

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!**

MAJOR COURSES

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



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



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Major Support Courses

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



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BCHEM

Advanced Chemistry Electives Non Polymers & Coatings

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ADVANCED ELECTIVES- LIST A

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



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BCHEM: Concentration

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CONCENTRATION

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	✗	DISCONTINUED	
CHEM 451 Polymers & Coatings Laboratory III	✗	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	✗	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	✗	DISCONTINUED	
CHEM 481 Inorganic Chemistry	✗	DISCONTINUED	



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CONCENTRATION	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	

ADVANCED ELECTIVES LIST B	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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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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Polymers & Coatings Concentration

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QUARTER COURSE		SEMESTER COURSE	NOTES
POLYMERS & COATINGS CONCENTRATION	CHEM 444 Polymers & Coatings I	➔ CHEM 4480 Polymer Synthesis and Characterization	
	CHEM 445 Polymers & Coatings II	➔ CHEM 4482 Coatings and Formulations	
	CHEM 446 Surface Chemistry of Materials	➔ CHEM 4486 Surface Chemistry of Materials	
	CHEM 447 Polymers & Coatings Laboratory I	➔ CHEM 4481 Polymer Synthesis and Characterization Laboratory	
	CHEM 448 Polymers & Coatings Laboratory II	➔ CHEM 4483 Coating and Formulations Laboratory	
	CHEM 450 Polymers & Coatings III	✗ DISCONTINUED	
	Select One CHEM 449 Polymers & Coatings Internship OR CHEM 451 Polymers & Coatings Laboratory III	➔ Select One CHEM 4487 Polymers & Coatings Internship OR DISCONTINUED	



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