh Track

Code and Title		Hours
Required Courses		
CH 549	Adv Ph Ch II Atom/Mol [1]	3
CH 570	Research Techniques Chemistry	1
CH 585	Chemistry Seminars	4
CH 586	Research Seminar	1
CH 599	Thesis Research	6
CH 660	Adv Research Techniques Chem	6
Graduate Elective Course Options		**9**
Select three graduate elective courses (9 credits).		
CH 505	Medicinal Chemistry [1]	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics [1]	
CH 531	Adv Organ Chem I-Physicl [1]	
CH 532	Adv Org Ch II React Synt [1]	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 563	Biochemistry Lab [1]	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech [1]	
CH 584	Chem Lit & Comm	
CH 601	Adv Inor Chi:Strct Mth [1]	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem [1]	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa [1]	
Total Hours		**30**

Footnotes

1. Course meets dual credit requirements.

Curricular Requirements - Thesis Option w/ ACS Biochemistry BCh Track

Code and Title		Hours
Required Courses		
CH 549	Adv Ph Ch II Atom/Mol [1]	3
CH 563	Biochemistry Lab [1]	3
CH 570	Research Techniques Chemistry	1
CH 585	Chemistry Seminars	4
CH 586	Research Seminar	1
CH 599	Thesis Research	6
CH 660	Adv Research Techniques Chem	6
Graduate Elective Options		**6**
Select two graduate elective courses (6 credits).		
CH 505	Medicinal Chemistry [1]	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics [1]	
CH 531	Adv Organ Chem I-Physicl [1]	
CH 532	Adv Org Ch II React Synt [1]	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech [1]	
CH 584	Chem Lit & Comm	
CH 601	Adv Inor Chi:Strct Mth [1]	

CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem [1]	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa [1]	
Total Hours		**30**

Footnotes

[1] Course meets dual credit requirements.

Curricular Requirements - Thesis Option w/ Non-ACS Chemistry BS Track

Code and Title		Hours
Required Courses		
CH 563	Biochemistry Lab [1]	3
CH 570	Research Techniques Chemistry	1
CH 585	Chemistry Seminars	4
CH 586	Research Seminar	1
CH 599	Thesis Research	6
CH 660	Adv Research Techniques Chem	6
Graduate Elective Options		**9**
Select three graduate elective courses (9 credits).		
CH 505	Medicinal Chemistry [1]	
CH 524	Adv Anl Ch I Spec Meth	
CH 526	Chemometrics [1]	
CH 531	Adv Organ Chem I-Physicl [1]	
CH 549	Adv Ph Ch II Atom/Mol [1]	
CH 561	Biochemistry I	
CH 562	Biochemistry II	
CH 564	Adv Biophysical Chem	
CH 565	Adv Bio-Inorganic Chem	
CH 566	Bioorg Reac Mech [1]	
CH 584	Chem Lit & Comm	
CH 601	Adv Inor Chi:Strct Mth [1]	
CH 605	Spec Topics Inorg Chem	
CH 609	Organometallic Chem [1]	
CH 621	Trends In Analytical Chem	
CH 626	Surface Analytical Techniques	
CH 627	Mass Spectrometry	
CH 635	Sel Topics In Org Chem	
CH 637	Spectroscopic Techniqa [1]	
Total Hours		**30**

Footnotes

[1] Course meets dual credit requirements.

Comprehensive Exam

The oral defense of the student's thesis will serve as the comprehensive exam for the Plan I Thesis-option program. For the plan II Non-Thesis MSc program, the comprehensive exam requirement is met by passing CH 584 Chem Lit & Comm with a grade of 'B' or better.

Plan I - Thesis Process Requirements

The lecture coursework requirement for the Plan I M.S. degree will consist of a minimum of four lecture courses (12 hours) plus CH 585 (4 total hours), CH 586 (1 hour), CH 570/CH 660 (7 hours), and CH 599 (6 hours). At the conclusion of their first semester, students will be assigned a research advisor. Students should work with the research advisor to select a thesis committee consisting of the research advisor and two members of the Graduate Faculty (one from the Department of Chemistry & Biochemistry and one from outside the Department) by the end of the second semester. Normally, students will register for CH 586 in their fourth semester to complete their thesis defense.

Plan II - Coursework Process Requirements

The lecture coursework requirement for the Plan II M.S. degree will consist of a minimum of six lecture courses (18 hours) plus CH 584 (3 hours) and CH 585 (3 total hours). The remaining 6 credit hours comprise a combination of lecture and/or research courses (CH 570/CH 660). Students planning to include research courses must have an approved faculty research advisor.

Time Limits for Degree Completion Requirements

See Graduate School information on Time Limits.

Academic Misconduct Information

See Graduate School information on Academic Misconduct.

Withdrawals and Leave of Absence Information

See Graduate School information on Withdrawals and Leave of Absence.

Academic Grievances Information

See Graduate School information on Academic Grievances.

Grades and Academic Standing

See Graduate School information on Grades and Academic Standing.

Graduate School Deadlines Information

See Graduate School information on Deadlines.

Application for Graduation Information

See Graduate School information on Application for Graduation.

Faculty

Chair

Dr. Greg Szulczewski

Graduate Director

Dr. Tim Snowden

Director of Graduate Admissions

Dr. Marco Bonizzoni