

Chair: John Hershberger

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Biochemistry and Molecular Biology

Biochemistry and molecular biology involve the interdisciplinary study of the chemical and physical properties of living matter and the chemical changes that take place during life processes. This field requires preparation in chemistry and biology as well as biochemistry and molecular biology.

Careers exist in medical, pharmaceutical, food processing, and agricultural laboratories. Graduates also will have excellent preparation for graduate school or schools of medicine, dentistry, veterinary science, and business

Students can apply for scholarships available from the Department of Chemistry and Molecular Biology and the Department of Polymers and Coatings. See

<http://www.ndsu.edu/finaid/scholarship/scholarship.html>



Recommended Curriculum - Biochemistry and Molecular Biology

B.S. in Biochemistry and Molecular Biology,		Credits	
First Year		F	S
Biol 150, 151	General Biology I, II	3	3
Biol 150L, 151L	General Biology Lab I, II	1	1
Chem 150, 151 (or Chem 121, 122)	Principles of Chemistry I, II	3	3
Chem 160, 161 (or Chem 121L, 122L)	Principles of Chemistry I, II Labs	1	1
Engl. 120	College Composition	3	
Math 165, 166	Calculus I, II	4	4
Univ. 189	Skills for Academic Success	1	
Gen. Ed., Electives*	General Ed. and other Electives		3
		16	15
Second Year			
Comm 110	Fund. Public Speaking		3
Chem 341, 342	Organic Chemistry I, II	3	3
Chem 341L, 342L	Organic Chemistry Lab I, II	1	1
Zool 315	Genetics	3	
Phys 251, 252	University Physics I, II	4	4
Phys 251L, 252L	University Physics Laboratory I, II	1	1
Gen. Ed., Electives*	General Ed. and other Electives		3
Engl. 324	Writing/Sciences	3	
		15	15
Third Year			
Bioc 460, 461	Biochem/Molec. Biol.	4	4
Chem 431, 431L	Analytical Chemistry	5	
Chem 380	Junior Chem./Bioc. Seminar		1
Micr 350, 350L	Gen. Microbiol.	4	
Bioc 474	Recombinant DNA Tech.		3
Science Electives**	Science Electives**		3
Gen. Ed., Electives*	General Ed. and other Electives	3	3
Wellness	Wellness		2
		16	16
Fourth Year			
Bioc 473	Meth. Biochem Research	4	
Bioc 483	Cell. Sig. Trans. Metabl.		3
Bioc 465***	Phys. Chem and Biophysics	4	
Bioc 487	Molec. Biol. Gene Expr.	3	
Chem 491	Senior Chem./Bioc. Seminar		2
Science Electives**	Science Electives**	3	3
Gen. Ed., Electives*	General Ed. and other Electives		6
		14	14
Curriculum Totals		121	

*General Education Electives must include 18 credits in humanities and social sciences; six of these must be in humanities/fine arts, and six in social sciences. In addition, three credits must have a global perspective and three must be in the cultural diversity category.

** Upper Division science electives. 9 additional credits of 300- or 400- level courses in BIOL, BIOC, BOT, ZOO, CHEM, CSCI, MICR, PSCI, PHYS, PPTH, or STAT. No more than 6 credits from one prefix may apply. Research credits (CHEM 494/BIOC 494) may count towards up to 3 of these credits.

***Taking both Chem 364 and Chem 365 satisfies this requirement and 3 credits of science electives .