

Name:

Date Drafted:

Microbiology and Molecular Genetics

Double Major

UVM | College of Agriculture and Life Sciences | Department of Microbiology and Molecular Genetics
Advising Form 2023-2024

Graduates of this major will be able to:

- *Describe and apply basic microbiology and molecular genetics information, concepts and experimental techniques*
- *Explain and evaluate microbiology and molecular genetics research orally and in writing*
- *Demonstrate integrity, professionalism, and respect for inclusion in the conduct of science and learning*
- *Articulate own identity as a member of the scientific community and reflect on how that has developed throughout progression toward career goals*

UVM students meet the above goals by completion of at least 120 credits, including the Catamount Core Curriculum and MMG core coursework. Students then tailor their education to their interests, selecting courses from a broad range of electives in the biological sciences. Students must maintain a minimum cumulative GPA of 2.0 to remain in good standing in the program and college.

Please use this worksheet to create a four year plan. Review with your advisor each semester.

Catamount Core Curriculum | 42 credits

Liberal Arts | 21 credits

Discipline	Credits	Course designations
Arts and Humanities	6	AH1, AH2, AH3
Social Sciences	6	S1
Natural Sciences	6	N1 and N2
Mathematics	3	MA

Core Skills | 9 credits

Discipline	Credits	Course designations
Quantitative and Data Literacy	3	QD
Writing and Information Literacy	3	WIL1
Oral Communication	3	OC

Common Ground Values | 12 credits

Discipline	Credits	Course designations
Diversity	6	Must take 3 credits of D1, and 3 credits D1 or D2
Sustainability	3	SU
Global Citizenship	3	GC1 or GC2

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MMG Core Requirements | 60 credits

Number	Name	Credits	Semester
MMG 1010	First-Year Colloquium	1	Fall
MMG 1020 (SU)	Unseen Worlds – Microbes and You	3	Fall
BCOR 1400	Exploring Biology 1	4	Fall
BCOR 1425	Exploring Biology 2	4	Spring
MATH 1212 or 1234	Fundamentals of Calculus or Calculus 1	3 or 4	Any
CHEM 1400	General Chemistry 1	4	Any
CHEM 1450	General Chemistry 2	4	Any
CHEM 2580	Organic Chemistry 1	4	Fall
CHEM 2585	Organic Chemistry 2	4	Spring
CS 1210 (QD)	Computer Programming 1	3	Any
MMG 2010	Microbiology & Infectious Disease	4	Spring
MMG 2040	Intro Molecular Genetics	4	Spring
MMG 2060	Intro to Biomedical Research Methods	3	Spring
BCOR 2300	Genetics	3	Any
BCOR 2500 or MMG 2990	Cell and Molecular Biology (with lab) Cell and Molecular Biology (without lab)	3 or 4	Spring
BIOC 3001	Biochemistry	3	Any
BIOC 3005	Biochemistry 1	3	Fall
BIOC 3075	Biochemistry of Human Disease	3	Fall
STAT 1410 or STAT 3000 (QD)	Basic Statistical Methods or Med Biostat and Epidemiology	3	Any
MMG 4899	Senior Seminar	1	Any

Students opting for a double major in Microbiology and Molecular Genetics must complete requirements for both majors. **One course** from the requirements below may be double-counted, i.e. a student must complete 21 credits for their first major and an additional 18 credits for their second major.

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Microbiology Major Requirements | 21 credits

Choose 6 credits from the following

Course Number	Course Name	Credits	Semester
MMG 3110	Bacterial Genetics	3	Fall
MMG 3220	Advanced Medical Microbiology with lab	4	Spring
MMG 3300 (D2/SU)	Adv Studies Emerging Infectious Disease	3	Fall odd years

Choose 9 credits from any of the following

Course Number	Course Name	Credits	Semester
MMG 3010	Applied Cell and Molecular Bio Lab	4	Fall
MMG 3070	Biochemistry Lab	3	Spring
MMG 3200	Environmental Microbiology	3	Spring even years
MMG 3230	Immunology	3	Spring odd years
MMG 3250	Eukaryotic Virology	3	Fall even years
MMG 3270	Cancer Genetics	3	Spring even years
MMG 3350	Bioterrorism	3	Spring odd years
MMG 3310	Survey Bioinformatic Databases	3	Fall
MMG 3320	Advanced Bioinformatics	3	Spring
MMG 3330	Genetics and Genomics	3	Fall

Choose 6 credits any advisor-approved upper level life science elective, including:

Course Number	Course Name	Credits	Semester
MMG 2990, 3990, 4990, 5990	Teaching Assistantship or Internship	1-4	Any
MMG 2995, 3995	Undergraduate Research	1-4	Any
ASCI 3180	Endocrinology	3	
ASCI 3070	Animal and Human Parasitology	3	
ASCI 3080	Molecular Epidemiology of Infectious Disease	3	
ASCI 3090	One Health: Antimicrobial Resistance	3	
BIOL 3135	Molecular Ecology	3	
BIOL 4630	Advanced Genetics Laboratory	4	
MLS 3300	Clinical Microbiology II	3	
NFS 3203	Food Microbiology	4	
PHRM 3010	Intro to Pharmacology	3	
XXX 3000+	3000+ Life Sciences (with advisor permission)	variable	

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Molecular Genetics Major Requirements | 21 credits

Choose 6 credits from the following

Course Number	Course Name	Credits	Semester
MMG 3010	Applied Cell and Molecular Bio Lab	4	Fall
MMG 3270	Cancer Genetics	3	Spring even years
MMG 3330	Genetics and Genomics	3	Fall

Choose 9 credits from any of the following

Course Number	Course Name	Credits	Semester
MMG 3070	Biochemistry Lab	3	Spring
MMG 3110	Bacterial Genetics	3	Fall
MMG 3200	Environmental Microbiology	3	Spring even years
MMG 3220	Advanced Medical Microbiology with lab	4	Spring
MMG 3230	Immunology	3	Spring odd years
MMG 3250	Eukaryotic Virology	3	Fall even years
MMG 3300 (D2/SU)	Adv Studies Emerging Infectious Disease	3	Fall odd years
MMG 3310	Survey Bioinformatic Databases	3	Fall
MMG 3320	Advanced Bioinformatics	3	Spring
MMG 3350	Bioterrorism	3	Spring odd years
MMG 3400	Macromol Structures of Proteins and NAs	3	Spring odd years

Choose 6 credits any advisor-approved upper level life science elective, including:

Course Number	Course Name	Credits	Semester
MMG 2990, 3990, 4990, 5990	Teaching Assistantship or Internship	1-4	Any
MMG 2995, 3995	Undergraduate Research	1-4	Any
ASCI 3180	Endocrinology	3	
ASCI 3080	Molecular Epidemiology of Infectious Disease	3	
BIOL 3135	Molecular Ecology	3	
BIOL 3560	Developmental Biology	3	
BIOL 4630	Advanced Genetics Laboratory	4	
BIOL 4635	Advanced Genetics and Proteomics Laboratory	4	
EMED 3000	Emergency Medicine Research	3	
OBGY 3000	Understanding Human Pregnancy	4	
PHRM 5400	Molecules and Medicine	3	
XXX 3000+	3000+ Life Sciences (with advisor permission)	variable	

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SAMPLE FOUR YEAR PLAN

Fall 2023

BCOR 1400 Exploring Biology 1^C
CHEM 1400 General Chemistry 1^C
MMG 1010 First Year Colloquium (SU)^C
MMG 1020 Unseen Worlds: Micro and You^C
MATH 1212 Fundamentals of Calc 1(MA)^C

Fall 2024

MMG 2010 Microbiology and Inf Disease^C
CHEM 2580 Organic Chemistry I^C
BCOR 2300 Genetics^C
Elective Arts and Humanities (AH1, 2, 3)
SPCH 1400 Effective Speaking (OC)

Fall 2025

BIOC 3001 Fundamentals of Biochemistry^C
MMG 3300 Adv Emer Inf Disease (SU, D2)^{M1}
STAT 1410 Biostatistics(QD)^C
MMG 3110 Bacterial Genetics^{M1}
MMG 3310 Bioinform and Data Analysis^{MG2}
Elective Social Science (S1)

Fall 2026

MMG 3330 Genetics and Genomics^{MG1}
MMG 3250 Eukaryotic Virology^{M2}
Elective Diversity (D1)
MMG 3995 Undergrad Research
MMG 2990 MMG TAsip^{MG3}

Spring 2024

4 BCOR 1450 Exploring Biology 2^C 4
4 CHEM 1450 General Chemistry 2^C 4
1 ENGL 1001 Written Expression (WIL)^C 3
3 CS 1210 Computer Programming 1^C 3
3 Elective Social Science (S1) 3
15 17

Spring 2025

4 MMG 2040 Intro Molecular Genetics^C 4
4 CHEM 2585 Organic Chemistry II^C 4
3 MMG 2060 Intro Bio Res Methods^C 3
3 MMG 2990 Cell and Mol Bio w/o lab^C 3
3 Elective Arts and Humanities (AH1, 2, 3) 3
17 17

Spring 2026

3 MMG 3200 Envir Microbiology^{M2} 3
3 MMG 3270 Cancer Genetics^{MG1} 3
3 Elective Global Citizenship (GC) 3
3 MMG 2995 Undergrad Research 3
3 MMG 3320 Advanced Bioinf^{MG2} 3
3 15
18

Spring 2027

3 MMG 3220 Advanced Medical Micro^{M2} 4
3 MMG 3350 Bioterrorism^{MG2} 3
3 ASCI 3090 One Health: Antimic Res^{M3} 3
3 MMG 3995 Undergrad Research^{M3} 3
3 MMG 4899 Senior Seminar^C 1
15 14

C: MMG Core requirements (60 credits)

M1: degree audit Microbiology section 1 (6 credits)

M2: degree audit Microbiology section 2 (9 credits)

M3: degree audit Microbiology section 3 (6 credits)

MG1: degree audit Molecular Genetics section 1 (6 credits)

MG2: degree audit Molecular Genetics section 2 (9 credits)

MG3: degree audit Molecular Genetics section 3 (3 credits)

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Date	Career Goal	Research interests	Demonstrated Skills	My next steps

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Microbiology Major	Molecular Genetics Major
Degree Audit Section 1 (at least 6 credits)	
Degree Audit Section 2 (9 credits for both or 9 for one and 6 for the other)	
Degree Audit Section 3 (3 credits for one and 6 for the other or 6 for both)	

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Advisor:

Major(s):

Minor(s):

Study Abroad (Y/N/Maybe):

Career Goals/Interests:

FALL		SPRING	
2023		2024	
2024		2025	
2025		2026	
2026		2027	