B.S. / M.S. IN CHEMISTRY FIVE-YEAR

Overview

The BS/MS program is a five-year program emphasizing research in the senior year and in the Master's year. Before they enter the program, students will be prepared for their research experience through existing laboratory courses and by mentored research with a Chemistry graduate faculty member. Whereas students may begin mentored research as early as their freshman year, it is expected that they should have at least one semester of research prior to the start of their senior year. Students will have access to capstone and interdisciplinary 500 level courses as seniors and to 600 level courses as Master's students.

Curriculum

Code	Title	Credit Hours
BS IN CHEMISTRY REQUIREMENTS (120-121 CREDITS)		
Major Requirements		
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
CHM 221	Introduction to Structure and Dynamics	4
CHM 205	Chemical Dynamics Laboratory	1
CHM 222	Organic Reactions and Synthesis	4
CHM 206	Organic Reactions and Synthesis Laboratory	2
CHM 214	Quantitative Analytical Chemistry	3
Choose One of the Following:		8
MTH 161 & MTH 162	Calculus I and Calculus II	
MTH 171 & MTH 172	Calculus I and Calculus II	
Choose One of the Following:		10-11
PHY 101 & PHY 102 & PHY 106 & PHY 108	College Physics I and College Physics II and College Physics Laboratory I and College Physics Laboratory II	
PHY 201 & PHY 202 & PHY 106 & PHY 108	University Physics I for the Sciences and University Physics II for the Sciences and College Physics Laboratory I and College Physics Laboratory II	
PHY 221 & PHY 222 & PHY 223 & PHY 224 & PHY 225	University Physics I and University Physics II and University Physics III and University Physics II Lab and University Physics III Lab	
PHY 221 & PHY 230 & PHY 224 & PHY 225	University Physics I and Honors University Physics II-III and University Physics II Lab and University Physics III Lab	
Advanced Courses		
CHM 320	Instrumental Methods in Chemistry and Biochemistry	2
CHM 360	Physical Chemistry I (Lecture)	3
CHM 364	Physical Chemistry (Laboratory I)	1
CHM 365	Physical Chemistry II (Lecture)	3
CHM 441	Inorganic Chemistry (Lecture)	3
BMB 401	Biochemistry for the Biomedical Sciences	4
Electives		12
CHM 317	The Chemistry of Food and Taste.	
CHM 401	Environmental Chemistry	
Any 500-level course		

CHM 488	Undergraduate Research	5
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 106	First-Year Writing II	3
or ENG 106	Writing About Literature and Culture	
Quantitative Skills:		
MTH 161	Calculus I (fulfilled through the major)	
or MTH 171	Calculus I	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
Additional Required Courses		
Language Courses		3-9
Electives/Minor		23-17
MS IN CHEMISTRY REQUIREMENTS (30 CREDITS)		
Two 600-level courses		6
CHM 779	Chemistry Seminar	1
CHM 780	Chemistry Seminar	2
CHM 810	Master's Thesis	21
Total Credit Hours		**150-151**

Plan of Study

Year One		
Fall		**Credit Hours**
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
MTH 161	Calculus I	4
WRS 105	First-Year Writing I	3
Arts and Humanities Cognate		3
	Credit Hours	**15**
Spring		
CHM 221	Introduction to Structure and Dynamics	4
CHM 205	Chemical Dynamics Laboratory	1
MTH 162	Calculus II	4
Arts and Humanities Cognate		3
WRS 106 or ENG 106	First-Year Writing II or Writing About Literature and Culture	3
	Credit Hours	**15**
Year Two		
Fall		
CHM 222	Organic Reactions and Synthesis	4
CHM 206	Organic Reactions and Synthesis Laboratory	2
PHY 201	University Physics I for the Sciences	4
PHY 106	College Physics Laboratory I	1
Language Course		3
Arts and Humanities Cognate		3
	Credit Hours	**17**
Spring		
CHM 214	Quantitative Analytical Chemistry	3
BMB 401	Biochemistry for the Biomedical Sciences	4

PHY 202	University Physics II for the Sciences	4
PHY 108	College Physics Laboratory II	1
Language Course		3
	Credit Hours	**15**
Year Three		
Fall		
CHM 360	Physical Chemistry I (Lecture)	3
CHM 364	Physical Chemistry (Laboratory I)	1
CHM Elective		3
Language Course		3
People and Society Cognate		
Elective		4
	Credit Hours	**14**
Spring		
CHM 365	Physical Chemistry II (Lecture)	3
CHM Elective		3
People and Society Cognate		3
Elective		3
Elective		3
	Credit Hours	**15**
Year Four		
Fall		
CHM 441	Inorganic Chemistry (Lecture)	3
CHM Elective		
CHM 488	Undergraduate Research	3
Elective		3
Elective		3
People and Society Cognate		3
	Credit Hours	**15**
Spring		
CHM 320	Instrumental Methods in Chemistry and Biochemistry	2
CHM Elective		3
CHM 488	Undergraduate Research	2
Elective		3
Elective		4
	Credit Hours	**14**
Summer		
CHM 810	Master's Thesis	5
CHM 810	Master's Thesis	4
	Credit Hours	**9**
Year Five		
Fall		
600-Level CHM Course		3
CHM 810	Master's Thesis	6
CHM 779	Chemistry Seminar	1
	Credit Hours	**10**
Spring		
600-Level CHM Course		3
CHM 810	Master's Thesis	6
CHM 779	Chemistry Seminar	1

CHM 780	Chemistry Seminar	1
	Credit Hours	**11**
	Total Credit Hours	**150**

Student Learning Outcomes

- Graduates will be able to demonstrate a broad understanding of fundamental chemical principles in all areas of the field.
- Graduates will be adept in a broad variety of chemical instrumentation and analytical techniques.
- Graduates will display effective and strong written communication skills pertaining to chemical research.