

**LSU Health Sciences Center
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF MICROBIOLOGY, IMMUNOLOGY, AND PARASITOLOGY**

**POLICY GOVERNING MIP GRADUATE STUDENTS AND RECRUITS
August, 2009**

INTRODUCTION

The following document will serve as a policy for MIP faculty and all students working towards their degree(s) (MS and/or Ph.D.) 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 for receiving a graduate degree as specified below.

QUALIFICATIONS

Students accepted into our program are expected to have a minimum overall GPA of 3.0 out of 4.0, including college courses in Biology with lab (2 sem), Chemistry with lab (2 sem), Organic Chemistry with lab (2 sem), Physics (2 sem), Calculus (2 sem), and advanced Biology courses (e.g., Microbiology, Cell Biology, Zoology, Biochemistry, Molecular Biology, etc.). **Applicants are required to take the GRE and obtain combined verbal and quantitative scores of 1100** (with at least a score of 500 on each section) or alternatively, the MCAT with a combined score of 27 (with no less than 7 on any one of three sections). The applicant must indicate by "letter of intent" their immediate and long-term goals. Candidates who only meet one of the two minimum requirements (i.e., GPA or GRE) may be considered for acceptance on a probationary status, however, this is not a common practice.

ADMISSION PROCEDURE

Applicants meeting the minimum requirements are reviewed by the departmental faculty or 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 1st). Students who have already received a master's degree are reviewed periodically and may be accepted for study at the beginning of each semester.

GRADE REQUIREMENTS

The faculty will review each new student's performance following the completion of the first and second semesters in the graduate program. Students that have a grade point average below 3.0, can be immediately dropped from the graduate program by vote of the departmental faculty (simple majority). 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 following the vote of the departmental faculty (simple majority). Students on probation are generally not allowed to receive stipends regardless of the source of those funds.

STIPENDS

Award of departmental (state) stipends (assistantships) is based on individual academic performance and the availability of such funds. Students on academic probation are generally not awarded stipend 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 six month intervals or at the beginning of the Fall and Spring semesters.

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. 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 all MIP labs that are accepting students during the first two weeks of the Fall semester. Students will select first rotations by mid-August and begin working in the laboratory at that time. Specific dates will be set each year to reflect two, 8 week rotations within the semester.

Rotation #1 August – October

Rotation #2 October – December

Rotation #3 January – March

Rotation #4 March – May

Minimal Expectations for Rotation

- a. 20+ hours a week for rotation
- b. Expected to be able to come in after hours/weekends to complete experiments
- c. Respect a schedule since you are working with other people
- d. Account for an absence – ie EMAIL
- e. Familiarize with publications assigned by the mentor
- f. Written assessment reports will be kept on file

Written assessments:

- a. When the student enters the laboratory, the mentor and student will agree on and write up reasonable goals.
- 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 only will write a short assessment which addresses the following points:
 - 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 they grasp the techniques, understand why certain steps were done, purpose of controls, did they ask questions?
 - iii. In general, is this student PhD potential or potentially PhD potential?

Students will receive a letter grade from each rotation, and the written assessment of the student's performance will be prepared by each mentor and placed in the student's file. The fourth rotation is optional. Additionally, rotation performances will be reviewed by the 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 Coordinator, Departmental 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

		<u>Credits</u>
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 228	Laboratory Rotations in Microbiology	6 - 8
MICRO 225	Advanced Medical Bacteriology	4
MICRO 296	Fundamentals in Immunology	4
MICRO 231	Eukaryotic Pathogens	4
MICRO 276	Gen & Molecular Virology	4
MICRO 281	Selected Topics in Microbiology	1 - 3
MICRO 298	Seminar in Microbiology	4
MICRO 299	Research Proposal in Microbiology	3
MICRO 400	Dissertation Research	15

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 MICROBIOLOGY PROGRAM (Ph.D.)

Fall – year 1

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	Grade

Satisfactory progress (GPA $\geq$ 3.0)

Spring – year 1

INTER 123	Control of Gene Expression	2 credits	Grade
MICRO 225	Advanced Medical Bacteriology	4 credits	Grade
MICRO 296	Fundamentals in Immunology	4 credits	Grade
MICRO 228	Lab Rotations in Microbiology	4 credits	Grade

Satisfactory progress (GPA $\geq$ 3.0) and satisfactory reviews from laboratory rotations

Summer –year 1

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

Fall – year 2

MICRO 231	Mol Biol Eukaryotic Pathogens	4 credits	Grade
MICRO 276	Gen & Molecular Virology	4credits	Grade
INTER 220	Ethics in Biomedical Sciences	1 credit	Pass/Fail
MICRO 300	Thesis research	3 credits	Pass/Fail

Satisfactory progress (GPA $\geq$ 3.0).

Students must select a graduate research committee

Spring - year 2

INTER 260	Responsible Conduct in Research	1 credits	Pass/Fail
MICRO 300	Thesis research	8 credits	Pass/Fail

Summer- year 2

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) and for the Ph.D. program, passing of the Qualifying Examination and demonstrate successful progress as determined through committee meetings.

In Subsequent years, students will take:

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 Coordinator, 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.

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. A student will have to repeat a departmental required course if a grade of less than "B" is obtained; however, in rare instances, exceptions are made as determined by a faculty vote.

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.

The program of study will be individually designed for each student based upon the evaluation of the major professor and later with input from the Qualifying Exam Committee.

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 2nd year of graduate studies, the student, in consultation with the major professor and with approval of the Department Head, will select a Dissertation Committee. The School of Graduate Studies does not officially approve this committee until the Preliminary Exam, but formation and regular meetings of the committee are required to guide the student's research plan. **Meetings should occur at a minimum of once every six months.** Following such a meeting, a report of the Dissertation Committee meeting will be prepared by the Major Professor and distributed to the student and committee members (see below). A copy of this report, signed by both the Mentor and the student will be filed in the student's departmental record folder.

The research committee shall be comprised (minimally) of the following members:

Microbiology Department Graduate faculty (primary appointment):	3
Major Professor	1
LSUHSC Graduate Faculty member outside of Department	1
Faculty member outside University (optional)**	1

**An optional member of the Dissertation committee can be from outside the LSU Health Sciences Center faculty. This scenario will enhance the expertise of the committee and add a different perspective.

Committee Meeting Requirements:

Written requirement of Student:

- "Specific Aims" section of a NIH grant which includes a short introduction of subject area; significance of project; AIMS
- Short presentation of work accomplished. This is not necessary if the meeting immediately follows the seminar
- 6 month goals
- Applications toward potential publications

Written assessment by mentor which is emailed and approved by committee prior to deposit in student folder. The assessment (short paragraph) should include:

- Ability of student to present project
- Level of understanding of the project and methods
- Were 6 month goals satisfactorily completed or good effort made?
- New 6 month goals
- Potential toward publications

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.

- a. First year students are required to give a seminar presenting work from one of their rotations.
- b. Students are encouraged not to reschedule seminars; remember it is a work in progress
- c. Critiques of the seminar will be written by one student and one faculty member
- d. Critiques will be given to graduate advisor where they will be filed in student's records
- e. Critiques will be given directly or via graduate advisor to mentor. The mentor will go over the critique with the student.

Qualifying Examination

The student shall take the Qualifying Examination by the end of the second year of graduate study. Students already holding an M.S. degree from another institution shall take the Qualifying Exam within the first semester of matriculation. MD/PhD students shall take the Qualifying Exam by the end of the first 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 attached appendix.

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 are now 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 grant proposal based on his/her own dissertation project, **presented as a R-21 grant. The Research Plan of the R21 application may not exceed 15 pages.** 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 should be distributed to the committee 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 (Possible exceptions include – interference with patent; PI wants to expand work to include additional experiments in progress; article submitted but needs revision.) 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 LSUHSC catalogue.

Additional Requirements for Ph.D. Degree

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

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 can be conferred to students enrolled in the graduate program. The minimum departmental requirements for the MS degree are listed below.

Residence and hours

A minimum of two academic years of four semesters and two summer terms or a total of two calendar years will be required. The student must successfully complete 30 semester hours of course work.

Thesis committee

The Major Professor and the student will jointly select two Graduate Faculty members, one with a Primary Appointment in Microbiology and one from another LSUHSC department. The committee is expected to meet on a yearly basis, beginning in the Fall Semester of the student's second year of graduate studies. Prior to the initial writing of the thesis, the committee must meet with the student in assessing progress. All thesis committee meetings are to be documented in the form of a progress report (hard copy). The Head of the Department and Departmental Coordinators are to be informed as to the progress of the student and a copy of the progress report is to be placed in the folder of the graduate student.

Thesis defense

A completed form entitled "REQUEST FOR THESIS DEFENSE" and a copy of the Thesis Abstract must be received by the Graduate School two weeks prior to the defense date. Copies of the Thesis must also be circulated to the examining committee at that time.

The student must present a defense of the thesis to the thesis committee. Voting on the thesis defense will be by secret ballot and, for the committee of three members, there may be no more than one negative vote (2 negative votes are allowed for passage if the committee is expanded to 5 or more members). The THESIS DEFENSE FINAL EXAMINATION REPORT must be completed at this time and the signed report sent to the School of Graduate Studies administration. The Head of the Department reserves the right to sit in and participate in the student's committee defense or appoint another faculty member to do so. The appointed faculty member must be agreed upon by both the Departmental Head and the Major Professor.

A public seminar by the student with questions from faculty and students is to be presented at the time of the defense.

It is anticipated that work from the thesis will be published in at least one reputable peer-reviewed journal.