MASTER OF SCIENCE IN CHEMISTRY

The Master of Science in Chemistry is designed to train chemists for careers in business, industry, or academics. This degree is also appropriate for those students planning to continue their training in Ph.D. programs at other institutions.

Additional information: Reference the Program Landing Page (https://www.shsu.edu/programs/graduate/chemistry/) for additional information, such as cost, delivery format, contact information, or to schedule a visit.

Applicants seeking admission to the graduate program in chemistry must submit the following directly to the Office of Graduate Admissions (https://www.shsu.edu/dept/graduate-admissions/prospective-students.html):

- 1. Graduate Application (http://www.shsu.edu/admissions/apply-texas.html)
- 2. Application fee (http://www.shsu.edu/dept/graduate-studies/application-fee.html)
- 3. Official transcript(s) of all previous college work
- 4. Three letters of recommendation

Physical CHEM 5381

Applicants must have a major or minor in chemistry (with at least a 2.5 GPA in their undergraduate chemistry courses typically including Analytical or Quantitative Chemistry, Instrumental Methods, one year of calculus-based Physical Chemistry, and Inorganic Chemistry) or commensurate industrial experience. While GRE scores are not required, they may be submitted with the application for consideration during application review.

For a final admissions decision, a holistic review of each student's application file will be completed on a competitive basis. Currently a 3.0 GPA is required for financial support.

The Department of Chemistry (https://www.shsu.edu/academics/chemistry/) offers classes in a wide variety of chemical subjects including analytical, forensic, inorganic, organic, physical, and polymer chemistry, toxicology, and biochemistry.

Master of Science, 31 SCH with Minor and Thesis

Code	Title	Hours
Course Area		
Chemistry		13
Research and Thesis		6
Minor field that logically supports th	e major (Computing Science, Mathematics, Physics, Biology, etc.)	12
Total Hours		31
Plan 1 - MS in Chemistry (Th	nesis Option)	
Code	Title	Hours
Master of Science, 31 Semester Hou	ırs with Minor and Thesis	
Specified Courses		
CHEM 5100	Chemical Literature & Seminar	1
CHEM 6398	Graduate Research in Chemistry ¹	3
Restricted Electives		
Select one course from four of the o	f the following five areas:	12
Organic		
CHEM 5361	Physical Organic Chemistry	
CHEM 5362	Organic Reaction Mechanisms	
Analytical		
CHEM 5368	Analytical Spectroscopy	
CHEM 5367	Chemical Nano Sensing	
Biochemistry		
CHEM 5372	Advanced Biochemistry I	
CHEM 5373	Drug and Toxin Biochemistry	
Inorganic		
CHEM 5374	Chem of Coordination Compounds	
CHEM 5375	Organometallic Chemistry	

Adv Physl Chem Thermodynamics

CHEM 5382	Symmetry and Spectrscopy

Secondary Field		
Select four graduate co	ourses in a field that logically supports the major ²	12
Thesis		
CHEM 6099	Thesis ³	3
Total Hours		31

Receives a grade of "IP" until the final semester the research project is completed.

Master of Science 30 SCH without Minor and with Thesis

master of science, 30 sci i without millor and with thesis			
Code	Title	Hours	
Course Area			
Chemistry		24	
Research and Thesis		6	
Total Hours		30	
Plan 2 - MS in Cher	mistry (Thesis Option)		
Code	Title	Hours	
Master of Science, 30 Se	emester Hours without Minor and with Thesis		
Specified Courses			
CHEM 5100	Chemical Literature & Seminar	1	
CHEM 6398	Graduate Research in Chemistry ¹	3	
Restricted Electives			
Select one course from f	four of the following five areas:	12	
Organic			
CHEM 5361	Physical Organic Chemistry		

Select one course from fo	our of the following five areas:	12
Organic		
CHEM 5361	Physical Organic Chemistry	
CHEM 5362	Organic Reaction Mechanisms	
Analytical		
CHEM 5368	Analytical Spectroscopy	
CHEM 5367	Chemical Nano Sensing	
Biochemistry		
CHEM 5372	Advanced Biochemistry I	
CHEM 5373	Drug and Toxin Biochemistry	
Inorganic		
CHEM 5374	Chem of Coordination Compounds	
CHEM 5375	Organometallic Chemistry	
Physical		
CHEM 5381	Adv Physl Chem Thermodynamics	
CHEM 5382	Symmetry and Spectrscopy	
Electives		
Coloot four graduate cour	rece in CLIFM ²	11

OTILIVI 3302	Symmetry and Spectracopy	
Electives		
Select four graduate course	s in CHEM ²	11

Thesis Thesis ³ **CHEM 6099** 3 **Total Hours** 30

Courses should be selected in consultation with the Graduate Advisor.

Once enrolled in CHEM 6099, the student must enroll in this course every semester until graduation.

Receives a grade of "IP" until the final semester the research project is completed.

Courses should be selected in consultation with the Graduate Advisor. The student may take CHEM 5100 two additional times for a total of three

³ Once enrolled in CHEM 6099, the student must enroll in this course every semester until graduation.

Master of Science, 36 SCH with Minor, Non-Thesis

Chemistry Minor field that logically supports the major (Computing Science, Mathematics, Physics, Biology, etc.) Total Hours Plan 3 - MS in Chemistry (Non-Thesis Option) Code Title Moster of Science, 36 Semester Hours with Minor, Non-Thesis Specified Courses CHEM 5100 Chemical Literature & Seminar 1 CHEM 5398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5370 Drug and Toxin Biochemistry I CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry I CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry CHEM 5376 Sprignent Sp	Code	Title	Hours
Minor field that logically supports the major (Computing Science, Mathematics, Physics, Biology, etc.) Total Hours Plan 3 - MS in Chemistry (Non-Thesis Option) Code Title Measure of Science, 36 Semester Hours with Minor, Non-Thesis Specified Courses CHEM 5100 Chemical Literature & Seminar 1 CHEM 598 Graduate Research in Chemistry Restricted Electives Select one course from four of the foundation Chemistry CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry CHEM 5374 Chem 5374 Chem of Coordination Compounds CHEM 5375 Organic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy CHEM 5482 Symmetry and Spectr	Course Area		
Total Hours Plan 3 - MS in Chemistry (Non-Thesis Option) Code Title Hours Master of Science, 36 Semester Hours with Minor, Non-Thesis Specified Courses CHEM 5100 Chemical Literature & Seminar 1 CHEM 6398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Electives	Chemistry		24
Plan 3 - MS in Chemistry (Non-Thesis Option) Code Title New Master of Science, 36 Semester Hours with Minor, Non-Thesis Specified Courses CHEM 5100 Chemical Literature & Seminar 1 CHEM 6398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5369 Analytical Spectroscopy CHEM 5370 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectroscopy Electives Electives Electives	Minor field that logically s	supports the major (Computing Science, Mathematics, Physics, Biology, etc.)	12
Code Title Hot Master of Science, 36 Semester House with Minor, Non-Thesis Specified Courses CHEM 5100 Chemical Literature & Seminar 1 ChEM 5398 Graduate Research in Chemistry CHEM 6398 Graduate Research in Chemistry Festricted Electives Select one course from four of the following five areas: Variable of the Missage of the Mi	Total Hours		36
Master of Science, 36 Semester Hours with Minor, Non-Thesis Specified Courses CHEM 5100 Chemical Literature & Seminar ¹ CHEM 5398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5368 Analytical Spectroscopy CHEM 5376 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry CHEM 5373 Drug and Toxin Biochemistry CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives	Plan 3 - MS in Chem	nistry (Non-Thesis Option)	
Specified Courses CHEM 5100 Chemical Literature & Seminar ¹ CHEM 6398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Code	Title	Hours
CHEM 5100 Chemical Literature & Seminar 1 CHEM 6398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Master of Science, 36 Ser	mester Hours with Minor, Non-Thesis	
CHEM 6398 Graduate Research in Chemistry Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Specified Courses		
Restricted Electives Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5100	Chemical Literature & Seminar ¹	3
Select one course from four of the following five areas: Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 6398	Graduate Research in Chemistry	3
Organic CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Restricted Electives		
CHEM 5361 Physical Organic Chemistry CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Select one course from fo	our of the following five areas:	12
CHEM 5362 Organic Reaction Mechanisms Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Organic		
Analytical CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5361	Physical Organic Chemistry	
CHEM 5368 Analytical Spectroscopy CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5362	Organic Reaction Mechanisms	
CHEM 5367 Chemical Nano Sensing Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Analytical		
Biochemistry CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5368	Analytical Spectroscopy	
CHEM 5372 Advanced Biochemistry I CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5367	Chemical Nano Sensing	
CHEM 5373 Drug and Toxin Biochemistry Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Biochemistry		
Inorganic CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5372	Advanced Biochemistry I	
CHEM 5374 Chem of Coordination Compounds CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5373	Drug and Toxin Biochemistry	
CHEM 5375 Organometallic Chemistry Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Inorganic		
Physical CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5374	Chem of Coordination Compounds	
CHEM 5381 Adv Physl Chem Thermodynamics CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	CHEM 5375	Organometallic Chemistry	
CHEM 5382 Symmetry and Spectrscopy Electives Select two graduate courses in CHEM	Physical		
Electives Select two graduate courses in CHEM	CHEM 5381	Adv Physl Chem Thermodynamics	
Select two graduate courses in CHEM	CHEM 5382	Symmetry and Spectrscopy	
·	Electives		
Secondary Field	Select two graduate cours	ses in CHEM	6
	•		
Select four graduate courses in PHYS, BIOL, or MATH ²	Select four graduate cours	ses in PHYS, BIOL, or MATH ²	12
Total Hours	Total Hours		36
CHEM 5100 must be taken three times for a total of three credit hours.	1 OUTM 5100 miles had	takan thuan timan far a tatal of three avadit having	

CHEM 5100 must be taken three times for a total of three credit hours.

Master of Science, 36 SCH without Minor, Non-Thesis

Code	Title	Hours
Course Area		
Chemistry		36
Total Hours		
Plan 4 - MS in Chemistry (I	Ion-Thesis Option)	

Tian Time in elimetry (item Theole option)		
Code	Title	Hours
Master of Science, 36 Semester Hou	rs without Minor, Non-Thesis	
Specified Courses		
CHEM 5100	Chemical Literature & Seminar ¹	3
CHEM 6398	Graduate Research in Chemistry	3

Restricted Electives

Courses should be selected in consultation with the Graduate Advisor.

4 Master of Science in Chemistry

Total Hours		36
Select six graduate cours	ses in CHEM	18
Electives		
CHEM 5385	Selected Topics in Adv Chem	
CHEM 5381	Adv Physl Chem Thermodynamics	
CHEM 5374	Chem of Coordination Compounds	
CHEM 5372	Advanced Biochemistry I	
CHEM 5368	Analytical Spectroscopy	
CHEM 5362	Organic Reaction Mechanisms	
CHEM 5361	Physical Organic Chemistry	
Select four of the following	ng:	12

CHEM 5100 must be taken three times for a total of three credit hours.

The Texas Higher Education Coordinating Board (THECB) marketable skills initiative is part of the state's **60x30TX plan** and was designed to help students articulate their skills to employers. Marketable skills are those skills valued by employers and/or graduate programs that can be applied in a variety of work or education settings and may include interpersonal, cognitive, and applied skill areas.

The MS in Chemistry is designed to provide graduates with the following marketable skills:

- · Work safely with standard chemicals in a chemistry laboratory.
- Keep thorough and accurate records of chemistry experiments.
- · Write final research reports and orally present results of experiments.
- · Analyze and interpret experimental data, including spectrophotometric data.
- · Understand the use of the major methods of purification of chemical compounds, including chromatographic techniques.