

**SCHOOL OF GRADUATE STUDIES  
DEPARTMENT OF MICROBIOLOGY, IMMUNOLOGY, AND PARASITOLOGY**

**POLICY GOVERNING MIP GRADUATE STUDENTS AND RECRUITS  
February 2014**

**INTRODUCTION**

The following document will serve as a policy for MIP faculty and all students working towards their Ph.D degree in our department. The general requirements for graduation from LSU Health Sciences Center are stated in the LSU Health Sciences Catalog, and these requirements must be met before the department can sponsor a candidate for a degree. The Department of Microbiology, Immunology, and Parasitology has established additional criteria from receiving a graduate degree. These requirements are specified below.

**QUALIFICATIONS**

Students accepted into our program are expected to have a B.S. in Biological or Natural Sciences, minimum overall GPA of 3.0 out of 4.0, including college courses in Biology with lab (2 sem), and advanced Biology courses (e.g., Microbiology (preferred), Cell Biology, Zoology, Biochemistry, Molecular Biology, etc.). **Applicants are required to take the GRE and obtain combined verbal and quantitative scores of 1100 or 310** (with at least a score of 500 or 150 on each section). The applicant must indicate by "letter of intent" their immediate and long-term goals. .

**ADMISSION PROCEDURE**

Applicants meeting the minimum requirements are reviewed by the departmental committee (assigned by the Head in consult with the Graduate Coordinators) and recommendations are forwarded to the Dean of the School of Graduate Studies. Applicants for beginning students are accepted until March 31 of each year for acceptance in the Fall semester (this semester typically begins August 1<sup>st</sup>). .

**GRADE REQUIREMENTS**

The faculty will review each new student's performance following the completion of each semester in the graduate program. Students that have a grade point average below 3.0, will likely be dropped from the MIP graduate program. If allowed to remain in the program, students with a grade point average below 3.0 are placed on academic probation. Graduate School policy permits the student 3 semesters (approximately 1 year) to raise the grade point average to a 3.0 or better. If the student scores below a 3.0 average for any semester while on probation, that student will be dropped from the program. Students on probation are generally not allowed to receive stipends regardless of the source of those funds. Students receiving more than two grades less than a B will not be permitted to proceed in the MIP graduate program.

**STIPENDS**

Award of departmental (state) stipends (assistantships) is based on the availability of such funds.

Once a student begins research work towards their degree, the student's mentor will provide financial support in accordance with the accepted guidelines for such support (see below). All students are strongly encouraged to seek individual funding with the assistance of the Graduate Coordinator or major professor (e.g., NIH pre-doctoral fellowships, industry, or foundation). The department reserves the right to reassign departmental (state) stipends based on the academic and research work performance of the student as reviewed at intervals (not exceeding six months) or at the beginning of each semester.

The guidelines for stipends vary with the availability of funds. The current guidelines are:

- a. All stipends are based on the availability of Graduate School funding to the Department. This funding varies from year to year and even from semester to semester. Because funding is limited, some students may receive neither a stipend nor tuition support.
- b. Students, regardless of the source of their funding, may be asked to perform limited service for the Department; such service generally relates to their training in teaching, but could include other activities (e.g., research support work).
- c. Students may receive stipends of up to \$24,000 per year plus tuition coverage.

## **SELECTION OF A MENTOR/LABORATORY ROTATIONS**

First year students will attend class each morning and are expected to spend each afternoon in the laboratory. New students will be introduced to MIP labs during the first two weeks of the Fall semester. Students will select first rotations by the end of August and begin working in the laboratory by early September. Specific dates will be set each year to reflect three 11 week rotations.

### **Minimal Expectations for Rotation**

- a. 20+ hours a week for rotation
- b. Expected to come in after hours/weekends to complete experiments if necessary.
- c. Students must respect the schedule arranged for them by their rotation supervisor.
- d. Familiarize with publications assigned by the mentor
- e. Written reports will be required at the commencement and conclusion of each rotation on forms provided and kept on file

### **Written assessments:**

- a. When the student enters the laboratory, the mentor and student will agree on and complete “Rotation Form I” describing reasonable goals for the rotation. The form will be submitted to [mipgrad@lsuhsc.edu](mailto:mipgrad@lsuhsc.edu).
- b. At end of rotation: the mentor together with student will agree on accomplishments and techniques achieved by student and to what level the goals were reached.
- c. At end of rotation: the mentor will will complete “Rotation Form II” and submit to [mipgrad@lsuhsc.edu](mailto:mipgrad@lsuhsc.edu). The form will be placed in the student’s file.
  - i. Did the student put in reasonable effort at the lab – did he understand that it is not just a 9 – 5 job?
  - ii. Did the student grasp the techniques, understand why certain steps were done, purpose of controls, did he/ she ask questions?
  - iii. In general, does this student have PhD potential?

Students will receive satisfactory/ unsatisfactory grade from each rotation. A fourth rotation is optional. Rotation performances will be reviewed by the MIP graduate faculty and a decision will be made whether the student will continue in the graduate program. At the end of the first two semesters the student, in consultation with the Graduate Coordinators, Department Head, and the preferred Major Professor, will finalize their decision of a major professor. All students are expected to select a major professor by June 1.

### **Course-Work Requirements for Ph.D. in Microbiology**

		<b><u>Credits</u></b>
INTER 111	Biochemistry	4
INTER 121	Cell Biology	3
INTER 122	Molecular Genetic Mechanisms	2
INTER 123	Control of Gene Expression	2
INTER 220	Ethics in Biomedical Sciences	1
INTER 260	Responsible Conduct in Research	1
MICRO 225	Advanced Medical Bacteriology	4
MICRO 228	Laboratory Rotations in Microbiology	6 – 8
MICRO 229	Analysis of Research Literature	1
MICRO 231	Molecular Biology of Eukaryotic Pathogens	4
MICRO 276	General and Molecular Virology	4
MICRO 281	Selected Topics in Microbiology	1 - 3
MICRO 296	Fundamentals in Immunology	4
MICRO 298	Seminar in Microbiology	4
MICRO 299	Research Proposal in Microbiology	3
MICRO 300	Thesis Research +	
MICRO 400	Dissertation Research	15
Total Credits		<b>60-63</b>
Total Credits with letter grade		<b>30</b>

**Additional Requirements**

Each student is expected to present their research in the departmental seminar series and to participate in a Departmental/Center Journal Club.

**SAMPLE CURRICULUM FOR REGISTRATION FOR MIP PROGRAM (Ph.D.)****Fall – year 1 (13 credits; 9 credits letter grade)**

INTER 111	Biochemistry	4 credits	Grade
INTER 121	Cell Biology	3 credits	Grade
INTER 122	Molecular Genetic Mechanisms	2 credits	Grade
MICRO 228	Laboratory Rotations	4 credits	Pass/Fail

**Satisfactory progress:** GPA  $\geq$  3.0; and satisfactory review from laboratory rotation

**Spring – year 1 (14 credits; 10 credits letter grade)**

INTER 123	Control of Gene Expression	2 credits	Grade
MICRO 276	Gen & Molecular Virology	4credits	Grade
MICRO 296	Fundamentals in Immunology	4 credits	Grade
MICRO 228	Lab Rotations in Microbiology	4 credits	Pass/Fail

**Satisfactory progress:** GPA  $\geq$  3.0 and satisfactory reviews from laboratory rotations

**Summer –year 1 (6 credits)**

MICRO 300	Thesis research	1-6 credits	Pass/Fail
MICRO	Special Topics in Microbiology	1-3 credits	Pass/Fail

**Fall – year 2 (9 credits; 8 credits letter grade)**

MICRO 231	Mol Biol Eukaryotic Pathogens	4 credits	Grade
MICRO 225	Advanced Medical Bacteriology	4 credits	Grade
INTER 220	Ethics in Biomedical Sciences	1 credit	Pass/Fail

**Satisfactory progress:** GPA  $\geq$  3.0 and satisfactory progress in research laboratory

**Students must select a graduate research committee****Spring - year 2 (9 credits)**

INTER 260	Responsible Conduct in Research	1 credits	Pass/Fail
MICRO 229	Analysis of Research Literature	1 credit	Pass/ Fail
MICRO 300	Thesis research	7 credits	Pass/Fail

**Summer- year 2 (6 credits)**

MICRO 300	Thesis research	1-6 credits	Pass/Fail
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**Students must take the Qualifying Examination by the end of their second year of Graduate Studies.**

**Satisfactory progress:** GPA  $\geq$  3.0; passing of the Qualifying Examination and demonstration of successful progress as determined through committee meetings.

**In subsequent years, students will register for 9 credits / semester. They will be required to participate in MIP seminar and Analysis of Research Literature every semester.**

MICRO 229	Analysis of Research Literature	1 credit	Pass/Fail
MICRO 298	Seminar in Microbiology	1 credit	Pass/Fail
MICRO 299	Research Proposal in Microbiology	3 credits	Grade
MICRO 300	Thesis Research	1-9 credits	Pass/Fail
MICRO 400	Dissertation Research	1-9 credits	Pass/Fail

## **SPECIFIC DEPARTMENTAL REQUIREMENTS AND POLICIES**

### **Student Advisor**

The Departmental Coordinators for Graduate Programs serve as the advisors to ALL students until the Major Professor (mentor) has been determined.

### **Selection of Major Professor (mentor)**

During the first and second semesters of study, students will register for the laboratory rotations in Microbiology Course. Through these rotations, students will determine which area of research they prefer and which professor they would like to choose as their major professor. At the end of the first two semesters (typically in May), the student, in consultation with the Graduate Coordinators, Departmental Head, and the preferred Major Professor, will finalize their decision of a major professor.

### **Ph.D. PROGRAM**

#### **General Policy**

Admission to the Microbiology Graduate Program does not imply automatic clearance to continue graduate studies toward the Ph.D. degree. Students must pass the Departmental Qualifying Examination in order to work toward the Ph.D. degree.

#### **Residence and Hours**

**Students must successfully complete 60 hours of course work including 30 hours of graded courses.** Students are allowed no more than 15 hours credit for research and dissertation and no more than four credits for seminar, even though both may be carried throughout the program.

In accordance with LSUHSC rules, a student must complete all requirements for the Ph.D. degree within seven calendar years (following admission into the graduate program) but are generally expected to complete degree after 5 years of full time study. Students are expected to have a grade of “B” or better in all departmental required courses.

One full year (3 consecutive semesters) must be taken at the Health Sciences Center following completion of the Preliminary Examination.

#### **Student Research and Dissertation Committee**

In the Fall semester of the 2<sup>nd</sup> year of graduate studies, the student, in consultation with the major professor and with approval of the Department Head, will select a Dissertation Committee. At the first meeting, the committee will select a Committee Chair who is not the major professor. **Meetings should occur at a minimum of once every six months.** The student must provide a report to all committee members at least 3 days before the committee meeting. Following such a meeting, a report of the Dissertation Committee meeting will be coordinated by the committee chair and distributed to the student and committee members (see below). The report must be endorsed by Committee Chair and committee. A copy of this report, signed by both the Mentor and the student will be submitted to [mipgrad@lsuhsc.edu](mailto:mipgrad@lsuhsc.edu) and will be filed in the student’s departmental record folder.

The Dissertation committee shall be comprised of at least 5 members. This is required to include

LSUHSC- MIP Graduate faculty including Major Professor	at least	3
Graduate Faculty member non-MIP	at least	1
Outside LSUHSC Graduate Faculty - (preferred and highly recommended)		1

### **Committee Meeting Requirements:**

Written requirement of Student:

- “Specific Aims” - style section of a NIH grant of one page length which includes a short introduction of subject area, significance and specific aims of the project.
- 1 – 2 page progress describing work accomplished since last meeting. This must address each of the 6-month goals stated in the previous committee report and should NOT be replaced by a copy of any powerpoint/seminar presentation.
- Goals for next 6 month period

Written assessment of committee meeting should contain:

- Assessment of the level of understanding of the project and methods and the ability to discuss these
- Comment on whether 6 month goals were satisfactorily completed and addressed
- Goals and expectation for next 6 month period
- Potential of work for publication

The assessment is emailed to committee members for approval. The final assessment is shown to the student; signed by mentor and student and sent to [mipgrad@lsuhsc.edu](mailto:mipgrad@lsuhsc.edu) and kept in student records.

### **If the committee believes that the student is not making good effort towards 6 month goals at two consecutive committee meetings, then this is sufficient reason for dismissal of the student from the MIP PhD program. Seminar**

Each student is required to present work in progress as a departmental seminar series once during each calendar year of enrollment.

- First year students are required to give a seminar presenting work from one of their rotations.
- Students are encouraged not to reschedule seminars; remember it is a work in progress
- Critiques of the seminar will be written by two students
  - Critiques will be submitted to [mipgrad@lsuhsc.edu](mailto:mipgrad@lsuhsc.edu) where they will be filed in student’s records
  - Critiques will be given via graduate advisor to mentor. The mentor will discuss the critique with the student.
  - The Dissertation Committee will discuss and present a verbal critique of the student's seminar.

### **Qualifying Examination**

**The student shall take the Qualifying Examination by the end of the second year of graduate study.**

This Qualifying Examination determines the student’s fitness to continue in the Ph.D. program. It also allows the Committee to help the major professor plan a program of study by revealing both strong and weak points in the student’s background. The Qualifying Examination will be administered by a departmental committee consisting of six faculty members assigned by the Department Head. This written and oral exam is detailed in the graduate student manual.

At the completion of the oral examination, the Qualifying Examination Committee will meet to discuss student performance and determine if the student passed or failed. If the student passes, they become a Ph.D. candidate, and may proceed with dissertation research in the graduate program. If the student fails, the committee may provide the option to retake the exam. If the committee does not provide the option to retake the exam, the student may continue in the program to obtain a MS degree. The option to re-take the exam after the completion of a MS degree may be provided after discussion with the mentor, department head, and exam committee.

After successful completion of the Qualifying Examination, the Committee Chairperson will prepare a short description of the student's strengths and weaknesses as well as a listing of any specific courses that a student should (or must) take to complete the Ph.D. program. One copy of the description will be filed with the student, the Major Professor, and the student's file.

### **Preliminary Examination**

This examination must be taken by the end of the third year of graduate studies, barring extreme extenuating circumstances. The preliminary exam must also be passed at least one academic year (3 consecutive semesters) before the final defense examination and graduation. The student may be examined in any segment of microbiology and areas of a minor field (particularly as recommended by the Qualifying Examination Committee). The focus of the examination will be on the proposal based on his/her own dissertation project (presented **in a RO1 grant (no longer than 12 pages; including Abstract , Research Plan, Vertebrate Animals (if necessary), Human Subjects (if necessary)and References.** The completed, typed REQUEST FOR PRELIMINARY EXAMINATION FORM should be sent to the Graduate School at least 2 weeks prior to the examination date and the research proposal should be circulated to the Graduate Committee at the same time. Also, the student should register for course credit (Microbiology 299, 3 hours credit) for the proposal written for this exam.

### **Results of the Preliminary Examination**

The results of the Preliminary Examination will be determined by vote of the committee as follows:

Pass - student becomes a "candidate" for the Ph.D.

Fail - two dissenting votes constitute a basis for failure. On re-examination (generally within 6 months of the first Preliminary Exam), a second failure generally implies that the student be terminated by vote of the faculty (simple majority).

REPORT OF PRELIMINARY EXAMINATION Form must be sent to the Dean of the School of Graduate Studies following completion of the committee's recommendation.

### **Post Preliminary Examination Period**

Upon successful completion of the Preliminary Examination, the Dissertation Committee is still required to meet regularly (minimum of once every six months) with the student to discuss progress and offer suggestions. Reports of these meetings written by Major Professor and approved by Committee chair and the committee are still required. Approved reports are submitted to [mipgrad@lsuhsc.edu](mailto:mipgrad@lsuhsc.edu) and filed in the student's folder.

### **Dissertation**

The substance of the dissertation must represent a contribution to the field. **At least one first-author manuscript pertaining to dissertation work must be accepted for publication in a peer-reviewed journal prior to the dissertation defense.** Exceptions can be made and defense can continue if agreed on by dissertation committee and Head of Department.

The student is still required to prepare a manuscript acceptable for publication and this will be submitted to dissertation committee.

Contents of the dissertation are to be presented as a departmental seminar. The seminar will be publicized as being based on the contents of a dissertation. The seminar will be presented shortly before or at the time of the dissertation defense.

### **Final Examination**

A completed REQUEST FOR DISSERTATION DEFENSE Form and a copy of the Dissertation Abstract must be received by the Graduate School two weeks prior to the defense date. Copies of the Dissertation must also be circulated to the examination committee at that time.

The student's defense is open for attendance by interested departmental faculty members and those faculty invited by the Major Professor. Such attendees have no right to vote and may each ask a single question, but only with the concurrence of the Major Professor.

Voting is by secret ballot, and to pass the examination there may be no more than one negative vote.

The Major Professor will have the DISSERTATION FINAL EXAMINATION REPORT Form ready for the committee to sign upon completion of the Final Examination. In theory, the committee signs the Form only when satisfied that the dissertation is acceptable and in final form. In practice, the Committee signs the form when they are satisfied that the dissertation is acceptable and after agreeing that the Major Professor will certify on the Committee's behalf that the agreed upon changes are included in the final version. The student keeps a copy of the Form and submits it to the Dean of the Graduate School along with final copies of the dissertation and two copies of the abstract. All forms and papers must be in the Dean's office by the date listed in the current LSUMC catalogue.

Copies of the final bound dissertation are required as follows: one copy for the department and two copies for the graduate school. Normally at least 5 bound copies are prepared: the additional two copies are for the student and the mentor.

### **Additional Requirements for Ph.D. Degree**

Students are expected to attend a seminar series on Biostatistics that will be hosted by the MIP department when offered..

Students are expected to participate in teaching requirements, as approved by the faculty.

Students are expected to participate in a Departmental or Center of Excellence Journal Club and present a paper once each year.

### **M.S. PROGRAM**

The Department does not enroll students specifically for the study of the MS degree, however in certain circumstances the MS degree in Biomedical Sciences can be conferred to students enrolled in the graduate program. The requirements for this program are available through the School of Graduate Studies.