CELLULAR AND MOLECULAR BIOLOGY, MS

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum degree requirements (https://guide.wisc.edu/graduate/#requirementstext) and policies (https://guide.wisc.edu/graduate/#policiestext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	30 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	n/a
Assessments and Examinations	See PhD requirements.
Language Requirements	No language requirements.

REQUIRED COURSES

All Cellular and Molecular Biology course requirements must be completed by the end of the student's second year, before completing the preliminary exam and obtaining dissertator status.

Code	Title	Credits
Course Requirements [1]		
Students must complete 11 credits from the following categories.		11
Molecular Biology Core		
At minimum, complete one of the following:		
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	
BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology	
ONCOLOGY/ M M & I/ PL PATH 640	General Virology-Multiplication of Viruses	
Cell Biology Core		
At minimum, complete one of the following:		
BOTANY 860	Plant Cell Biology	
ZOOLOGY/ NEURODPT 765	Developmental Neuroscience	
PATH 750	Cellular and Molecular Biology/ Pathology	
ONCOLOGY 703	Carcinogenesis and Tumor Cell Biology	
GENETICS/ CRB 710	Developmental Genetics	
GENETICS/ BOTANY/M M & I/ PL PATH 655	Biology and Genetics of Fungi	
Ethics Core		
At minimum, complete 1 credit from following:		
BIOCHEM 729	Advanced Topics	
ONCOLOGY 715	Ethics in Science	
COMP BIO/PATH-BIO 812	Research Ethics and Career Development	
Elective Courses		
Students may complete elective courses or additional courses from above to satisfy 11-credit course requirement.		
B M E 510	Introduction to Tissue Engineering	
B M E 520	Stem Cell Bioengineering	

B M E/CBE 783	Design of Biological Molecules
B M E/CRB 670	Biology of Heart Disease and Regeneration
B M E 545	Engineering Extracellular Matrices
B M E 556	Systems Biology: Mammalian Signaling Networks
B M I/ COMP SCI 576	Introduction to Bioinformatics
B M I/STAT 541	Introduction to Biostatistics
B M I/STAT 877	Statistical Methods for Molecular Biology
B M I 826	Special Topics in Biostatistics and Biomedical Informatics
BIOCHEM/B M I/ BMOLCHEM/ MATH 609	Mathematical Methods for Systems Biology
BOTANY/ BIOCHEM/ GENETICS 840	Regulatory Mechanisms in Plant Development
BIOCHEM/ BOTANY 621	Plant Biochemistry
BIOCHEM/ NUTR SCI 619	Advanced Nutrition: Intermediary Metabolism of Macronutrients
BIOCHEM 601	Protein and Enzyme Structure and Function
BMOLCHEM 675	Advanced or Special Topics in Biomolecular Chemistry
BOTANY/ ENTOM/ PL PATH 505	Plant-Microbe Interactions: Molecular and Ecological Aspects
BOTANY/ PL PATH 563	Phylogenetic Analysis of Molecular Data
CHEM 665	Biophysical Chemistry
CRB/ MEDICINE 701	Cell Signaling and Human Disease
CRB 640	Fundamentals of Stem Cell and Regenerative Biology
CRB 650	Molecular and Cellular Organogenesis
F&W ECOL/ STAT 571	Statistical Methods for Bioscience I
PLANTSCI 550	Molecular Approaches for Crop Improvement
GENETICS/ MD GENET 677	Advanced Topics in Genetics
GENETICS/ BIOCHEM 631	Plant Genetics and Development
GENETICS 633	Population Genetics
GENETICS 885	Advanced Genomic and Proteomic Analysis
M M & I/PATH-BIO 528	Immunology
M M & I 740	Mechanisms of Microbial Pathogenesis
MICROBIO 657	Bioinformatics for Microbiologists
NEURODPT/NTP/ PSYCH 611	Systems Neuroscience
M M & I/PATH-BIO 750	Host-Parasite Relationships in Vertebrate Viral Disease
MED PHYS 671	Selected Topics in Medical Physics
MICROBIO/ BMOLCHEM 668	Microbiology at Atomic Resolution
ONCOLOGY 675	Advanced or Special Topics in Cancer Research
ONCOLOGY 778	Bioinformatics for Biologists
OPHTHALM 750	Ocular Diseases of the Mammalian Vision System
PATH 751	Biology of Aging
PATH 803	Pathogenesis of Major Human Diseases
PATH 807	Immunopathology: The Immune System in Health and Disease
PATH-BIO 675	Special Topics
ZOOLOGY 604	Computer-based Gene and Disease/Disorder Research Lab
Research Requirement	
A minimum of 30 credits taken in graduate level courses are required: the 11 above, and the remaining credits can be 990 research credits.	19
Total Credits	**30**

1 EXCEPTION: MD/PhD students are only required to take 3 credits from the Core Curriculum or the Elective Courses list.

2 EXCEPTION: MD/PhD students are not required to take an ethics course because they received this training in their MD courses.