

Name:

SID:

General Information: Starting in Fall 2024, the Chemistry Degree includes central foundational chemistry courses with in-depth electives associated with 3 optional tracks. Students who wish to pursue a track are advised to consult with their major advisor before their Junior Year for a personalized plan. All CHEMBS degrees are ACS-approved.

GENERAL EDUCATION REQUIREMENTS**English Composition**

ENGL 101 or 107	3
ENGL 102 or 108	3

Or

ENGL 109H	3
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Second Language

2 nd Semester Proficiency or higher	4-5
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Introduction to General Education

UNIV 101	1
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Exploring Perspectives

Artist	3
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Humanist	3
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Natural Scientist (<i>fulfilled by CHEM 181 or PHYS 141</i>)	
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Social Scientist	3
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Building Connections

Course 1	3
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Course 2	3
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Course 3	3
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General Education Portfolio

UNIV 301	1
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FOUNDATIONAL MATH & SCIENCE**Chemistry Major's Colloquia**

CHEM 195A (F) – <i>CBC First-Year Colloquium</i>	1
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CHEM 295A (F) – <i>CHEM Colloquium 2</i>	1
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CHEM 395A (S) – <i>CHEM Colloquium 3</i>	1
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Mathematics

MATH 122A & B or MATH 125 – <i>Calculus</i>	3-5
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MATH 129 – <i>Calculus 2</i>	3
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Physics

PHYS 141 – <i>Intro Mechanics</i>	4
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PHYS 241 – <i>Intro Electricity & Magnetism</i>	4
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CHEMISTRY MAJOR REQUIREMENTS (C or higher required)**General Chemistry**

CHEM 181 (F) – <i>Major's General Chemistry 1</i>	4
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CHEM 182 (S) – <i>Major's General Chemistry 2</i>	4
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Foundational Coursework

CHEM 246 – <i>Principles of Organic Chemistry</i>	3
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CHEM 227 – <i>Principles of Analytical Chemistry</i>	3
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CHEM 310 – <i>Principles of Inorganic Chemistry</i>	3
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CHEM 385 – <i>Principles of Physical Chemistry</i>	3
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BIOC 384 or 462A (F) – <i>Biochemistry 1</i>	3-4
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Foundational Laboratory Coursework

CHEM 256L – <i>Synthesis Laboratory</i>	2
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CHEM 330L – <i>Measurements Laboratory</i>	2
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In-depth Coursework (Choose two)

CHEM 401A – <i>Instrumental Analysis</i> >>>	3
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CHEM 485 – <i>Advanced Physical Chemistry</i> ◆	3
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CHEM 410 – <i>Advanced Inorganic Chemistry</i> +	3
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CHEM 346 – <i>Advanced Organic Chemistry</i> +	3
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CHEM 423A – <i>Bioanalytical Chemistry</i> >>>	3
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CHEM 450 – <i>Synthetic & Mechanistic O Chem</i> +	3
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CHEM 487 – <i>Intro to Molecular Spectroscopy</i> ◆	3
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In-depth Laboratory Coursework (minimum 9 units)

CHEM 400A – <i>Chemical Measurements Lab</i> >>>	3
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CHEM 400B – <i>Chemical Measurements Lab</i> ◆	3
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CHEM 356L – <i>Advanced Synthesis Lab</i> +	3
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CHEM 412 – <i>Inorganic Preparation</i> +	3
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BIOC 463A – <i>Biochemical Lab Techniques</i>	4
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Can include up to 3 units of:

BIOC 392(H)/492(H) – <i>Directed Research</i>	1-3
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CHEM 498(H) – <i>Senior Capstone/Thesis</i>	1-3
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Advanced Electives (minimum 9 units)*Please see page 2 for the complete list***GRADUATION REQUIREMENTS**

120 Total Units	42 Upper Division Units
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Cumulative GPA: 2.0+	Major GPA: 2.0+
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30 Units @ UA	18 UD Units @ UA
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Mid-Career Writing Assessment (MCWA)

Chemistry Electives List A (6 units minimum)

Building Molecules track

CHEM 346 – Advanced Organic Chemistry	3
CHEM 410/510 – Advanced Inorganic Chemistry	3
CHEM 442B/542B – Polymer Chemistry	3
CHEM 447 – Organic Structural Analysis Laboratory	3
MSE 460 – Materials Science of Polymers	3
CHEM 450/550 – Synthetic & Mechanistic Organic Chemistry	3

CHEM 356L – Advanced Synthesis Laboratory	3
CHEM 412 – Inorganic Preparations	3
CHEM 446 – Organic Preparations	3
CHEM 449A – Topics in Chemical Biology	3
PCOL 410 – Medicinal Chemistry	5
PCOL 350 – ADME: How the Body Changes Drugs	3

Bioanalytical track

CHEM 400A – Chemical Measurements Laboratory	3
CHEM 422 – Electroanalytical Chemistry	3
CHEM 426B – Analytical Molecular Spectroscopy	3
CHEM 427 – Separations	3
BME 420 – Biophotonics	3
BME 485 – Nanoscience & Nanotech for Biomed Engineers	3
IMB 406 – Human Immunobiology	3

CHEM 401A – Instrumental Analysis	3
CHEM 423A – Bioanalytical Chemistry	3
BME 447 – Sensors & Controls	3
IMB 401 – Medical Microbiology & Immunology	4
ENVS 410 – Microbial Biogeochemistry & Global Change	3
ENVS 425 – Environmental Microbiology	3

Quantum Universe track

ASTR 488A – Astrochemistry	3
CHEE/CHEM/MSE 437 – Surface Science	3
CHEM 400B – Chemical Measurements Laboratory	3
CHEM 487 – Intro to Molecular Spectroscopy	3
PHYS 426 – Thermal Physics	3
PHYS 484 – Nuclear Magnetic Resonance Spectroscopy	3

CHEE/MSE 432 – Organic Electronic Materials & Devices	3
CHEM 380 – Mathematical Physics for Chemistry	3
CHEM 485 – Advanced Physical Chemistry	3
CHEM 418 – Computational Chemistry	3
PHYS 431 – Molecular Biophysics	3
PTYS 407 – Chemistry of the Solar System	3
PTYS 416 – Asteroids, Comets, and Kuiper Belt Objects	3

General/non-track

BIOC 385 – Metabolic Biochemistry	3
BIOC 462B (S) – Biochemistry II	4
ENVS 340 – Environmental Chemistry	3
ENVS 464 – Environmental Organic Geochemistry	3

ECOL 448A – Plant Biochemistry & Metabolic Engineering	3
BIOC 463A – Biochemical Laboratory Techniques	3
ENVS 462 – Environmental Soil & Water Chemistry	3
GEOS 400 – Introduction to Geochemistry	3

CHEMISTRY ELECTIVES LIST B (3 units maximum)

CHEM 392(H), CHEM 492(H) – Directed Research	1-3
CHEM 405A (S) – Basic Laboratory Safety	1
CHEM 405B (S) – Advanced Laboratory Safety	1
CHEM 405C (S) – Chemical Hygiene & Regulations	1
CHEM 498(H) – Senior Capstone/Thesis	3

CHEM 399(H)/CHEM 499(H) – Independent Study	1-3
CHEM 493 – Internship	1-3
CHEM 491(H) – Preceptorship	1-3
CHEM 496D – Chemistry Discovery	1

Course offerings per semester are subject to change. Please check the Schedule of Classes for the most updated course information. Students are responsible for completing any pre-requisites or contacting the offering department if permission is required.

ACS Certification

This degree is approved by the American Chemical Society, and students will earn ACS certification with completion of the Bachelor of Science in Chemistry regardless of track. Please read more about ACS certification [here](#).

Description of Tracks

Building Molecules (In-depth coursework associated with this track is labeled with †)

Suitable for those interested in organic or inorganic chemistry. Students who pursue this track could work in fields such as medicine, pharmaceuticals, fuel technology, cosmetic development, materials science, chemical biology, and polymers chemistry.

Bioanalytical (In-depth coursework associated with this track is labeled with »)

Suitable for those interested in (bio)analytical chemistry, potentially combining molecular science with biological, medical, and bioengineering studies. Students who pursue this track could work in the biomedical, biotechnology, or science education fields.

Quantum Universe (In-depth coursework associated with this track is labeled with ◆)

Suitable for those interested in studying atomic and molecular chemistry, including a focus on spectroscopy. Students who pursue this track could work in fields such as planetary science and astronomy, computational chemistry, material development, and medicine.

