

CHEMISTRY (CHM)

 - General Education Course

CHM 111 Foundations of Chemistry 3 Credit hours

This course will introduce students to basic chemical facts and concepts. Topics will include units, dimensional analysis, nomenclature, solutions, atomic structure, and stoichiometry.

Pre-req: MTH 127 with a minimum grade of C or ACT Math with a score of 21 or SAT Mathematics Before Mar. 16 with a score of 500 or SAT MATH SECTION SCORE with a score of 530 or MTH 130 with a minimum grade of C.

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 205 General, Organic, and Biochem 3 Credit hours

Introductory course for health professions students and non-science majors covering basic chemical principles with applications in organic chemistry and biochemistry.

Grade Mode: Normal Grading Mode

CHM 211 Principles of Chemistry I 3 Credit hours

A study of the properties of materials and their interactions with each other. Development of theories and applications of the principles of energetics, dynamics and structure. Intended primarily for science majors and preprofessional students. 3 lec.

Pre-req: (ACT Math with a score of 23 or SAT Mathematics Before Mar. 16 with a score of 540 or SAT MATH SECTION SCORE with a score of 570 or Placement Chemistry with a score of 211 or CHM 111 with a minimum grade of C) and CHM 217 (may be taken concurrently).

Concurrent PR: CHM 217

Attributes: Natural Sciences, Core II Natural Sciences

Grade Mode: Normal Grading Mode

CHM 212 Principles Chemistry II 3 Credit hours

A continuation of chemistry 211 with emphasis on the inorganic chemistry of the representative elements and transition metals. 3 lec.

Pre-req: (CHM 211 with a minimum grade of C and (CHM 218 (may be taken concurrently) with a minimum grade of D or CHM 218H (may be taken concurrently) with a minimum grade of D).

Concurrent PR: CHM 218 or CHM 218H

Attributes: Natural Sciences, Core II Natural Sciences

Grade Mode: Normal Grading Mode

CHM 217 Principles of Chem Lab I 2 Credit hours

A laboratory course that demonstrates the application of concepts introduced in Chemistry 211.

Pre-req: CHM 211 (may be taken concurrently).

Concurrent PR: CHM 211

Attributes: Natural Sciences, Core II Natural Sciences

Grade Mode: Normal Grading Mode

CHM 218 Principles of Chem Lab II 2 Credit hours

A laboratory course that demonstrates the application of concepts introduced in Chemistry 212.

Pre-req: CHM 212 (may be taken concurrently).

Concurrent PR: CHM 212

Attributes: Natural Sciences, Core II Natural Sciences

Grade Mode: Normal Grading Mode

CHM 218H Prin Chem Honor Lab II 2 Credit hours

An advanced laboratory class designed for Principles of Chemistry II students. This lab will introduce students to concepts and/or techniques important to later laboratory classes and research.

Pre-req: Admitted Honors College with a score of 1.

Co-req: CHM 212

Attributes: Honors, Natural Sciences

Grade Mode: Normal Grading Mode

CHM 280 Special Topics 1-4 Credit hours

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 281 Special Topics 1-4 Credit hours

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 282 Special Topics 1-4 Credit hours

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 283 Special Topics 1-4 Credit hours

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 291H Honors in Chemistry 1-4 Credit hours

Independent study or undergraduate research project for outstanding students.

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 305 Research Methods Chem 1 Credit hour

A course concerning the searching and use of the chemical literature, ethical issues relating to the conduct of scientific research, proposal writing, scientific presentations, and proper scientific laboratory conduct.

Pre-req: CHM 356 with a minimum grade of C.

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 327 Intro Organic Chemistry 3 Credit hours

A one semester introduction to organic chemistry emphasizing structure, nomenclature, and reactivity. (Cannot fulfill an upper division chemistry elective.)

Pre-req: CHM 212 with a minimum grade of C.

Attributes: Natural Sciences

Grade Mode: Normal Grading Mode

CHM 331 Chemistry Seminar 0 Credit hours

Students attend lectures presented by internal and external speakers to learn about the nature and variety of chemical research.

Attributes: Natural Sciences

Grade Mode: Credit/No Credit Grade Only

CHM 332 Chemistry Seminar 0 Credit hours

Students attend lectures presented by internal and external speakers to learn about the nature and variety of chemical research.

Attributes: No Textbook Required, Natural Sciences

Grade Mode: Credit/No Credit Grade Only

- CHM 345 Intro to Analytical Chem** **4 Credit hours**
An introduction to basic techniques of analytical chemistry and data analysis through statistical procedures. Traditional wet and contemporary instrumental methods are covered with an emphasis on experimental care and craftsmanship.
Pre-req: CHM 212 with a minimum grade of C and (CHM 218 with a minimum grade of C or CHM 218H with a minimum grade of C).
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 355 Organic Chemistry I** **3 Credit hours**
A systematic study of organic chemistry including modern structural theory, spectroscopy, and stereochemistry; application of these topics to the study of reactions and their mechanisms and applications to synthesis. 3 lec. No individual may make more than 3 attempts at CHM 355 (i.e., any combination of three W, D, F or NC grades will preclude the individual from future registration).
Pre-req: CHM 212 with a minimum grade of C.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 356 Organic Chemistry II** **3 Credit hours**
Continuation of Chemistry 355. 3 lec.
Pre-req: CHM 355 with a minimum grade of C.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 357 Physical Chemistry: Quantum** **4 Credit hours**
A study of quantum mechanics applied to atomic structure, chemical bonding, and spectroscopy. 3 lec.-2 lab.
Pre-req: CHM 212 with a minimum grade of C and (MTH 229 with a minimum grade of C or MTH 229H with a minimum grade of C) and (PHY 211 with a minimum grade of C or PHY 201 with a minimum grade of C).
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 358 Physical Chemistry: Thermo.** **4 Credit hours**
A study of chemical thermodynamics, equilibrium, and kinetics. 3 lec.-2 lab.
Pre-req: CHM 212 with a minimum grade of C and (MTH 229 with a minimum grade of C or MTH 229H with a minimum grade of C) and (PHY 211 with a minimum grade of C or PHY 201 with a minimum grade of C).
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 361 Intro Organic Chm Lab** **3 Credit hours**
An introduction to of experimental organic chemistry with emphasis on fundamental techniques and their application to the preparation and identification of organic compounds. 6 lab.
Pre-req: CHM 356 (may be taken concurrently).
Concurrent PR: CHM 356
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 361H Intro Honors Organic Chem Lab** **3 Credit hours**
This laboratory will introduce students to advanced concepts and techniques in organic synthesis and spectroscopy. It requires students to engage in an independent synthetic project from the chemical literature.
Pre-req: CHM 356 (may be taken concurrently) and Admitted Honors College with a score of 1.
Concurrent PR: CHM 356
Attributes: Honors
Grade Mode: Normal Grading Mode
- CHM 365 Introductory Biochemistry** **3 Credit hours**
A survey course including introduction to basic biochemical concepts, metabolic pathways, and bioenergetics. 3 lec.
Pre-req: CHM 327 with a minimum grade of C or CHM 356 with a minimum grade of C.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 366 Intro Biochemistry Lab** **2 Credit hours**
Introduction to basic biochemical laboratory techniques including chromatography, electrophoresis, and enzyme kinetics; methods for identification and characterization of biochemical systems. 4 lab.
Pre-req: CHM 365 with a minimum grade of C.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 390H Honors in Chemistry** **1-4 Credit hours**
Independent study or undergraduate research project for outstanding students.
Pre-req: Admitted Honors College with a score of 1.
Attributes: Honors, Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 391H Honors in Chemistry** **1-4 Credit hours**
Independent study or undergraduate research project for outstanding students.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 401 Research for Undergrad** **1-4 Credit hours**
Students engage in research project in collaboration with a faculty member.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 411 Modern Instrument Methods** **4 Credit hours**
This course investigates the theory and functional aspects of modern analytical instrumentation. Emphasis is placed on the components of instruments and the applicability of various techniques to specific analytical problems.
Pre-req: CHM 356 with a minimum grade of C.
Attributes: Natural Sciences
Grade Mode: Normal Grading Mode
- CHM 431 Chemistry Seminar** **0 Credit hours**
Students attend lectures presented by internal and external speakers to learn about the nature and variety of chemical research.
Attributes: Natural Sciences
Grade Mode: Credit/No Credit Grade Only

CHM 432 Chemistry Seminar	0 Credit hours	CHM 485 Independent Study	1-4 Credit hours
Students attend lectures presented by internal and external speakers to learn about the nature and variety of chemical research. Students also present an oral and written presentation of their capstone experience.		Attributes: Natural Sciences	
Pre-req: CHM 490 or CHM 491.		Grade Mode: Normal Grading Mode	
Attributes: Natural Sciences		CHM 486 Independent Study	1-4 Credit hours
Grade Mode: Credit/No Credit Grade Only		Attributes: Natural Sciences	
CHM 448 Adv Inorganic Chemistry I	4 Credit hours	Grade Mode: Normal Grading Mode	
Study of physical properties and periodic relationships of inorganic materials. 3 lec, 2 lab.		CHM 490 🌿 Internship	1-6 Credit hours
Pre-req: CHM 356 with a minimum grade of C and (CHM 357 with a minimum grade of C or CHM 358 with a minimum grade of C).		Students engage in supervised chemical laboratory work in a professional setting.	
Attributes: Natural Sciences		Pre-req: CHM 305.	
Grade Mode: Normal Grading Mode		Attributes: Capstone Course, Natural Sciences	
CHM 451 Biological Mass Spectrometry	4 Credit hours	Grade Mode: Normal Grading Mode	
This course investigates the theory and applications of mass spectrometry. It includes a laboratory component in which you will learn to run the mass spectrometers and interpret mass spectral results.		CHM 491 🌿 Capstone Experience	2-4 Credit hours
Pre-req: CHM 356 with a minimum grade of C.		Students engage in a collaborative research project with a faculty member.	
Grade Mode: Normal Grading Mode		Pre-req: CHM 305.	
CHM 465 Adv Organic Chemistry I	3 Credit hours	Attributes: Capstone Course, Natural Sciences	
Studies of the dynamics of organic reactions with emphasis on mechanisms and stereochemistry. 3 lec.		Grade Mode: Normal Grading Mode	
Pre-req: CHM 356 with a minimum grade of C.		CHM 495H Honors in Chemistry	3-4 Credit hours
Attributes: Natural Sciences		Open only to chemistry majors of outstanding ability.	
Grade Mode: Normal Grading Mode		Attributes: Natural Sciences	
CHM 466 Adv Organic Chemistry II	3 Credit hours	Grade Mode: Normal Grading Mode	
A continuation of Chemistry 465 with emphasis on synthetic methods. 3 lec.			
Pre-req: CHM 356 with a minimum grade of C.			
Attributes: Natural Sciences			
Grade Mode: Normal Grading Mode			
CHM 467 Intermediate Biochemistry	3 Credit hours		
An intermediate level discussion of the biochemistry of mammalian cells.			
Pre-req: CHM 365 with a minimum grade of C or BSC 365 with a minimum grade of C.			
Attributes: Natural Sciences			
Grade Mode: Normal Grading Mode			
CHM 478 Appl Microscopy in Research	4 Credit hours		
A combined lecture/lab/self-motivated research course that results in a microscopy based project to be presented by each student in a public forum (may augment capstone).			
Grade Mode: Normal Grading Mode			
CHM 480 Special Topics	1-4 Credit hours		
Attributes: Natural Sciences			
Grade Mode: Normal Grading Mode			
CHM 481 Special Topics	1-4 Credit hours		
Attributes: Natural Sciences			
Grade Mode: Normal Grading Mode			
CHM 482 Special Topics	1-4 Credit hours		
Attributes: Natural Sciences			
Grade Mode: Normal Grading Mode			
CHM 483 Special Topics	1-4 Credit hours		
Attributes: Natural Sciences			
Grade Mode: Normal Grading Mode			