

**An Introduction to the  
Graduate Programs  
within the *Microbiology*  
(MB) Subprogram**

**SoLS Research Faculty Affiliated with  
the Microbiology (MB) Subprogram**

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### **Required Courses for All Degrees:**

- **Biol 701**—*Ethics in Scientific Research* (2 credits). Required for those students matriculating prior to the Fall 2017 semester.
- **Biol 730**—*Fundamentals of Graduate Research* (3 credits). Starting Fall 2017, all students must enroll in Biol 730 during their first semester.
- **Biol 790**—*Research Colloquium in Life Sciences* Students may take this course for credit (1-2 credits/semester for a maximum of 10 credits toward the degree), but all students (including non-enrolled) must participate each semester.

### **Required Courses for All Degree(cont):**

- **Biol 796**—*Graduate Seminar in Life Sciences* Students may take this course for credit (2 credits/semester for a maximum of 10 credits toward the degree), but all students (including non-enrolled) must participate each semester.

## Core Courses Required for MS; PhD

- MS and PhD students must take at least ONE of the following Core Classes.
  - **Biol 609**— *Virology* (3 credits)
  - **Biol 618**— *Microbial Ecology* (3 credits)
  - **Biol 653**— *Immunology* (3 credits)
  - **Biol 660**— *Microbial Physiology* (3 credits)
  - **Biol 664**— *Bacterial Pathogenesis* (3 credits)
  - **Biol 685**— *Microbial Genetics* (3 credits)
- Students may also use classes from this list (not already used to fulfill core requirements) as elective course requirements (see below).

## Elective Courses for MS and PhD

- MS students may take TWO of the following electives.
- PhD Students must take FIVE of the following.
- Core courses (see above) not used to satisfy core requirements may substitute as electives.
- Elective courses must be approved in advance by the student's Research Advisory Committee.
- The Research Advisory Committee may require the student to take specific courses, depending on the person's academic background and research objectives.

### **Elective Courses for MS; PhD**

- **Biol 607**—*Molecular Biology* (3 credits)
- **Biol 609**—*Virology* (3 credits)
- **Biol 616**—*Bioinformatics* (3 credits)
- **Biol 618**—*Microbial Ecology* (3 credits)
- **Biol 625**—*Genomics* (3 credits)
- **Biol 628**—*Biometry* (3 credits)
- **Biol 653**—*Immunology* (3 credits)
- **Biol 660**—*Microbial Physiology* (3 credits)
- **Biol 664**—*Bacterial Pathogenesis* (3 credits)
- **Biol 674**—*RNA Biology* (3 credits)
- **Biol 678**—*Cancer Cell Genetics* (3 credits)

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### **Elective Courses for MS; PhD (cont)**

- **Biol 685**—*Microbial Genetics* (3 credits)
- **Biol 794**—*Molecular Biology Techniques* (3)
- **Chem 770**—*Protein Chemistry* (3 credits)
- **Chem 771**—*Metabolism and Energetics* (3)
- **Chem 772**—*Nucleic Acid Chemistry* (3 credits)
- **EOH 747**—*Transmission of Infectious Disease* (3)
- **Geol 720**—*Advanced Geochemistry* (4 credits)
- **Stat 691**—*Statistics for Scientists I* (3 credits)
- **Stat 692**—*Statistics for Scientists II* (3 credits)

## **Research Courses**

- MS students must complete **15 credits** of 700-level courses.
- PhD students must complete **30** 700-level credits.
- The following “research based” classes may be used to satisfy 700-level requirements.
  - **Biol 789**—*Independent Graduate Study in Life Sciences* (1-3 credits/semester; may be repeated for a max. of 9).
  - **Biol 790**—*Research Colloquium in Life Sciences* (1-2 credits/semester; repeated for a maximum of 10 credits).
  - **Biol 791**—*Research Laboratory Discussion in Life Sciences* (1-2 credits/semester; may be repeated for a maximum of 10 credits toward the degree). Can be taken to receive credit for participating in Mentor’s lab meeting.

## **Graduate Program Policies:**

### **All Students**

1. The online Graduate Catalog and the SoLS Graduate Handbook that was available at the time of matriculation will be the source for the enforced graduate policies for each student.
2. Each student must form a Research Advisory Committee within the first semester after matriculation.
3. Each student must meet with his/her Research Advisory Committee at least once during the calendar year, and submit a written report to the GOC.

## **Graduate Program Policies:** **Master's Students**

1. MS students must form a Research Advisory Committee consisting of at least four experts in their field of study.
  - A typical committee consists of:
    - Research Mentor (Chair)
    - Two SoLS Graduate Faculty
    - Graduate College Representative who has official grad faculty status within another academic unit on campus
2. MS students must complete a minimum of 30 credit hours beyond the baccalaureate degree.

## **Graduate Program Policies:** **Master's Students (cont)**

3. Credits for the MS degree will be obtained from didactic classes at the 600 and 700 level.
4. MS students must take **Biol 730**— *Fundamentals of Graduate Research* (3 credits) during their first semester in the program.
5. MS students must take at least 4 credits of **Biol 796**—*Graduate Seminar*. Students may enroll for more credit (up to 10 credits can count toward the degree, but they must participate each semester even if not enrolled).

**Graduate Program Policies:**  
**Master's Students (cont)**

6. MS students must take 6 credits of **Biol 797: *Thesis***. Students can enroll for more credits of Biol 797, but only six will count toward the degree.
7. MS students must participate in **Biol 790—*Research Colloquium in Life Sciences***. Students not enrolled must also participate each semester.
8. The student's Research Advisory Committee will determine the course of action and coursework for each individual MS student.

**Graduate Program Policies:**  
**Master's Students (cont)**

9. The MS within SoLS is a Research Degree:
  - Many credits will be earned in “research-orientated courses that include summer work.
10. Students must complete a written thesis and publicly defend their work.

## **Typical Timeline for the MS Degree:**

### Year 1 (Fall and Spring semesters):

Enroll in 6-9 credits each semester to fulfill course and research requirements.

- Fundamentals of Grad. Res. (3 credits)
- Seminars (1-2 credits)
- Two didactic courses (6 credits)

### Year 1 (Summer):

- Spend full time in the laboratory or field.
- Take research credits (3-6 credits)

### Year 2 (Fall and Spring semesters):

- Finish Coursework (6 credits)
- Finish thesis credits & defend (6 credits)

### Year 2 (Summer, if necessary):

- Finish thesis credits; defend.

## **Sample Program of Study: MS Student**

	<u>Credits</u>
3 didactic courses at the 600- or 700-level	9
Biol 730—Fundamentals of Grad. Research	3
Biol 796—Graduate Seminars	4
Biol 789—Independent Study (Pre-thesis)	2
Biol 790—Research Colloquium	3
Biol 791—Research Lab. Discussions	3
<u>Biol 797—Thesis</u>	<u>6</u>
TOTAL	30



## **Graduate Program Policies:** **Doctoral Students**

1. PhD students must form an Research Advisory Committee consisting of at least five experts in their field of study.
  - A typical committee consists of:
    - Research Mentor (Chair)
    - Two or three SoLS Graduate Faculty
    - Graduate College Representative who has official grad faculty status within another academic unit on campus
    - Outside University Member, who must be granted conditional Grad Faculty status

## **Graduate Program Policies:** **Doctoral Students (cont)**

2. Doctoral students are required to complete a minimum of 60 credit hours of graduate work.
3. Credits for the PhD degree will be obtained from classes at the 600 and 700 level.
4. PhD students must take **Biol 730**—*Fundamentals of Graduate Research* (3 credits) during their first semester in the program.
5. PhD students must take at least 6 credits of **Biol 796**—*Graduate Seminar*. Students may enroll for up to 10 credits, but they must participate each semester even if they are not enrolled.

**Graduate Program Policies:**  
**Doctoral Students (cont)**

6. PhD students are required to take **Biol 787**— *Post-Candidacy Assignment* (3 credits). One year after passing their comprehensive exam, each student is required to enroll in Biol 787. The culmination of this class is the approval by their Research Advisory Committee of a written “plan of action” for the completion of their dissertation.
7. PhD students are required to take 12 credits of **Biol 799**—*Dissertation*. Students may enroll for more credits of Biol 799, but no more than 18 will count toward the degree.

**Graduate Program Policies:**  
**Doctoral Students (cont)**

8. PhD students must participate in **Biol 790**— *Research Colloquium in Life Sciences* each semester even if they are not enrolled in the class for credit
9. The student’s Research Advisory Committee will determine the course of action and coursework for each individual PhD student.
10. All PhD students are required to instruct **two** lab or discussion sections of a UNLV biology class.

**Graduate Program Policies:**  
**Doctoral Students (cont)**

11. All PhD students must pass a comprehensive exam before being admitted to candidacy.
  - Most students take the comprehensive exam during the summer between their 4<sup>th</sup> and 5<sup>th</sup> semesters in the program.
  - The comprehensive exam is administered by a separate Examination Committee that must exclude the student's research mentor.
  - The exam consists of a written portion in the form of questions submitted from the committee and an oral defense of the work.

**Graduate Program Policies:**  
**Doctoral Students (cont)**

12. The PhD within SoLS is a Research Degree:
  - Many credits will be earned in "research-orientated courses that include summer work.
13. Students must complete a written dissertation and publicly defend their work.

## **Timeline for the PhD Degree:**

### **Year 1:**

Enroll in 6-9 credits/semester to fulfill course and research requirements

- Fundamentals of Grad. Res. (3 credits)
- Seminars (1-2 credits)
- Two didactic courses (6 credits)
- Participate in Research Colloquium
- Spend full time in lab or field over summer.

### **Year 2:**

- Try to finish didactic coursework requirements (6 credits/semester)
- Enroll or Participate in Research Colloquium
- Take and Pass Comprehensive exam over the summer.

## **Timeline for the PhD Degree (cont):**

### **Year 3:**

- Finish any didactic and seminar requirements.
- Finish up research-credit requirements.
- Pass Post Candidacy Assignment (Biol 787).
- Enroll in 6 credits/semester for research.
- Work full time on research project.
- Participate in Research Colloquium.

### **Years 4, 5, and 6:**

- Enroll in 6 credits/semester for research or Dissertation.
- Participate in Research Colloquium.
- Work full time on research project.
- Write Dissertation and defend.

## Sample Program of Study: PhD Student

	<u>Credits</u>
6 didactic courses at the 600- or 700-level	18
Biol 730—Fundamentals of Grad. Research	3
Biol 796—Graduate Seminars	6
Biol 789—Independent Study (Pre-thesis)	3
Biol 790—Research Colloquium	9
Biol 791—Research Lab. Discussions	6
Biol 787—Post Candidacy Assignment	3
<u>Biol 799—Dissertation</u>	<u>12</u>
TOTAL	60