Chemistry, Chemistry Honors (BSCh)

Total Hours Required: 120

Plan of Study

The Plan of Study is a suggested four-year course sequence to support academic planning and serves as a helpful guide. Currently enrolled students should meet with their academic advisor to tailor their course selections and timelines to their individual goals and circumstances.

Course	Title	Hours
Year 1		
Semester 1		
CH 401C	Foundations of Chemistry I	4
M 408C	Differential and Integral Calculus	4
RHE 306	Rhetoric and Writing	3
Visual and Performing Arts (050)		3
First-Year Signature Course (090)		3
	Hours	**17**
Semester 2		
CH 302C	Foundations of Chemistry II	3
CH 204	Introduction to Chemical Practice	2
PHY 301	Mechanics	3
PHY 101L	Laboratory for Physics 301	1
U.S. History (060)		3
M 408D	Sequences, Series, and Multivariable Calculus	4
	Hours	**16**
Year 2		
Semester 1		
CH 328C	Structure and Reactivity of Organic Molecules I	3
CH 119C	Professional Development for Chemists	1
NSC 109.1	Planning Your Capstone Experience	1
CH 128K	Organic Chemistry Laboratory	1
PHY 316	Electricity and Magnetism	3
PHY 116L	Laboratory for Physics 316	1
Hours chosen from: Honors-designated course from a department in the College of Natural Science		3
SDS 320H	Elements of Statistics: Honors	3
	Hours	**16**
Semester 2		
CH 329C	Structure and Reactivity of Organic Molecules II	3
CH 128L	Organic Chemistry Laboratory	1
CH 353	Physical Chemistry I	3
CH 153K	Physical Chemistry Laboratory	1
Hours chosen from: Liberal Arts/Fine Arts course		3
U.S. History (060)		3
	Hours	**14**
Year 3		
Semester 1		
CH 354	Quantum Chemistry and Spectroscopy	3
CH 431	Inorganic Chemistry	4
Humanities (040)		3
American and Texas Government (070)		3
Additional Mathematics honors course		3
	Hours	**16**
Semester 2		
CH 154K	Physical Chemistry Laboratory	1
BCH 369	Fundamentals of Biochemistry	3
RHE 309S	Critical Reading and Persuasive Writing	3
American and Texas Government (070)		3
Social and Behavioral Sciences (080)		3
	Hours	**13**
Year 4		
Semester 1		
CH 379H	Chemistry Honors Tutorial Course	3
CH 456	Analytical Chemistry	4
Free Elective		4
Hours chosen from: Coursework from the College of Liberal Arts and/or the College of Fine Arts		3
	Hours	**14**
Semester 2		
CH 379H	Chemistry Honors Tutorial Course	3
CH 376K	Advanced Analytical Chemistry	3
M 427J	Differential Equations with Linear Algebra	4
Free Elective		4
	Hours	**14**
	Total Hours	**120**

Requirements

All requirements are listed below, starting with the most specialized moving to the most general. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed below may also satisfy General Education requirements, including Core Curriculum.

Code	Title	Hours
Concentration		
Honors Breadth Requirement (Credit earned by examination may not be counted toward this requirement)		
Honors mathematics course		3
Hours chosen from: Honors-designated course from a department in the College of Natural Science		3
SDS 320H	Elements of Statistics: Honors	3
CH 401C	Foundations of Chemistry I	4
Hours chosen from:		3
CH 402C	Foundations of Chemistry II	
CH 302C	Foundations of Chemistry II	
Hours chosen from: Coursework from the College of Liberal Arts and/or the College of Fine Arts		6
Hours chosen from: additional coursework approved by the departmental honors advisor		19
CH 154K	Physical Chemistry Laboratory	1
CH 431	Inorganic Chemistry	4
CH 456	Analytical Chemistry	4
CH 376K	Advanced Analytical Chemistry	3
First-Year Signature Course (090) approved by departmental advisor		3
Hours chosen from:		1
NSC 109.1	Planning Your Capstone Experience	
NSC 109.2	Health Science Scholars Capstone Experience Preparation	
NSC 109.4	Polymathic Capstone Field Invention	
Choose a sequence below:		6
Sequence 1:		
CH 379H	Chemistry Honors Tutorial Course	
Hours chosen from: Upper-division research course approved by the departmental honors advisor		
Sequence 2:		
CH 379H	Chemistry Honors Tutorial Course (taken twice)	
Sequence 3:		

NSC 323	Natural Sciences Topics	
NSC 371	Capstone Thesis Seminar	
Subtotal		*63*
Degree (see details below)		**36**
Free electives: Additional coursework to reach total hours required.		
Subtotal		*36*
General Education		
Remaining Core Curriculum (42 hours total)		21
Foreign Language other than English, Beginning Proficiency		
Subtotal		*21*
College Requirements - Natural Sciences		
General University Requirements		
Total Hours		**120**

Degree-Bachelor of Science in Chemistry (BSCh)

Six degree plans lead to the Bachelor of Science in Chemistry. Chemical Physics & Instrumentation, Molecular Theory & Simulation, Materials Chemistry, and Synthesis & Chemical Biology are intended to prepare students for professional careers, either upon graduation or after graduate study in chemistry or related fields. Teaching is intended to prepare students to enter the teaching profession. Chemistry Honors is intended to prepare students for academic or research careers. Students who plan to follow Chemistry Honors must be admitted to the Dean's Scholars, Health Science Scholars, or Polymathic Scholars Honors Program.

The six degree plans may also serve as the basis for work in many areas outside pure chemistry, such as materials science, medicine and other health-related fields, pharmacology, patent law, business, computation, or environmental science. Supporting work in mathematics and physics is an integral part of the degree programs. Compared to the program leading to the bachelor of science and arts degree, the Bachelor of Science in Chemistry degree programs are more thorough and demanding and potentially more rewarding to the student planning a career in chemistry.

Code	Title	Hours
Degree		
Choose a sequence below:		8
Sequence 1:		
M 408C	Differential and Integral Calculus	
M 408D	Sequences, Series, and Multivariable Calculus	
Sequence 2:		
M 408N	Differential Calculus for Science	
M 408S	Integral Calculus for Science	
M 408M	Multivariable Calculus	
M 427J	Differential Equations with Linear Algebra	4
SDS 320E	Elements of Statistics	3
Choose a sequence below:		8
Sequence 1:		
PHY 301	Mechanics	
PHY 101L	Laboratory for Physics 301	
PHY 316	Electricity and Magnetism	
PHY 116L	Laboratory for Physics 316	
Sequence 2:		
PHY 303K	Engineering Physics I	
PHY 105M	Laboratory For Physics 302K, 303K, and 317K	
PHY 303L	Engineering Physics II	
PHY 105N	Laboratory For Physics 302L, 303L, and 317L	
CH 401	Principles of Chemistry I	4
or CH 401C	Foundations of Chemistry I	
Choose a sequence below:		4
Sequence 1:		
CH 402	Principles of Chemistry II	
Sequence 2:		
CH 402C	Foundations of Chemistry II	
Sequence 3:		
CH 302	Principles of Chemistry II	
CH 204	Introduction to Chemical Practice	
Sequence 4:		
CH 302C	Foundations of Chemistry II	
CH 204	Introduction to Chemical Practice	
Choose a sequence below:		8
Sequence 1:		
CH 328C	Structure and Reactivity of Organic Molecules I	
CH 329C	Structure and Reactivity of Organic Molecules II	
CH 128K	Organic Chemistry Laboratory	
CH 128L	Organic Chemistry Laboratory	
Sequence 2:		
CH 320M	Organic Chemistry I	
CH 320N	Organic Chemistry II	
CH 220C	Organic Chemistry Laboratory	
Sequence 3:		
CH 328M	Organic Chemistry I	
CH 328N	Organic Chemistry II	
CH 128K	Organic Chemistry Laboratory	
CH 128L	Organic Chemistry Laboratory	
CH 119C	Professional Development for Chemists	1
CH 353	Physical Chemistry I	3
or CH 353M	Physical Chemistry I for Life Sciences	
CH 153K	Physical Chemistry Laboratory	1
CH 354	Quantum Chemistry and Spectroscopy	3
All students must complete at least 36 semester hours of upper-division coursework; at least 21 semester hours of upper-division coursework in chemistry must be completed in residence at the University.		
Total Hours		**47**

Additional Requirements and Policies

Students in all concentrations must fulfill both the University's General Requirements for graduation and the college requirements. They must also earn a grade of at least *C-* in each mathematics and science course required for the degree, and a University grade point average in these courses of at least 2.00. More information about grades and the grade point average is given in the General Information Catalog.

Order and Choice of Work

Students begin the Bachelor of Science in Chemistry degree program with eight or nine hours of introductory chemistry for science majors (CH 401 or CH 401C, and CH 402, CH 402C, or CH 302 and CH 204), as well as M 408C or M 408N. Students should consult with their academic advisors about planning to choose a chemistry degree focus area, appropriate course in mathematics and physical sciences, and about course load and balance between laboratory and lecture courses. Most

students will select a degree focus area by the end of the second year and take at least 21 hours of upper-division coursework in the major requirements in the third and fourth years.

E S 301; and M E 377K upon approval of the project by the UTeach Program.

Additional Requirements and Policies

To graduate under Chemistry Honors, students must remain in good standing in the Dean's Scholars, Health Science, or Polymathic Scholars Honors Program. They must also submit an honors thesis approved by the departmental honors advisor and present their research in an approved public forum, such as the college's annual Undergraduate Research Forum or CNS Honors Thesis Symposium. More information about the Undergraduate Research Forum is available at https://cns.utexas.edu

Chemical Physics & Instrumentation

Code	Title	Hours
BIO 311C	Introductory Biology I	3
BCH 339F	Foundations of Biochemistry	3
BCH 370	Physical Methods of Biochemistry	3
CH 154K	Physical Chemistry Laboratory	1
CH 456	Analytical Chemistry	4
CH 376K	Advanced Analytical Chemistry	3
CH 378L	Capstone Research and Thesis	3
CH 354C	Statistical Mechanics	3
CH 354M	Introduction to Computational Methods in Chemistry	3
CH 354S	Elements of Spectroscopy	3
CH 368	Advanced Topics in Chemistry	3
CH 369K	Techniques of Research	3
CH X75K	Individual Study in Chemistry	3-4
CH 379H	Chemistry Honors Tutorial Course	3
CHE 253K	Applied Statistics	2
CHE 253M	Measurement, Control, and Data Analysis Laboratory	2
CHE 350	Chemical Engineering Materials	3
BME 311	Network Analysis in Biomedical Engineering	3
BME 335	Engineering Probability and Statistics	3
BME 339	Biochemical Engineering	3
BME 343	Biomedical Engineering Signal and Systems Analysis	3
BME 349	Biomedical Instrumentation	3
ECE 313	Linear Systems and Signals	3
ECE 347	Modern Optics	3
ECE 351K	Probability and Random Processes	3
PHY 315	Wave Motion and Optics	3
PHY 333	Modern Optics	3
PHY 338K	Electronic Techniques	3
BCH 339N	Systems Biology and Bioinformatics	3
BCH 364D	Macromolecular Structure Determination	3

Molecular Theory & Simulation

Code	Title	Hours
CH 354C	Statistical Mechanics	3
CH 354M	Introduction to Computational Methods in Chemistry	3
CH 378L	Capstone Research and Thesis	3
NSC 326	Introduction to Scientific Programming	3
NSC 335	Scientific and Technical Computing	3
CH 354S	Elements of Spectroscopy	3
CH 154K	Physical Chemistry Laboratory	1
CH 366D	Bio-inorganic Chemistry and Spectroscopy	3
CH 367C	Materials Chemistry	3
CH 367P	Introduction to Polymer Science	3
CH 368	Advanced Topics in Chemistry	3
CH 369K	Techniques of Research	3
CH X75K	Individual Study in Chemistry	3-4
CH 379H	Chemistry Honors Tutorial Course	3
M 368K	Numerical Methods for Applications	3
PHY 333	Modern Optics	3
PHY 345	Biophysics	3
PHY 375S	Introductory Solid-State Physics	3
SDS 374C	Parallel Computing for Science and Engineering	3

Materials Chemistry

Code	Title	Hours
CH 431	Inorganic Chemistry	4
CH 456	Analytical Chemistry	4
CH 366C	Advanced Inorganic Chemistry: Organometallics Catalysis	3
CH 367C	Materials Chemistry	3
CH 378L	Capstone Research and Thesis	3
CH 341	Special Topics in Laboratory Chemistry	3
CH 354S	Elements of Spectroscopy	3
CH 366D	Bio-inorganic Chemistry and Spectroscopy	3
CH 366E	Chemistry of the s-, p-, d-, and f-Block Elements	3
CH 367P	Introduction to Polymer Science	3
CH 368	Advanced Topics in Chemistry	3
CH 369K	Techniques of Research	3
CH X75K	Individual Study in Chemistry	3-4
CH 375P	Advanced Topics in Polymer Science	3
CH 379H	Chemistry Honors Tutorial Course	3
CHE 322	Thermodynamics	3
CHE 323	Chemical Engineering for Micro- and Nanofabrication	3
CHE 343	Molecular Simulation of Materials	3
ECE 334K	Quantum Theory of Electronic Materials	3
ECE 339	Solid-State Electronic Devices	3
ECE 339S	Solar Energy Conversion Devices	3
E S 360M	Experiments in Materials Science and Engineering	3
M E 349	Corrosion Engineering	3
PGE 326	Thermodynamics and Phase Behavior	3
PGE 421K	Physical and Chemical Behavior of Fluids II	4
PGE 427	Properties of Petroleum Fluids	4

Synthesis & Chemical Biology

Code	Title	Hours
BIO 311C	Introductory Biology I	3
BIO 311D	Introductory Biology II	3
BCH 339F	Foundations of Biochemistry	3
CH 431	Inorganic Chemistry	4

CH 456	Analytical Chemistry	4
CH 376K	Advanced Analytical Chemistry	3
CH 378L	Capstone Research and Thesis	3
CH 341	Special Topics in Laboratory Chemistry	3
CH 354C	Statistical Mechanics	3
CH 154K	Physical Chemistry Laboratory	1
CH 366C	Advanced Inorganic Chemistry: Organometallics Catalysis	3
CH 366D	Bio-inorganic Chemistry and Spectroscopy	3
CH 366E	Chemistry of the s-, p-, d-, and f-Block Elements	3
CH 367C	Materials Chemistry	3
CH 367P	Introduction to Polymer Science	3
CH 368	Advanced Topics in Chemistry	3
CH 369K	Techniques of Research	3
CH X75K	Individual Study in Chemistry	3-4
CH 375P	Advanced Topics in Polymer Science	3
CH 379H	Chemistry Honors Tutorial Course	3
BCH 339J	Chemical and Synthetic Biology	3
BCH 339N	Systems Biology and Bioinformatics	3
BCH 364D	Macromolecular Structure Determination	3
BCH 369L	Biochemistry Laboratory	3
BCH 370	Physical Methods of Biochemistry	3
BIO 325	Genetics	3
MBS 344	Molecular Biology	3
BME 339	Biochemical Engineering	3
BME 355	Molecular Engineering	3
PHM 310K	Drugs in Our Society	3
PHM 350K	Drugs in Our Society	3
PGS 388C	Introductory Bioorganic Chemistry	3
PGS 396M	Medicinal Chemistry: General Principles, Pharmacological Classification, and Mechanism of Action	3