

Biological Data Sciences (BDS)
 Department of Botany and Plant Pathology
 Oregon State University
 Version 2 (updated for 2022-2023 academic year)

Major requirements: 180 total credits; 51 BaccCore; 60+ upper division; 36+ in major w/ 24+ upper division)

Core foundational courses (67 credits; 19 count towards Bacc Core requirements)

Discipline	Course Name	Course Number	Cr
Biological Science 5 classes; 19 credits	Introductory Biology	BI 221*, 222*, 223*	12
	Genetics	OR BI 204, 205, 206	
	Evolution	BI 311 BI 445	4 3
Chemistry 1 class + lab; 5 credits	General Chemistry	CH 231*, 261 (lab and lecture)	5
Mathematics 4 classes; 15 credits	Calculus	MTH 251*, 252	8
	Vector Calculus	MTH 254	4
	Linear Algebra I	MTH 341	3
Statistics 3 classes; 12 credits	Intro Stats	ST 351	4
	Methods data analysis	ST 411, 412	8
Biological Data Sciences 6 classes; 16 credits	Critical Thinking	BDS 211	3
	Comp Approaches Biol Data	BDS 311	3
	Special Projects	BDS 420	1
	Case Studies of Biol Data	BDS 411^ (WIC)	3
	Capstone in BDS I	BDS 491	3
	Capstone in BDS II	BDS 492	3
Experiential Learning	Independent projects Equivalent to at least 60 hours work	May be taken for credit as 401 or 403 or for no credit as 003 or 004	

*Bacc Core Course

^ Writing Intensive Course

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Genomics option (GEN; 42-49 option elective credits; 32-39 general elective credits)

Students in the Genomics Option complete courses series in general and organic chemistry and biochemistry as well as courses in two categories covering topics in biology and computational biology/genomics.

Chemistry 4-5 classes + 2 labs; 18-19 credits	CH 232*, CH 233*, CH 262, CH 263. General Chemistry (4, 4, 1, 1) CH 331, CH 332. Organic Chemistry (4, 4) OR CH 334-336. Organic Chemistry (3, 3, 3)
General Biochemistry 2-3 classes: 7-9 credits	BB 450, 451. General Biochemistry series (4, 3) OR BB 490, 491, 492. Biochemistry series (3, 3, 3)
Molecular Biology 1 class: 4 credits	BB 314. Cell and Molecular Biology (4)
Biological Data Sciences 1 class; 4 credits	BDS 310. Foundations of Biological Data Sciences (4) OR CS 161 (4) OR CS 162 (4)
Advanced Molecular, Organismal or physiology Choose 1 class; 3-5 credits	Cell, BOT 313. Plant Structure (4) BOT 331. Plant Physiology (4) BOT 332. Lab. Tech. in Plant Biology (3) BB 315. Molecular Biology Lab (3) BB 360. Introduction to Neuroscience (3) BB 460. Advanced Cell Biology (3) MB 302. General Microbiology (3) & MB 303. General Microbiology lab (2) MB/BHS 320. Human Bacteriology (4) MB/BHS 340. Human Virology (4) MB 415. Immunology (3) BHS 316. Principles of Immunology (3) BHS 329. Mech. Disease: Intro to Gen. Pathology (3) Z 425. Embryology and Development (5) Z 438. Behavioral Neurobiology (3) OR other course with advisor approval
Biocomputing or Genomics Choose 2 classes; 6-8 credits	BDS/CS 446. Networks in Computational Biology (3) BDS 472. Adv. Comp for Biol Data Analysis (3) BDS 474. Intro to Genome Biology (3) BDS 475. Comparative Genomics (4) BDS 477. Pop. Genomics (3) BDS 478. Functional Genomics (3) BI 454. Evolutionary Genomics (3) BB 485. Applied Bioinformatics (3) MB 305. Lab & Comp. Skills in Microbiology (2) MB 420. Microbial Genomes, Biochemistry & Diversity (3) ST 415. Design and Analysis of Planned Experiments (3) CS 261. Data structures (4) OR other course with advisor approval