

# Biochemistry

## Major Courses

### 2022 - 2026 Catalog Requirements

To be used only for students completing quarter requirements in the 2026-27 year.

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**Do you need to fulfill a quarter course?  
Check the semester equivalency!**

QUARTER REQUIREMENT	SEMESTER COURSE	NOTES
<b>CHEM 124</b> Gen Chem/Phys Sci & Engr I	→ <b>CHEM 1120</b> Fundamentals of Chemical Structure & Properties	
<b>CHEM 125</b> Gen Chem/Phys Sci & Engr II	→ <b>CHEM 1122</b> Fundamentals of Chemical Reactivity	
<b>CHEM 126</b> Gen Chem/Phys Sci & Engr III	✗ <b>DISCONTINUED</b>	Term last offered: Summer 2026
<b>CHEM 203</b> Undergraduate Seminar I	→ <b>CHEM 2202</b> Undergraduate Seminar I	
<b>CHEM 216</b> Organic Chemistry I	→ <b>CHEM 2242</b> Organic Chemistry I	
<b>CHEM 217</b> Organic Chemistry II	→ <b>CHEM 2244</b> Organic Chemistry II	
<b>CHEM 218</b> Organic Chemistry III	✗ <b>DISCONTINUED</b>	
<b>CHEM 221</b> Organic Chemistry Lab II	✗ <b>DISCONTINUED</b>	
<b>CHEM 303</b> Undergraduate Seminar II	→ <b>CHEM 3302</b> Undergraduate Seminar II	
<b>CHEM 324</b> Organic Chemistry Lab III	✗ <b>DISCONTINUED</b>	
<b>CHEM 331</b> Quantitative Analysis	→ <b>CHEM 3330</b> Foundations of Chemical Analysis	
<b>CHEM 351</b> Physical Chemistry I	→ <b>CHEM 3390</b> Physical Chemistry for the Life Sciences	
<b>CHEM 352</b> Physical Chemistry II	→ <b>CHEM 3392</b> Physical Chemistry I	
<b>CHEM 353</b> Physical Chemistry III	✗ <b>DISCONTINUED</b>	Recommend to take CHEM 3392
<b>CHEM 356</b> Physical Chemistry Lab	→ <b>CHEM 3391</b> Physical Chemistry for Life Sciences Lab	



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# Biochemistry

## Major Courses

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MAJOR COURSES

QUARTER COURSE	SEMESTER COURSE	NOTES
<b>CHEM 369</b> Biochem. Principles	<b>CHEM 3352</b> Biochemistry	
<b>CHEM 372</b> Metabolism	<b>CHEM 3354</b> Metabolism	
<b>CHEM 373</b> Molecular Biology	<b>CHEM 3356</b> Genetic Information Processing	
<b>CHEM 403</b> Undergrad Sem III: Sr. Project	<b>CHEM 4462</b> Senior Project II	
<b>BIO/CHEM 475</b> Molecular Biology Laboratory	<b>BIO 4457</b> Molecular Biology Laboratory OR <b>CHEM 4453</b> Molecular Biology Techniques	
<b>Select One:</b> <b>BIO 476</b> OR <b>CHEM 474</b>	<b>DISCONTINUED</b> <b>CHEM 4454</b> Protein Techniques	



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# Biochemistry

## Major Support Courses

2022 - 2026 Catalog Requirements

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Do you need to fulfill  
a quarter course?  
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SUPPORT COURSES

QUARTER COURSE	SEMESTER COURSE	NOTES
<b>BIO 161</b> Intro to Cell/Molecular Bio	→ <b>BIO 1151</b> Life: Molecules and Cells	
<b>Choose One:</b> <b>BIO 452</b> Cell Biology OR <b>CHEM 432</b> Physical Biochemistry OR <b>MCRO 224</b> General Microbiology I	→ <b>Choose One:</b> <b>BIO 4452</b> Cell Biology OR <b>CHEM 432</b> Physical Biochemistry Methods & Applications OR <b>MCRO 2224</b> General Microbiology I	
<b>MATH 141</b> Calculus I	→ <b>MATH 1261</b> Calculus I	
<b>MATH 142</b> Calculus II	✗ <b>DISCONTINUED</b>	
<b>MATH 143</b> Calculus III	→ <b>MATH 1262</b> Calculus II	
<b>PHYS 141</b> General Physics I	→ <b>PHYS 1141</b> General Physics I	
<b>PHYS 142</b> General Physics II	✗ <b>DISCONTINUED</b>	
<b>PHYS 143</b> General Physics III	→ <b>PHYS 1143</b> General Physics II	



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# BCHEM

## Advanced Chemistry Electives Non Polymers & Coatings

2022 - 2026 Catalog Requirements

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**Do you need to fulfill  
a quarter course?  
Check the semester  
requirement!**

### ADVANCED ELECTIVES- LIST A

QUARTER COURSE- LIST A	SEMESTER COURSE	NOTES
<b>CHEM 302</b> Marine Chemistry	→ <b>CHEM 3370</b> Marine Chemistry	
<b>CHEM 341</b> Environmental Chemistry: Water Pollution	→ <b>CHEM 3372</b> Environmental Chemistry	
<b>CHEM 357</b> Physical Chemistry III Lab	→ <b>CHEM 3395</b> Physical Chemistry Laboratory II	
<b>CHEM 377</b> Chemistry of Drugs & Poisons	→ <b>CHEM 4457</b> Chemistry of Drugs & Poisons	
<b>CHEM 401</b> Advanced Undergraduate Research	→ <b>CHEM 4401</b> Advanced Undergraduate Research	
<b>CHEM 405</b> Advanced Physical Chemistry	✗ <b>DISCONTINUED</b>	
<b>CHEM 373</b> Molecular Biology	→ <b>CHEM 3356</b> Genetic Information Processing	
<b>CHEM 414</b> Advanced Organic Chemistry	→ <b>CHEM 4440</b> Advanced Organic Chemistry- Mechanisms	
<b>CHEM 420</b> Advanced Organic Chemistry- Synthesis	→ <b>CHEM 4442</b> Advanced Organic Chemistry- Synthesis	
<b>CHEM 428</b> Nutritional Biochemistry	→ <b>CHEM 4450</b> Nutritional Biochemistry	
<b>CHEM 432</b> Physical Biochemistry	→ <b>CHEM 4452</b> Physical Biochemistry Methods & Applications	
<b>CHEM 439</b> Instrumental Analysis	→ <b>CHEM 4430</b> Instrumental Analysis	
<b>CHEM 441</b> Bioinformatics Applications	→ <b>BIO/CHEM 4451</b> Bioinformatics Applications	
<b>CHEM 444</b> Polymers & Coatings I	→ <b>CHEM 4480</b> Polymer Synthesis and Characterization	
<b>CHEM 445</b> Polymers & Coatings II	→ <b>CHEM 4482</b> Coatings & Formulations	



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# BCHEM: Concentration

## Advanced Chemistry Electives Non Polymers & Coatings

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a quarter course?  
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### QUARTER REQUIREMENT- LIST A

### SEMESTER COURSE

### NOTES

**CHEM/MATE 446** Surface Chemistry of Materials → **CHEM 4486** Surface Chemistry of Materials

**CHEM 447** Polymers & Coatings Laboratory I → **CHEM 4481** Polymers & Coatings Laboratory

**CHEM 448** Polymers & Coatings Laboratory II → **CHEM 4483** Coatings & Formulations Laboratory

**CHEM 449** Polymers & Coatings Internship → **CHEM 4487** Polymers & Coatings Internship

**CHEM 450** Polymers & Coatings III X DISCONTINUED

**CHEM 451** Polymers & Coatings Laboratory III X DISCONTINUED

**CHEM 454** Functional Polymeric Materials → **CHEM 4484** Functional Polymeric Materials

**CHEM 458** Adv. Organic Chemistry - Spectroscopy → **CHEM 4444** Advanced Organic Chemistry Laboratory

**CHEM 463** Honors Research X DISCONTINUED

**CHEM 465** College Teaching Practicum → **CHEM 4415** College Teaching Practicum

**CHEM 466** Learning Assistant Seminar → **CHEM 4404** Learning Assistant Seminar

**CHEM 470** Selected Advanced Topics → **CHEM 4470** Special Advanced Topics

**CHEM 474** Protein Techniques Laboratory → **CHEM 4454** Protein Techniques

**CHEM 477** Biochemical Pharmacology X DISCONTINUED

**CHEM 481** Inorganic Chemistry X DISCONTINUED

CONCENTRATION



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CONCENTRATION

ADVANCED ELECTIVES LIST B

### QUARTER COURSE- LIST A

### SEMESTER COURSE

### NOTES

**CHEM 484** Inorganic Chemistry Laboratory  **DISCONTINUED**

**CHEM 485** Cooperative Education Experience  **CHEM 4485** Cooperative Education Experience-  
Part Time

**CHEM 495** Cooperative Education Experience  **CHEM 4495** Cooperative Education Experience-  
Full Time

**SCM 302/ENGR 322** Learn by Doing Lab Teaching  
Practicum  **SCM 302/ENGR 3302** The Learn by Doing Lab  
Teaching Practicum

### QUARTER REQUIREMENT- LIST B

### SEMESTER COURSE

### NOTES

**BIO/CHEM 308** Genetic Engineering Technology  
OR

**CHEM 349** Chemical & Biological Warfare

OR

**ENVE 324** Introduction to Air Pollution

OR

OR **SCM 360** Selected Env. Issues of Calif's Central  
Coast

**BIO/CHEM 3318** Genetic Engineering Technology

OR

**CHEM 3374** Chemical and Biological Warfare

OR

**ENVE 3324** Introduction to Air Pollution - C

OR

**SCM 3360** Select Env. Issues of Calif's Central  
Coast

**BIO 351** Principles of Genetics  **BIO 3351** Principles of Genetics

**BIO 361** Principles of Animal Physiology  **BIO 3352** Principles of Animal Physiology

**BIO 405** Developmental Biology  **BIO 4455** Developmental Biology

**BIO 406** Adv. Anatomy & Physiology:  
Neuroscience  **BIO 4433** Neuroscience

**BIO 407** Adv. Anatomy & Physiology:  
Endocrinology  **BIO 4434** Endocrinology

**BIO 408** Adv. Anatomy & Physiology:  
Cardiorespiratory  **BIO 4432** Adv. Anatomy & Physiology I

**BIO 409** Adv. Anatomy & Physiology: Muscle  
& Locomotion  **BIO 4431** Adv. Anatomy & Physiology II

**BIO 410** Functional Histology  **BIO 4436** Functional Histology



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# BCHEM: Concentration

Advanced Chemistry Electives  
Non Polymers & Coatings

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ADVANCED ELECTIVES- LIST B

## QUARTER REQUIREMENT - LIST B

## SEMESTER COURSE

## NOTES

**BIO 426** Immunology



**BIO 4456** Immunology

**BIO 452** Cell Biology



**BIO 4452** Cell Biology

**MCRO 402** General Virology



**MCRO 4402** General Virology

**MCRO 423** Medical Microbiology



**MCRO 4423** Medical Microbiology

**MCRO 424** Microbial Physiology



**MCRO 4424** Microbial Physiology &  
Biochemistry

**STAT 312** Statistical Methods for Engineers



**STAT 3210** Engineering Statistics



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# BCHEM: Concentration

## Polymers & Coatings Concentration

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POLYMERS & COATINGS CONCENTRATION

QUARTER COURSE	SEMESTER COURSE	NOTES
<b>CHEM 444</b> Polymers & Coatings I	→ <b>CHEM 4480</b> Polymer Synthesis and Characterization	
<b>CHEM 445</b> Polymers & Coatings II	→ <b>CHEM 4482</b> Coatings and Formulations	
<b>CHEM 446</b> Surface Chemistry of Materials	→ <b>CHEM 4486</b> Surface Chemistry of Materials	
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<b>CHEM 448</b> Polymers & Coatings Laboratory II	→ <b>CHEM 4483</b> Coating and Formulations Laboratory	
<b>CHEM 450</b> Polymers & Coatings III	✗ <b>DISCONTINUED</b>	
Select One <b>CHEM 449</b> Polymers & Coatings Internship OR <b>CHEM 451</b> Polymers & Coatings Laboratory III	→ Select One <b>CHEM 4487</b> Polymers & Coatings Internship OR <b>DISCONTINUED</b>	



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