UCI Department of Chemistry

Sample Analytical Chemistry Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 231A: Fundamentals of Quantum Mechanics
4	Chem 248: Electrochemistry
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ area advisor)*
	One of the following 4-unit courses:
4	Chem 229A: Computational Methods
4	Chem 233: Nuclear and Radiochemistry
4	Chem 239: Machine Learning
4	Chem 249A: Optics I – Physical Optics and Electromagnetic Theory

Winter 2026

4	Chem 231B: Applications of Quantum Mechanics
4	Chem 232A: Thermodynamics and Introduction to Statistical Mechanics
2	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)
	One of the following 4-unit courses:
4	Chem 246: Separations and Chromatography
4	Chem 249B: Optics II - Light-Matter Interaction and Advanced Spectroscopy
4	Chem 263: Materials Chemistry

Spring 2026

2	Chem 200: Conduct of Research
5	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)
	One of the following 4-unit courses:
4	Chem 231C: Molecular Spectroscopy
4	Chem 232B: Advanced Topics in Statistical Mechanics

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

*** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

UCI Department of Chemistry

Sample Atmospheric Chemistry Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 231A: Fundamentals of Quantum Mechanics
4	Chem 245A: Gas-Phase Atmospheric Chemistry
4	EarthSS 242: Advanced Atmospheric Chemistry
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ area advisor)*

Winter 2026

4	Chem 231B: Applications of Quantum Mechanics
4	Chem 232A: Thermodynamics and Introduction to Statistical Mechanics
4	Chem 245B: Multi-Phase Atmospheric Chemistry
2	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)

Spring 2026

2	Chem 200: Conduct of Research
4	Chem 245C Special Topics in Atmospheric Chemistry
5	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

*** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

UCI Department of Chemistry

Sample Chemical Biology Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 201: Organic Reaction Mechanisms I*
4	Chem 203: Organic Spectroscopy
4	Chem 223: Biomacromolecules
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ area advisor)**
	Additional 4-unit course options:
4	CBE 264: Drug Delivery
4	Mol Bio 204: Protein Structure and Function (time conflict with Chem 203)

Winter 2026

4	Chem 204: Organic Synthesis I*
4	Chem 219: Chemical and Structural Biology I*
1	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ your advisor)
	One of the following 4-unit courses:
4	BME 202P: Imaging and Biophotonics
4	Chem 202: Organic Reaction Mechanisms II
4	Chem 225: Polymer Chemistry: Synthesis and Characterization of Polymers

Spring 2026

2	Chem 200: Conduct of Research
4	Chem 220: Chemical and Structural Biology II
1	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ your advisor)
	Additional 4-unit course options:
4	CBE 249: Protein Design
4	Chem 218: Metallobiochemistry

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** These are considered essential 4-unit classes for the chemical biology curriculum.*

*** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

**** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

Revised 11/13/2025

UCI Department of Chemistry

Sample Inorganic Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 201: Organic Reaction Mechanisms I (or Chem 125 or 231A)
4	Chem 203: Organic Spectroscopy (Could wait to take Chem 215 next year)
4	Chem 248: Electrochemistry (Could wait to take Chem 215 next year)
1	Chem 290: Seminar (Inorganic)
4	Chem 291: Research Seminar (w/ area advisor)**

Winter 2026

4	Chem 216: Organometallic Chemistry*
4	Chem 217: Physical Inorganic Chemistry*
2	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Inorganic)
4	Chem 291: Research Seminar (w/ your advisor)
	One of the following 4-unit courses:
4	Chem 204: Organic Synthesis I
4	Chem 225: Polymer Chemistry: Synthesis and Characterization of Polymers
4	Chem 263: Materials Chemistry

Spring 2026

2	Chem 200: Conduct of Research
4	Chem 218: Metallobiochemistry*
5	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Inorganic)
4	Chem 291: Research Seminar (w/ your advisor)

Adding one more class to this plan of study, in consultation with your area advisor, will allow you to finish all seven required courses in your first year of study (talk to your area advisor about which one might be best). While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** These are considered essential 4-unit classes for the inorganic curriculum.*

*** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

**** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

UCI Department of Chemistry

Sample Materials Chemistry (not ChAMP) Coursework Plan for Year 1

Materials Chemistry is highly interdisciplinary and there are many good class combinations. It is best to select classes that are relevant to your desired research area e.g. organic vs. inorganic materials, synthetic vs. analytical. If you are unsure please discuss with your area advisor.

Fall 2025

2	Chem 200: Conduct of Research
1	Chem 290: Seminar
4	Chem 291: Research Seminar (w/ area advisor)*
	Three of the following 4-unit courses:
4	Chem 201: Organic Reaction Mechanism I
4	Chem 223: Biomacromolecules
4	Chem 231A: Quantum Mechanics
4	Chem 239: Machine Learning
4	Chem 248: Electrochemistry

Winter 2026

2	Chem 280: Graduate Research (w/ your advisor)**
4	Chem 291: Research Seminar (w/ your advisor)
1	Chem 290: Seminar (choose appropriate section)
	Three of the following 4-unit courses:
4	Chem 204: Organic Synthesis I
4	Chem 217: Physical Inorganic Chem
4	Chem 225: Polymer Chemistry
4	Chem 232A: Thermo & Intro Stat Mech
4	Chem 263: Materials Chemistry

Spring 2026

2	Chem 200: Conduct of Research
5	Chem 280: Graduate Research (w/ your advisor)**
4	Chem 291: Research Seminar (w/ your advisor)
1	Chem 290: Seminar (choose appropriate section)
	One of the following 4-unit courses:
4	Chem 205: Organic Synthesis II
4	Chem 231C: Molecular Spectroscopy
4	Chem 232B: Advanced Topics in Statistical Mechanics

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

*** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

Revised 11/13/2025

UCI Department of Chemistry

Sample Materials Chemistry (ChAMP) Coursework Plan for Year 1

Summer 2025 (sign up in Fall 2025)

4	Chem 206: Advanced Data Acquisition and Analysis
4	Chem 207: Chemistry for Physicists (optional)
1	Chem 290: Seminar (choose appropriate section)

Fall 2025

2	Chem 200: Conduct of Research
4	Computation/Machine Learning Category: Chem 229A or Chem 239
4	Quantum Mechanics Category: Chem 231A: Fundamentals of Quantum Mech
4	Chem 233: Nuclear and Radiochemistry
1	Chem 290: Seminar
4	Chem 291: Research Seminar (w/ area advisor)*

Winter 2026

4	ChAMP Chemistry Category: Chem 225, 231B, or Chem 263
4	Classical Mechanics/Electromagnetism Category: Chem 228: Electromagnetism
4	Statistical Mechanics/Thermo Category: Chem 232A: Thermo & Intro Stat Mech
2	Communication Category: Chem 273: Technical Communication Skills
1	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (choose appropriate section)
4	Chem 291: Research Seminar (w/ your advisor)

Spring 2026

2	Chem 200: Conduct of Research
4	Electives (Chem 231C or Chem 232B, etc.)
5	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (choose appropriate section)
4	Chem 291: Research Seminar (w/ your advisor)

Note that the requirements for the ChAMP program are eleven 4-unit courses - which includes one course from each of six core categories and two core courses (each underlined) - and therefore, while the core category requirements can be completed in the first year of study, it is impossible to complete the higher total course-load demands in the first year of study. It is also common and/or expected that ChAMP students will take graduate courses from outside of the Chemistry Department. *Your area advisor will help you tailor your course plan.* Other options are indicated here: https://champ.uci.edu/students/academic-plan/.

** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

*** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

Revised 11/13/2025

UCI Department of Chemistry

Sample Organic Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 201: Organic Reaction Mechanisms I*
4	Chem 203: Organic Spectroscopy*
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ area advisor)**
	One of the following 4-unit courses:
4	Chem 223: Biomacromolecules
4	Chem 248: Electrochemistry (if offered)

Winter 2026:

4	Chem 202: Organic Reaction Mechanisms II*
4	Chem 204: Organic Synthesis I*
2	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ your advisor)
	One of the following 4-unit courses:
4	Chem 216: Organometallic Chemistry
4	Chem 219: Chemical and Structural Biology
4	Chem 225: Polymer Chemistry

Spring 2026

2	Chem 200: Conduct of Research
4	Chem 205: Organic Synthesis II (TBD 2025–26; if not, then take 2026–27)
4	Chem 220: Chemical and Structural Biology II
5	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ your advisor)

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** These are considered essential 4-unit classes for a traditional organic curriculum.*

*** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

**** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

UCI Department of Chemistry

Sample Physical Chemistry Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 231A: Fundamentals of Quantum Mechanics*
1	Chem 290: Seminar (Organic)
4	Chem 291: Research Seminar (w/ area advisor)**
	Three of the following 4-unit courses:
4	Chem 229A: Computational Methods
4	Chem 233: Nuclear and Radiochemistry
4	Chem 239: Machine Learning
4	Chem 249A: Optics I – Physical Optics and Electromagnetic Theory

Winter 2026

4	Chem 232A: Thermodynamics and Introduction to Statistical Mechanics*
2	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)
	Two of the following 4-unit courses:
4	Chem 228: Electromagnetism
4	Chem 231B: Applications of Quantum Mechanics
4	Chem 249B: Optics II - Light-Matter Interaction and Advanced Spectroscopy

Spring 2026

2	Chem 200: Conduct of Research
5	Chem 280: Graduate Research (w/ your advisor)***
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)
	One of the following 4-unit courses:
4	Chem 231C: Molecular Spectroscopy
4	Chem 232B: Advanced Topics in Statistical Mechanics

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** These are considered essential 4-unit classes for the physical chemistry curriculum.*

*** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

**** Use this course to adjust the total number of units to fall within the 12–16 credits range*

UCI Department of Chemistry

Revised 11/13/2025

Sample Theoretical Chemistry Coursework Plan for Year 1

Fall 2025

2	Chem 200: Conduct of Research
4	Chem 229A: Computational Methods
4	Chem 231A: Fundamentals of Quantum Mechanics
4	Chem 239: Machine Learning
4	Chem 250: Computational Chemistry
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ area advisor)*

Winter 2026

4	Chem 228: Electromagnetism
4	Chem 231B: Applications of Quantum Mechanics
4	Chem 232A: Thermodynamics and Introduction to Statistical Mechanics
2	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)

Spring 2026

2	Chem 200: Conduct of Research
4	Chem 232B: Advanced Topics in Statistical Mechanics
5	Chem 280: Graduate Research (w/ your advisor)**
1	Chem 290: Seminar (Physical)
4	Chem 291: Research Seminar (w/ your advisor)

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring quarter of your first year.

** Maximum units allowed for graduate students are 16 units. To seek authorization for more units, please contact Bailey for authorization.*

*** Use this course to adjust the total number of units to fall within the 12–16 credits range.*

Revised 11/13/2025