

Molecular and Cell Biology Spring 2024 Courses

Level: E=Elementary, I=Intermediate, A=Advanced (L&S Students need at least 60 credits of I/A)

Be sure to check your DARs and pre-requisites!

For questions, schedule an appointment with the MCB Advisor -Ginny Jackson via starfish or vjackson4@wisc.edu

Course Number	Credits	Level	Course Title
Math/Statistics			
Math 221	5	I	Calculus & Analytic Geometry I (Lec/Disc)
Math 213	3	I	Calculus and Introduction to Differential Equations (Lec/Disc)
Math 217	3	I	Calculus With Algebra And Trigonometry II (Lec/Disc)
Math 222	4	I	Calculus & Analytic Geometry II (Lec/Disc)
Math 234	4	I	Calculus -Functions of Several Variables (Lec/Disc)
Statistics 301	3	I	Introduction to Statistical Methods (Lec/Disc)
Statistics 371	3	I	Introductory Applied Statistics for Life Sciences (Lec/Disc)

General Chemistry			
Chemistry 103	4	E	General Chemistry I (Lec/Lab/Disc)
Chemistry 104	5	E	General Chemistry II (Lec/Lab/Disc)
Chemistry 116	5	I	Chemical Principles II

Organic Chemistry			
Chemistry 343	3	I	Introductory Organic Chemistry (Lec/Disc)
Chemistry 344	2	I	Introductory Organic Chemistry Lab (Lab/Disc)
Chemistry 345	3	I	Intermediate Organic Chemistry (Lec/Disc)

Physics			
Physics 201	5	I	General Physics (Lec/Lab/Disc)
Physics 202	5	I	General Physics (Lec/Lab/Disc)
Physics 207	5	I	General Physics (Lec/Lab/Disc)
Physics 208	5	I	General Physics (Lec/Lab/Disc)
Physics 247	5	I	A Modern Introduction to Physics (Lec/Lab/Disc)
Physics 248	5	I	A Modern Introduction to Physics (Lec/Lab/Disc)

Introductory Biology			
Biology/Botany/Zoology 151	5	E	Introductory Biology I (Lec/Lab/Disc)
Biology/Botany/Zoology 152	5	E	Introductory Biology II (Lec/Lab/Disc)
Biocore 383*	3	I	Cellular Biology (Lec/Disc)
Biocore 384*	2	I	Cellular Biology Laboratory (Lab)
Zoology/Biology 101	3	E	Animal Biology (Lec/Disc)
Zoology/Biology 102	2	E	Animal Biology Laboratory (Lab)
Botany/Biology 130	5	E	General Botany (Lec/Lab/Disc)

*Biocore is an honors biology sequence that requires admission to the Biocore program, biocore.wisc.edu

Breadth Coursework			
Biochemistry 501	3	A	Introduction to Biochemistry (Lec)
Biochemistry 507	3	A	General Biochemistry I (Lec)
Biochemistry 508	3	A	General Biochemistry II (Lec)

Breadth Coursework Cont.			
Biocore 383*	3	I	Cellular Biology (Lec/Disc)
Biocore 587*	3	A	Biological Interactions (Lec/Disc)
Genetics 466	3	I	Principles of Genetics (Lec)
Genetics 468	3	None	General Genetics 2 (Lec)
Microbio 470	3	I	Microbial Genetics & Molecular Machines (Lec)

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Depth Courses			
Biochemistry and Biophysics			
Chemistry 575	3	A	Topics in Chemical Biology (Lec)
Biochemistry 550	2	A	Topics in Medical Biochemistry (Lec)
Biochemistry 620	3	I	Eukaryotic Molecular Biology (Lec)
Biochemistry 625	2	A	Mechanism of Action of Vitamins and Minerals (Lec)

Cellular Systems			
Zoology 400: 002*	2	I	Neuronal Cell Biology in Health & Disease (Lec)
Zoology 470	3	I	Intro to Animal Development (Lec)
Genetics 627	3	None	Animal Development Genetics (Lec)
Biocore 587	3	A	Biological Interactions (Lec/Disc)

*Let Ginny know if you enroll so she can update your DARs

Genetics			
Animal Sciences/Dairy Science 361	2	None	Introduction to Animal and Veterinary Genetics (Lec/Lab)
Agronomy/Horticulture 338	3	I	Plant and Breeding Biotechnology (Lec)
Genetics 520	3	I	Neurogenetics (Lec)
Genetics/Biochemistry/Medical Genetics 620	3	I	Eukaryotic Molecular Biology (Lec)
Genetics 627	3	None	Animal Developmental Genetics (Lec)
Genetics 662	3	None	Cancer Genetics (Lec)

Microbiology and Virology			
Microbiology 303	3	I	Biology of Microorganisms (Lec)
Microbiology/Animal Sciences/Botany 335	3	I	The Microbiome of Plants, Animals, and Humans (Lec)
Microbiology/Soil Science 523	3	I	Soil Microbiology and Biochemistry (Lec)
Microbiology 526	3	A	Physiology of Microorganisms (Lec)
Botany/Entomology/Plant Pathology 505	3	A	Plant-Microbe Interactions: Molecular and Ecological Aspects (Lec)
Biochemistry/Medical Microbiology and Immunology 575	2	A	Biology of Viruses (Lec)

Quantitative Biology			
Math/Computer Science 240	3	I	Introduction to Discrete Mathematics (Lec/Disc)
Math 340	3	A	Elementary Matrix and Linear Algebra (Lec/Disc)
Statistics 303	1	I	R For Statistics I (Lec)
Statistics 304	1	I	R For Statistics II (Lec)
Statistics 305	1	I	R For Statistics III (Lec)
Statistics 333	3	A	Applied Regression Analysis (Lec/Disc)
Computer Science 300	3	I	Programming II (Lec)
Computer Science 368	1	I	C++ For Java Programmers (Lec)

Quantitative Biology Cont.			
Computer Science 540	3	A	Introduction to Artificial Intelligence (Lec)
Computer Science 567	3	A	Medical Image Analysis (Lec)
Microbio 357*, **	3	I	General Microbial Informatics (Lec)
Microbio 657**	3	NONE	Bioinformatics for Microbiologists (Lab)

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** MICROBIO 657 is specifically designed for graduate students and moves at a faster pace, whereas MICROBIO 357 will provide a more gentle introduction to bioinformatics for those with little to no background. There is significant overlap with respect to the content of the two courses and thus you would still receive a strong background in bioinformatics

Laboratory Course			
Biochemistry 375: 001*	2	I	Engineering Bacteriophage Laboratory
Chemistry 327	4	I	Fundamentals of Analytical Science (Lec/Disc/Lab)
Chemistry 329	4	I	Fundamentals of Analytical Science (Lec/Disc/Lab)
Computer Sciences 220	4	E	Data Science Programming I (Python) (Lec)
Microbiology 304	2	I	Biology of Microorganisms Laboratory (Lab)
Microbiology 657	3	NONE	Bioinformatics for Microbiologists (Lab)
Mol Bio 699 OR Approved 699**	2	I	Directed Studies (Ind)
Pharm Sci 254*	3	I	Tiny Earth Genomics -Researching Unculture Antibiotic-Producing Microbes

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**First two credits of Mol Bio 699 OR approved 699 go towards Directed/Indp Study, second two credits of Mol Bio 699 OR approved 699 credits go towards Lab requirement

Directed/Independent Study			
Research and Thesis*			
Molecular Biology 681 OR Approved 681	3	A	Senior Honors Thesis I (Ind)
Molecular Biology 682 OR Approved 682	3	A	Senior Honors Thesis II (Ind)
Molecular Biology 691 OR Approved 691	3	A	Senior Thesis I (Ind)
Molecular Biology 692 OR Approved 692	3	A	Senior Thesis II (Ind)
Molecular Biology 699 OR Approved 699	1-4	A	Directed Studies (Ind)

****The MCB major is changing our process for research credits this semester!***

1. Enroll in your PI's department (Biochem 699, Oncology 699, Medicine 699, etc). Ask your research mentor how to enroll and if you get stuck, let Ginny know.
2. Email Ginny (vjackson4@wisc.edu) a paragraph that includes your PI/Lab and info about the research project and your role, highlighting the molecular/cellular side of things. The MCB major will review your paragraph, and if approved, your research credits will count towards the MCB major.

If your lab prefers you enroll in MolBio 699, that is still available. Visit <https://molecularbio.ls.wisc.edu/thesis-directed-study/> for the form that you submit to Ginny.

Aim to be enrolled in research credits by early in the Spring semester.