

# Microbiology and Molecular Genetics Advising Form 2011/2012

Student's Name: \_\_\_\_\_

Major:        Microbiology\_\_\_\_\_                      Molecular Genetics\_\_\_\_\_

**University Credit Requirements for Graduation: 120 course credits  
cumulative GPA > 2.0**

## CALS Core Curriculum

### 1. Knowledge:

#### A. Science

1. Physical and Life Sciences: satisfied by Program Core Requirements.
2. Social Sciences (Anthropology, Community Development and Applied Economics, Economics, Geography, History, Political Science, Psychology, Sociology).  
1. \_\_\_\_\_ 2. \_\_\_\_\_(6 credits)

#### B. Humanities and Fine Arts (Art, Classics, Drama, Music, Philosophy, Religion, Foreign language, Literature, Poetry, Film, HCOL085 or 086).

1. \_\_\_\_\_ 2. \_\_\_\_\_(6 credits)

### 2. Skills:

#### A. Communication skills:

##### 1. Oral: (3 credits)

**CALS 001**: Foundations: Communication Methods \_\_\_\_\_

One or more courses in which the student  
presents a total of three graded oral  
presentations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

##### 2. Written: (3 credits)

**Any sub-100 ENGS course or  
HCOL 085 or 086** \_\_\_\_\_

One or more courses in which the student  
writes a total of three graded "process" papers  
(papers requiring redrafting): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**B. Information Technology Skills:**

**CALS 00, CALS 085, or CS 002:** Information Technology \_\_\_\_\_

Applications of Information Technology are satisfied by Program Core Requirements

**C. Quantitative Skills:**

- 1. Mathematics: satisfied by Program Core Requirements
- 2. Statistics: **STAT 141**
- 3. Quantitative Skills Application: satisfied by Program Core Requirements

**D. Critical Thinking Skills:** satisfied by Program Core Requirements

**E. Interpersonal Skills:** satisfied by Program Core Requirements

**3. Values:**

**A. Citizenship and Social Responsibility:** Two 3-credit University Approved Diversity Courses. All students are required to complete 6 credits addressing race relations and ethnic diversity before graduation, 3 of which have to come from Category 1 courses.

Course options can be found at: <http://www.uvm.edu/provost/diversity/>

**Category 1 (take as soon as possible)** \_\_\_\_\_

**Category 1 or 2** \_\_\_\_\_

**B. Environmental Stewardship:** satisfied by Program Core Requirements

**C. Personal Growth:** satisfied by **CALS 001/002: Foundations** and Program Core Requirements

**For Transfer Students:**

The University's Transfer sheet, which will arrive with a transferring advisee's folder, will list the course(s) being transferred and whether UVM accepts or rejects the transfer. The course(s) may be acceptable to UVM but not for a particular UVM course, in which case it will be listed with X's in the number. It will then be up to the MMG Undergraduate Program Director to decide if this course will replace one of the required or elective courses. If so, it will be noted with a copy to the advisee's file. It is recommended that transfer students take **CALS 085/183** instead of CALS 001/002. MMG001 will be waived for transfer students.

**Program Core Requirements:**

([http://www.uvm.edu/microbiology/ugrad\\_program\\_overview.htm](http://www.uvm.edu/microbiology/ugrad_program_overview.htm))

<b><u>Major Requirements:</u></b>	<b><u>Semester &amp; Year completed</u></b>
First-Year Colloquium: <b>MMG 001</b>	_____ (1 credit)
Exploring Biology: <b>BCOR 11 &amp; 12</b>	_____ (8 credits)
Calculus: <b>MATH 19 &amp; 20</b> <u>or</u> <b>21 &amp; 22</b>	_____ (6/8 credits)
General Chemistry: <b>CHEM 31 &amp; 32</b>	_____ (8 credits)
Organic Chemistry: <b>CHEM 141 &amp; 142</b> <u>or</u> <b>143 &amp; 144</b>	_____ (8 credits)
Physics: <b>PHYS 11, 12</b> with <b>21/22</b> <u>or</u> <b>51 &amp; 152</b> with <b>21/22</b>	_____ (10 credits)
Microbiology & Infectious Disease: <b>MMG 101</b>	_____ (4 credits)
Intro. to Recombinant DNA Tech.: <b>MMG 104</b>	_____ (2 credits)
Genetics: <b>BCOR 101</b>	_____ (3 credits)
Cell Biology: <b>BCOR 103</b>	_____ (4 credits)
Biochemistry I: <b>MMG 205</b>	_____ (3 credits)
Biochemistry II: <b>MMG 206</b> <u>or</u> <b>BIOC 212</b>	_____ (3 credits)
Statistics: <b>STAT 141</b>	_____ (3 credits)
Senior Seminar: <b>MMG 296 (Spring)</b>	_____ (1 credit)

**Additional Requirements for Microbiology Majors:***Nine credits chosen from among the following electives:*

MMG 201	Molecular Cloning Lab	_____	(3 credits)
MMG 203	Mammalian Cell & Molecular Biology Lab	_____	(4 credits)
MMG222	Clinical Microbiology I	_____	(4 credits)
MLS255	Clinical Microbiology II	_____	(4 credits)
MMG223/MLRS242	Immunology	_____	(3 credits)
MMG 225	Eukaryotic Virology	_____	(3 credits)

*Six additional credits chosen from the list above or the following electives:*

MMG 195,196	Special Topics	_____	(variable)
MMG 295,296	Special Topics	_____	(variable)
MMG 197,198	Undergraduate Research	_____	(6 credits maximum with 297/298)
MMG 207	Biochemistry Laboratory	_____	(2 credits)
MMG 297,298	Undergraduate Research	_____	(6 credits maximum with 197/198)
MMG 211	Prokaryotic Molecular Genetics	_____	(3 credits)
MMG 231	Bioinformatics	_____	(3 credits)
MMG 240	Macromol.Struct. Proteins & Nucleic Acids	_____	(3 credits)
MMG 320*	Cellular Microbiology	_____	(4 credits)
XXX 200+	200-level course in life sciences ( <u>permission of academic advisor</u> ) <b>For example (but not limited to):</b> ASCI 216 (Endocrinology); BIOC 212 (Biochemistry of Human Disease); BIOL 223 (Developmental Biology); BIOL 246 (Ecological Parasitology); BIOL 261 (Neurobiology); BIOL 263 (Genetics of Cell Cycle Regulation); NFS 203 (Food Microbiology); MLRS 244 (Immunology Lab); PHRM201 (Introduction to Pharmacology); PHRM 272 (Toxicology); PHRM 290 (Topics in Molecular & Cell Pharmacology)		

**\* 300-level courses should only be taken with permission of both the course instructor and the student's faculty advisor.**

**Additional Requirements for Molecular Genetics Majors:**

MMG 211 Prokaryotic Molecular Genetics \_\_\_\_\_ (3 credits)

**Six credits chosen from among the following electives:**

MMG 201 Molecular Cloning Lab \_\_\_\_\_ (3 credits)

MMG 203 Mammalian Cell &amp; Molecular Biology Lab \_\_\_\_\_ (4 credits)

MMG223/MLRS242 Immunology \_\_\_\_\_ (3 credits)

MMG 225 Eukaryotic Virology \_\_\_\_\_ (3 credits)

MMG 231 Bioinformatics \_\_\_\_\_ (3 credits)

MMG 312\* Eukaryotic Genetics \_\_\_\_\_ (3 credits)

MMG 352\* Protein:Nucleic Acid Interactions \_\_\_\_\_ (3 credits)

**Six additional credits chosen from the list above or the following electives:**

MMG 195,196 SpecialTopics \_\_\_\_\_ (variable)

MMG 295,296 Special Topics \_\_\_\_\_ (variable)

MMG 197,198 Undergraduate Research \_\_\_\_\_ (6 credits  
maximum with 297/298)

MMG 207 Biochemistry Laboratory \_\_\_\_\_ (2 credits)

MMG 297,298 Undergraduate Research \_\_\_\_\_ (6 credits  
maximum with 197/198)

MMG 240 Macromol.Struct. Proteins &amp; Nucleic Acids \_\_\_\_\_ (3 credits)

MMG 320\* Cellular Microbiology \_\_\_\_\_ (4 credits)

XXX 200+ 200-level course in life sciences: **For example (but not limited to):** BIOC 212 (Biochemistry of Human Disease); BIOL 263 (Genetics of Cell Cycle Regulation); BIOL 265 (Developmental Molecular Genetics); MLRS 244 (Immunology Lab); PHRM201 (Introduction to Pharmacology); PHRM 272 (Toxicology); PHRM 290 (Topics in Molecular & Cell Pharmacology)**Additional Requirements for Microbiology and Molecular Genetics Double Majors:**

Double majors must take 12 additional credits beyond the 15 credits required for a single major **and** must satisfy the requirements of each major. Only one of these courses may be double-counted.

**Additional Requirements for Microbiology and Molecular Genetics Major/Minor:**

Major/Minors must take 6 additional credits beyond the Major; no courses may be double-counted.

## DEPARTMENTAL MINORS

Minor forms are available from CALS Student Services Office, 106 Morrill Hall. Student must obtain signatures of major advisor, minor advisor, and MMG Undergraduate Program Director and return signed form to CALS Student Services Office. Forms are available at [http://www.uvm.edu/~rgweb/?Page=forms/f\\_forms.html](http://www.uvm.edu/~rgweb/?Page=forms/f_forms.html)

**TOTAL CREDITS:** Core requirements plus additional requirements must total **19** credits.

**Core Requirements for all Minors:**

Microbiology & Infectious Disease: MMG 101	_____	(4 credits)
Intro. to Recombinant DNA Tech.: MMG 104	_____	(2 credits)
Genetics: BCOR 101	_____	(3 credits)
Cell Biology: BCOR 103	_____	(4 credits)

**Additional Requirements for Microbiology Minor:**

**Six** additional credits of **MMG** courses, chosen from among the following courses:

MMG 195,196	SpecialTopics	_____	(variable)
MMG 295,296	Special Topics	_____	(variable)
MMG 201	Molecular Cloning Lab	_____	(3 credits)
MMG 203	Mammalian Cell & Molecular Biology Lab	_____	(4 credits)
MMG 207	Biochemistry Laboratory	_____	(2 credits)
MMG 211	Prokaryotic Molecular Genetics	_____	(3 credits)
MMG 222	Clinical Microbiology I	_____	(4 credits)
MLRS 255	Clinical Microbiology II	_____	(4 credits)
MMG223/MLRS242	Immunology	_____	(3 credits)
MMG 225	Eukaryotic Virology	_____	(3 credits)
MMG 231	Bioinformatics	_____	(3 credits)
MMG 240	Macromol.Struct. Proteins & Nucleic Acids	_____	(3 credits)
MMG 320*	Cellular Microbiology	_____	(4 credits)

**Additional Requirements for Molecular Genetics Minor:**

**Six** additional credits of **MMG** courses, chosen from among the following courses:

MMG 195,196	SpecialTopics	_____	(variable)
MMG 295,296	Special Topics	_____	(variable)
MMG 201	Molecular Cloning Lab	_____	(3 credits)
MMG 203	Mammalian Cell & Molecular Biology Lab	_____	(4 credits)
MMG 207	Biochemistry Laboratory	_____	(2 credits)
MMG 211	Prokaryotic Molecular Genetics	_____	(3 credits)
MMG223/MLRS242	Immunology	_____	(3 credits)
MMG 225	Eukaryotic Virology	_____	(3 credits)
MMG 231	Bioinformatics	_____	(3 credits)
MMG 240	Macromol.Struct. Proteins & Nucleic Acids	_____	(3 credits)
MMG 312*	Eukaryotic Genetics	_____	(3 credits)
MMG 320*	Cellular Microbiology	_____	(4 credits)
MMG 352*	Protein:Nucleic Acid Interactions	_____	(3 credits)

The following descriptions are intended only as examples.

**FOR MICROBIOLOGY MAJORS**

FALL

FIRST YEAR

BCOR 11	4 credits
CHEM 31	4 credits
MATH 19 or 21	3 (4) credits
CALS 001	3 credits
MMG 001	1 credit

SPRING

BCOR 12	4 credits
CHEM 32	4 credits
MATH 20 or 22	3 (4) credits
CALS 002	3 credits

SECOND YEAR

CHEM 141 or 143	4 credits
MMG 101	4 credits
BCOR 101	3 credits
Sub-100 ENGS	3 credits

CHEM 142 or 144	4 credits
BCOR 103	4 credits
MMG 104	2 credits
Elective (Divers. I)	3 credits

THIRD YEAR

MMG 205	3 credits
MMG 201 or 225	3 credits
Elective (Soc. Sci.)	3 credits
STAT 141	3 credits
Elective (Fine Arts)	3 credits

MMG 206	3 credits
MMG 222/MLS 255	4 credits
MMG 198	3(var) credits
Elective (Divers. II)	3 credits
Elective (Soc. Sci.)	3 credits

FOURTH YEAR

PHYS 11 or 51 /21	5 credits
MMG 201 or 225	3 credits
MMG 197/297	3(var) credits
Elective (Fine Arts)	3 credits

PHYS 12 or 152 /22	5 credits
MLS 255	4 credits
MMG 198/298	3(var) credits
MMG223/MLRS242	3 credits

If one is interested in pursuing a **clinically oriented career**, consider the following courses: **MMG 201, MMG 222, and MLS 255** are absolutely essential. Also, **MMG 197/297 and 198/298, MMG 203, MMG223/MLRS242, and MMG 225** are strongly suggested.

If one is interested in pursuing an **applied microbiology career**, consider the following courses: **MMG 201 and NFS 203** are absolutely essential. Also, **MMG 203, MMG 222, MLS 255, and MMG223/MLRS242** are strongly suggested.

If one is interested in pursuing a **general microbiology experience**, consider the following courses: **MMG 201, MMG 222, MLS 255, MMG223/MLRS242, and MMG 225** are absolutely essential. **MMG 211** or any of the other courses listed would suffice.

The following descriptions are intended only as examples.

**FOR MOLECULAR GENETICS MAJORS**

FALL

FIRST YEAR

BCOR 11	4 credits
CHEM 31	4 credits
MATH 19 or 21	3 (4) credits
CALS 001	3 credits
MMG 001	1 credit

SPRING

BCOR 12	4 credits
CHEM 32	4 credits
MATH 20 or 22	3 (4) credits
CALS 002	3 credits

SECOND YEAR

CHEM 141 or 143	4 credits
MMG 101	4 credits
BCOR 101	3 credits
Sub-100 ENGS	3 credits

CHEM 142 or 144	4 credits
BCOR 103	4 credits
MMG 104	2 credits
Elective (Divers. I)	3 credits

THIRD YEAR

MMG 205	3 credits
MMG 201 or 225	3 credits
Elective (Soc. Sci.)	3 credits
STAT 141	3 credits
Elective (Fine Arts)	3 credits

MMG 206	3 credits
MMG 198	3(var) credits
Mol. Gen. Elective	3 credits
Elective (Divers. II)	3 credits
Elective (Soc. Sci.)	3 credits

FOURTH YEAR

PHYS 11 or 31 /21	5 credits
MMG 197/297	3(var) credits
MMG 211	3 credits
MMG 201 or 225	3 credits

PHYS 12 or 42 /22	5 credits
MMG 198/298	3(var) credits
Mol. Gen. Elective	3 credits
Elective (Fine Arts)	3 credits