

**MICROBIOLOGY & IMMUNOLOGY
GRADUATE PROGRAM**



**GRADUATE PROGRAM HANDBOOK
AND BYLAWS**

January 2016

OBJECTIVE OF THIS HANDBOOK

The objective of this handbook is to provide current information on the Graduate Program in Microbiology & Immunology within the Graduate School of Biomedical Sciences (GSBS) at The University of Texas Medical Branch (UTMB). The handbook adheres to the rules and regulations put forth by the GSBS and the Basic Biomedical Science Curriculum (BBSC). Specific information related to the GSBS and the BBSC, including procedures for application, can be found at the web site <http://www.gsbs.utmb.edu/>.

MISSION AND OBJECTIVES OF THE PROGRAM

The primary mission of the Microbiology and Immunology (MICR) Graduate Program is the education of graduate students in the areas of basic and applied microbiology and immunology. This mission is pursued by engaging students in research leading to the discovery of novel principles and new knowledge of microbiological and immunologic processes and their application to human health and disease. To lay a solid foundation for students' research endeavors, the Graduate Program organizes Graduate Courses and Research Seminars.

The objectives of the Program are to:

- Educate graduate students in the foundations and the current state-of-the-art of microbiology and immunology;
- Provide advanced training in microbiology and immunology, including research methodology and data analysis and interpretation;
- Provide guidance, training, and support for presentations at the national/international conferences, manuscript preparation, and the planning and completion of original research projects in the student's area of specialization;
- Advance knowledge through basic and translational research;
- Prepare students for careers in biomedical research, education, and administration in academia, government, and industry.

PATH TO GRADUATION

The program is multidisciplinary and interdepartmental, characteristics that enhance state-of-the-art training for careers in biomedical research. The Ph.D. program trains innovative scientists capable of solving basic and applied biomedical problems for future leadership positions in universities, government laboratories, regulatory agencies, and industry. The program emphasizes innovative research and versatile approaches to problem solving.

AREAS OF RESEARCH

Individualized research programs are available in several areas:

- Molecular basis of bacterial, viral, and parasitic pathogenesis
- Host defense
- Vaccinology
- Basic and applied immunology: autoimmunity; immune regulation; immunotoxicology

Students will have access to modern sophisticated instrumentation and research techniques in their mentor's laboratory or through collaborating faculty and core laboratories.

Faculty members in our program employ diverse research approaches including

- Structural, molecular, and computational biology
- Bioinformatics, metabolomics, proteomics, and genomics
- High-speed and high-throughput imaging technologies
- Confocal, epifluorescence, and electron microscopy
- Multi-color flow cytometry and fluorescence-activated cell sorting
- Multiplexing techniques for the measurement of cytokines, chemokines, kinases, and other proteins

The time required for the completion of a dissertation in microbiology and immunology varies with the background of the student and the research project chosen. The average time to completion of the Ph.D. in the Program is five years, including the first year, during which time the students undertake BBSC courses. Students will have to pass a qualifying exam consisting of an original research proposal and the oral defense of the proposal before being allowed to proceed to candidacy. Admittance to candidacy further requires the submission of a dissertation proposal and its acceptance by the student's supervisory committee. Students are required to meet semi-annually with their supervisory committee to provide progress and receive advice and feed-back. Students should be aware that the course of study and requirements for graduation are subject to approval and modification by the faculty. Before the dissertation defense is scheduled, it is expected that at least one original research paper with the student as a first author must be accepted by a peer-reviewed journal in the student's area of specialization.

MD-PhD students should plan on approximately three to four years for completion of the Ph.D. requirements. In addition to acceptance of an original research paper in a peer-reviewed journal, MD-PhD students must provide a satisfactory draft of the dissertation prior to returning to the medical school curriculum.

ORGANIZATION OF THE PROGRAM

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Executive Program Committee
Admissions Committee
Curriculum Committee
M&I Student Organization

Website links:

http://microbiology.utmb.edu/grad_program/default.asp

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I. Organization of the Microbiology and Immunology Graduate Program

A. Graduate Program Faculty

1. Membership in the MICR Graduate Program requires:
 - a. Membership in the Graduate Faculty of the Graduate School of Biomedical Sciences (GSBS) at UTMB
 - b. Willingness and capability to supervise Ph.D. candidates
 - c. Participation in teaching graduate courses in the Program
 - d. Willingness to participate on Program committees
2. Membership levels include:
 - a. Full Member: a faculty member with demonstrated teaching and supervisory experience.
 - b. Associate Member: usually a new member in a first faculty position with limited teaching experience and no prior graduate student supervisory activity. Should a graduate student elect an Associate Member as Research Advisor and Supervisory Professor, a senior Graduate Program Member, who will also serve on the student's Supervisory Committee, will be assigned as a co-mentor. The Graduate Program Director/Assistant Director will annually review the teaching and supervisory activities of Associate Members. Associate Members will be administratively promoted to Full Member status after demonstrating the ability to independently supervise graduate students.
 - c. Special Member: a faculty member who is a member of a different graduate program in the GSBS and was selected by a student in the Program as Supervisory Professor, or a faculty member who is not a member of any GSBS Program. Special Member status is conferred for the duration of a faculty member's involvement in the student's mentoring. Appointment to Special Member is administratively handled by the Program Director/Assistant Director.
3. New members may apply or can be nominated by a member of the Program Faculty to the Program Director. The Program Director will collect the candidate's credentials from the current C.V., specifically in the areas of demonstrated teaching activities and student mentoring, and a statement of teaching philosophy. The Standing Program Committees will review these credentials and vote to either accept the nominee as a full or an associate member, or reject the application. Final approval is given by the Dean of the GSBS.
4. Specific responsibilities of the Graduate Program Faculty include:
 - a. Recommendations concerning membership.
 - b. Recommendation of students for admission to the Program.
 - c. Recommendations of admission of students to candidacy.
 - d. Recommendations for changes in graduate courses.
 - e. Designation of responsibilities for dissertations.
 - f. Recommendations for dismissal of students from the Program.
 - g. Service on Program committees.

B. Graduate Program Director

1. The MICR Graduate Program Administrative Officer will be the MICR Graduate Program Director.
2. The Program Director will be elected by the MICR Graduate Program Faculty from a slate of candidates submitted by the Graduate Dean. The candidates will be selected by the Graduate Dean from nominees solicited by the Dean. The Director will serve a two-year term and may be re-elected.
3. The responsibilities of the Program Director include:
 - a. General administration of the Program:
 - i. Chair the Executive Program Committee.
 - ii. *Ex officio* membership on the Admissions and on the Curriculum Committee.
 - iii. Appoint members to the Program's standing committees and the BBSC and GSBS committees.
 - b. Represent the Program on the Executive Committee of the GSBS and the BBSC Steering Committee.
 - c. Development of the Program:
 - i. Propose new courses to the Curriculum Committee
 - ii. Actively recruit researchers who would be an asset to the Program and nominate them for membership.
 - iii. Aid in recruiting, selecting, enrolling, and retaining highly qualified students.
 - d. Advise graduate students in the Program.
 - e. Oversee student progress in the Program.
 - i. Generate and maintain reports to document student performance.
 - ii. Assure students' progress to candidacy in a timely manner.
 - iii. Assure that students in candidacy meet semi-annually with their Supervisory Committee.
 - f. Coordinate the review of the Program as requested by the Graduate Dean.
4. In the absence of the Program Director, decisions can be made by the Assistant Director of the Graduate Program.

C. Standing Committees

Members to the standing committees of the Program will be appointed by the Program Director in consultation with the Assistant Director. Only full members of the MICR Program Faculty may serve on standing committees of the Program. No individual can serve concurrently on more than one of the following standing committees: Curriculum and Admissions.

1. Executive Committee

The Executive Committee will consist of the Program Director, the Chairs of each of the standing committees (Curriculum and Admissions) and four members representing each of the Program's sub-disciplines (Bacteriology, Immunology, Parasitology, and Virology). The Graduate Program Director/Assistant Director will chair the Committee, if Program Director is not available. The Executive Committee will

- a. Advise the Program Director on Program policy.

- b. Coordinate the activities of each of the standing committees and route policy proposals to the appropriate committee for their recommendation.
- c. Investigate allegations of plagiarism and other forms of scientific misconduct by students.

2. Admissions Committee

The Admissions Committee will be composed of at least five members, the Program Director (*ex officio*), the Department Chairperson (*ex officio*), and an appointed student representative (with full voting rights). One of the members will serve as Chairperson and represent the Program on the BBSC Admissions Committee. The Admissions Committee will

- a. Review student applicants and make recommendations for admission or rejection of applicants to the BBSC committee.
- b. Review student applicants for direct admission to the Program and make recommendations for admission or rejection of applicants.
- c. Help to recruit qualified students to the BBSC through interviews and other activities as needed.

3. Curriculum Committee

The Curriculum Committee will be composed of at least five members, the Program Director/Assistant Director (*ex officio*), and an appointed student representative. The student representative will have full voting rights with the exception noted under 3.e.!! One of the members will serve as Chairperson and a second member as Vice-Chair. The Curriculum Committee will

- a. Make recommendations concerning development and approval of new courses.
- b. Monitor and evaluate courses, using student and faculty feedback.
- c. Make recommendations for modifications or deletions of courses.
- d. Elect a member to be responsible for the Student Research Update Seminar Program held weekly during the Fall and Spring terms. Responsibility will be rotated among the membership.
- e. Organize the Qualifying Exam and form examination committees for the review of the candidates' research proposals and administration of the oral examinations. The student representative will be excused from discussions about the qualifying exam and from participation on examination committees.
- f. Investigate allegations of plagiarism by students.

4. Ad hoc Committees

The MICR Program Director/Assistant Director may appoint *ad hoc* Committees for specific purposes and for limited terms.

- a. *Ad hoc* committees may be formed to assist in making specific recommendations in response to the needs of individual students during pre-candidacy when the students do not yet have a Supervisory Committee. Such a committee may be formed to help a student on academic probation or to advise a student who has difficulties with the Qualifying Exam.

- b. *Ad hoc* committees concerned with reviewing and improving the structure and function of the Graduate Program may be formed as needed. Such committees will help in preparing the Program's self-review during a review requested by the Dean and formulate the response to the outside review.

D. Policy Decisions

Policy matters will be decided by the members of the Executive Program committee of the MICR Graduate Program. Proposals for policy changes may be made by the Program Director/Assistant Director, committees, individual Program faculty, or Microbiology & Immunology (M & I) Student Organization (MISO) officers. Normally, policy proposals should be acted on first by the appropriate committee. This committee may be asked to review the proposal and then make a recommendation to the Executive Committee.

E. Meetings

1. Meetings of the MICR Program Faculty will be called by the Program Director/Assistant Director, either on his/her initiative or at the request of a Committee Chairperson. A quorum will consist of half of the membership plus 1.
2. The President and Vice-president of the MISO will act as student representatives and attend MICR Graduate Program Faculty meetings. The students will be asked to leave the meeting if sensitive issues, as determined by the Program Director/Assistant Director or a committee chairperson must be discussed.

II. Admissions Policy

There are two mechanisms for a student to gain admittance to the MICR Graduate Program:

A. General

After successful completion of the BBSC, students can enter the Program if they fulfill the following requirements:

1. A Faculty Member of the MICR Graduate Program has declared the intention to mentor and support the student;
2. The student has met all academic performance factors as stipulated by the Graduate School in the Bylaws and Academic Policies article 4.571;
3. The student has obtained passing grades in the three BBSC Foundation courses (BBSC 6401, 6402, and 6403). No student with a failing grade in any of the Foundation courses will be allowed to enter the program;
4. The student was sponsored by the MICR Graduate Program for acceptance into the BBSC.

B. Direct Admission

For applicants with an advanced degree (M.S., or Medical Doctoral degree, but not Bachelor of Medicine), application procedures are the same as for other students, but if they have financial support, they can be directly admitted to the Program. In exceptional

circumstances, applicants with extensive research experience past the Bachelor's degree may also be considered. If admitted, the applicant may petition the Director of the BBSC to evaluate submitted transcripts for courses equivalent to the BBSC courses, and if deemed appropriate, courses may be waived. Required courses in the MICR Graduate Program will only be waived if the applicant has transferred from another university and demonstrated proficiency in comparable, advanced courses (minimum of 3.0 on a scale of 4). Directly admitted students will still be required to complete and pass the Qualifying Exam, and present a satisfactory dissertation proposal to the GSBS before being admitted to candidacy.

III. Course of Study for the Microbiology & Immunology Graduate Program

A. Performance:

In order to remain in good standing in the program, a graduate student must continue to fulfill all academic requirements stipulated by the Graduate School. In addition, the following program-specific requirements must be met:

1. Demonstrate proficiency in the core subjects of the Program. Proficiency is determined by receiving a grade of B or better in all Microbiology & Immunology core courses (MICR 6315, 6403, and 6408). A student who receives a grade of C in one of the core courses may retake an appropriate exam to demonstrate proficiency in the subject within 6 to 12 months following the initial exam. Content and procedure of this retake exam will be set by the Program's curriculum committee in consultation with the course directors. A grade of B or better in this retake exam is required to remain in the Program. Receiving a second C in a core course or a failing grade in any of the core courses is grounds for academic dismissal from the Program.
2. Pass a qualifying examination. Details of the qualifying examination are described under III. G.

B. Courses:

Students interested in joining the MICR Program should discuss their curriculum in detail with the Program Director to assure that prerequisite courses are taken. Depending on the research interests of the student, the Program Director can also suggest that the student take specific elective courses during their 1st year in the BBSC. Certain courses are required for admittance to the Qualifying examination, and usually only offered once per year. These courses, including the foundation courses in the BBSC and core courses in the MICR Program are identified in [Appendix I](#).

C. Requirements for completion of the doctoral program:

Normally, a student will require four terms to complete the course requirements for the BBSC and the MICR Graduate Program, followed by the Qualifying Exam in the spring term of the 2nd year. Currently, the average duration for completion of the entire doctoral program in Microbiology and Immunology, including the BBSC, is less than five years. To finish the MICR Graduate Program with a Ph.D. degree, a student must complete the following requirements:

1. Fulfill all course requirements of the Program
2. Pass the Qualifying Examination
3. Present their research yearly in the Student Research Update Seminar
4. Form a Supervisory Committee
5. Submit a Dissertation proposal to the Supervisory Committee and the GSBS
6. Organize semi-annual Supervisory Committee meetings
7. Present the dissertation research at a national or international conference

8. Publish one or more first-author manuscripts in reputed, peer-reviewed, scholarly journals (at least one must have been accepted for publication)
9. Write and submit a Dissertation
10. Present a Dissertation seminar and defend the Dissertation in front of the Supervisory Committee.

D. The M.S. degree program:

The MICR Graduate Program does not normally accept students directly into the M.S. degree program. A limited number of students may be admitted directly into the M.S. degree program on the discretion of the Program Director in consultation with the Assistant Director. Students directly admitted into this degree program shall not expect to receive either a stipend or tuition reimbursement during their stay in the program. Students who have been admitted into the Ph.D. program and are unable to complete this program for other than academic reasons may transfer into the M.S. degree program. However, a student who was previously admitted to the Ph.D. program can only transfer to the M.S. degree program after passing the Qualifying Exam. A student who has failed the qualifying exam, failed to maintain a 3.0 GPA, or received a grade of less than B in a core course will not be allowed to progress to a M.S. degree. To finish the MICR Graduate Program with a Master's degree, a student must complete the following requirements:

1. Fulfill all course requirements of the Program
2. Pass the Qualifying Exam
3. Present their research at least once in the Student Research Update Seminar
4. Form a Supervisory Committee
5. Submit a Thesis proposal to the Supervisory Committee and the GSBS
6. Organize at least one meeting of the Supervisory Committee
7. Write and submit a Thesis (submitting a first-authored manuscript to a peer-reviewed journal is encouraged, but not required)
8. Present a Thesis seminar and defend the Thesis in front of the Supervisory Committee (recommended, but not required).

E. Research Rotations, Research, Thesis, and Dissertation:

The following required assessments are to be submitted at the end of each term for assuring appropriate progression of the student in the Program and to assign a grade:

Students are to write a one-page summary of the research activities they pursued during each term, whether enrolled for Laboratory Rotation (MICR 6006), Research (MICR 6097), Thesis (MICR 6098) or Dissertation (MICR 6099). This description of research should be typed and include the following:

1. Brief statement of the objectives of the work or the problem studied
2. Brief description of background and significance of the work
3. Description of the methods employed
4. Description of the results obtained, and
5. Closing statement of the relevance of the findings and future plans
6. Any difficulties encountered should also be detailed.
7. Any publications or presentations

Mentors must submit a report at the end of each term detailing the student's progress during the term and the quality of the work performed. In the report, the mentor should judge the performance of the student using the following designations: Exemplary, Satisfactory, Marginally Satisfactory, or Unsatisfactory. The mentor must also supply a

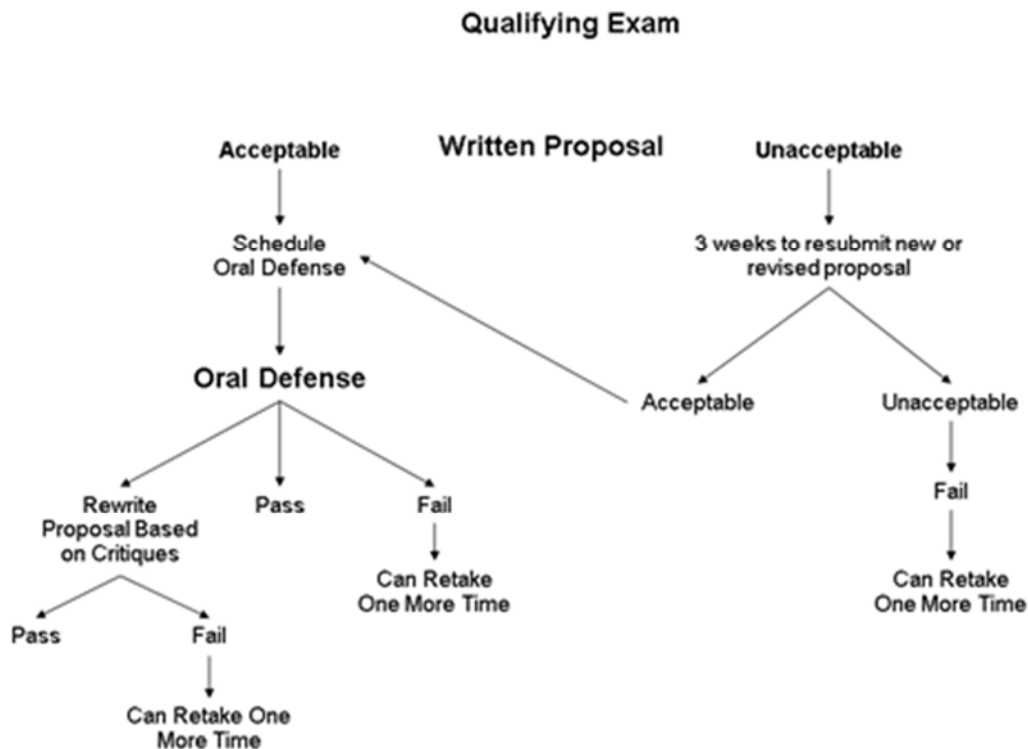
grade by completing a "Student Evaluation Form" to be supplied by the program coordinator. The grade will be posted as S (Satisfactory), NI (Needs Improvement), or U (Unsatisfactory) in the student's transcript. Students will receive a grade of NR (Not Reported/Incomplete) if the mentor does not submit an adequate progress report. Both the student's and the mentor's progress reports must be turned in to the Program Director or Assistant Director if the former is not available. After approval, the grade is turned in to the Graduate Dean.

F. Student Seminars:

Every Ph.D. student is required to register for the weekly Student Research Update Seminar (MICR 6143) each fall and spring term until the student has been given permission by the supervisory committee to finalize and defend the dissertation. Students who have not yet entered candidacy must attend every seminar, while students in candidacy must attend 50% of the seminars given in each term. The students are required to fill out an evaluation for the presenter, which will serve as feed-back. In addition, all students in the program have to present a yearly seminar in the series.

G. Qualifying Examination:

The GSBS requires students to pass a written qualifying exam to demonstrate mastery of the subject during the first two years of study. Any additional requirements are up to the rules of each individual graduate program. The MICR Graduate Program requires that students in the program enter candidacy **within two terms** after passing the qualifying exam (generally during the fall term of the student's third year in the GSBS). Students who did not pass the qualifying exam can repeat the exam once in the following year. These students must enter candidacy within one term after passing. Application to candidacy requires a written dissertation research proposal and approval of the proposal by the student's supervisory committee.



Background and Format of the Qualifying Exam

The qualifying exam in the MICR Program requires that the student successfully propose, write, and orally defend an NIH-style research proposal. Both the written proposal and the oral defense will be evaluated by a faculty committee. The intent of this exam is to test the student's ability to focus on a current research topic, and to apply his/her knowledge of biomedical research approaches to the problem. The written portion of the exam will assess the student's ability to communicate effectively in a written format. The oral defense of the proposal will allow an opportunity for the qualifying exam committee to assess the breadth and depth of the student's knowledge in the area of research chosen and in microbiology, immunology and related fields.

The written portion of the exam must be an original piece of work completed by the candidate. The student can choose any area of research as the topic of this proposal, including research directly related or identical to the ongoing research of the student. Students can ask advice from faculty members and mentors, but the student must independently derive the hypothesis, design the specific aims, plan the research approach, and write the proposal. Students are not allowed to use or paraphrase previously written grants (e.g., from graduate courses, pre-doctoral training grants, or from grants submitted by their mentors). The final draft may be reviewed by the student's mentor to ensure originality, which will take place after the written proposal is submitted. Each student will be required to sign a disclaimer indicating that the candidate produced the document in its entirety. The rules concerning plagiarism as outlined in the UTMB GSBS policies will be strictly adhered to.

Requirements and Dates

Students will be required to take the qualifying exam during their second year of study. The exam will be given once per year with a due date for the written proposal being decided upon by the curriculum committee each year. In rare situations, the exam date may be changed following consideration of specific circumstances by the Graduate Program Executive Committee. In advance of initiating the written proposal, there will be a meeting between Curriculum Committee members and the students scheduled to take the exam. This will be an orientation meeting and the students may ask questions regarding any aspect of the qualifying exam process.

Before taking the qualifying exam, students must have:

1. Completed and passed required BBSC courses
2. Completed program-specific courses with a grade of B or better
3. Obtained a combined GPA equal to or higher than 3.0
4. Selected an advisor and lab for their dissertation research

Exam Rules

The written proposal must be electronically submitted no later than **5:00 pm of the due date (TBA)**. Proposals received later than this time will not be accepted. Additionally, incomplete proposals (due to computer errors or incomplete email transfer), proposals not following the written proposal format or the instructions, and proposals exceeding page limitations will not be accepted. Each student's qualifying exam committee will consist of the following: 1) a chairman who is a member of the curriculum committee; 2) a virologist, 3) an immunologist, and 4) a bacteriologist. All members will be chosen by the curriculum committee. However, students have the option of adding an additional member to the committee. This individual must be conducting research in an area outside of the student's proposal and be approved by the curriculum committee.

Format of the Written Proposal

The written proposal will follow the **NIH-style format**, but will have no more than 6 pages of text excluding references. Specific proposal format requirements with strict page-limits are outlined below:

- a) Project Summary/Abstract (30 lines)
- b) Project Narrative (2 to 3 sentences)
- c) Specific Aims (1 page)
- d) Research Strategy: Significance and Innovation (1 to 1 ½ pages);
Approach incl. timeline (4 ½ to 5 pages)
- e) Literature cited (full references)

Item d will be no longer than **6 pages**. The proposal will be single-spaced and must follow rules spelled out for preparing NIH grants (PHS form 398): ½ inch margins, Arial font, and size 11.

Specific Instructions

Abstract: State the application's broad, long-term objectives, hypothesis, and specific aims. Describe concisely the research design and methods for achieving these goals. Avoid summaries of past accomplishments and the use of the first person. This description is meant to serve as a succinct and accurate description of the proposed work when separated from the application.

Narrative: This section is meant to reflect the relevance of the proposed work to public health.

Specific Aims: This section must include everything about your proposal that is exciting and important, but without a lot of detail.

The **Research Strategy** should include sufficient information needed for evaluation of the project, independent of any other document. Be specific and informative, and avoid redundancies.

Significance and Innovation: The purpose of these subsections is to justify the need for what will be proposed. The significance subsection explains the positive effect of your research on public health and furthering scientific knowledge. The innovation subsection explains the new and substantially different ways with which your hypothesis, the topic of your research, and how your approach innovates science.

Approach: Organize your Approach section to address the research design for each specific aim. (1) What do you intend to do? (2) Why is the work important? (3) What has already been done? (4) How are you going to do the work? (5) What are the expected outcomes, the potential problems, and what alternative approaches are you considering?

The page limit and format in the NIH F32 format will be strictly enforced. Proposals that exceed this limit will be returned without review. The following web link will connect you to sample applications with annotations submitted to the NIAID: <http://funding.niaid.nih.gov/researchfunding/grant/pages/appsamples.aspx>. Some examples may have a different page-limit, whereas your proposal is limited to 6 pages.

However, your proposal is supposed to present the strategy for 2 to 3 years of work, and you are not required to present preliminary data, although if you have any, you may include them in the research strategy section.

Students will be allowed one **grammatical/editorial** review of the proposal by a second party. This reviewer should not provide any scientific critique or input to insure that the proposal is reflective of the student's own work.

ORAL DEFENSE IS SCHEDULED ONLY AFTER THE WRITTEN PROPOSAL HAS BEEN JUDGED ACCEPTABLE BY THE STUDENTS QUALIFYING COMMITTEE:

The oral defense portion of the qualifying exam will be scheduled only after the written proposal has been deemed acceptable by the students qualifying exam committee. If a written proposal is deemed unacceptable, the student will have **three weeks** to submit a new or revised written proposal. The Committee will indicate whether the judgment of "Unacceptable" was based on a poorly justified hypothesis, specific aims inadequate for hypothesis testing, a poorly designed research plan, poor writing, or any combination of these or other flaws. If a proposal is deemed unacceptable a second time, the student will have **one more opportunity to take the qualifying exam within 6-12 months**.

The oral defense qualifying exam will be used to evaluate students' ability to defend their proposals, and to measure their breadth of knowledge of microbiology and immunology in general. The oral exam is a closed exam and attended only by qualifying committee members, the Chairs of the Curriculum Committee, and the Program Director or the Assistant Director if required. The outcome of the oral exam will be determined by the student's qualifying committee.

The oral qualifying exam will normally last about 2-3 hours. However, there is no time limit for the oral qualifying exam. The student will be expected to give an overview of his/her proposal. This overview can last up to 45 minutes and should include the use of a power point presentation. During and/or after the presentation, each committee member will be allowed to ask questions. These questions can be on the proposal, on previous course work, or on anything that is deemed important and relevant to the student's education and the proposal.

Students are strongly encouraged to practice defending a research proposal. The MISO and the Graduate Program Coordinator are ready to help in forming a mock oral defense committee consisting of senior students and post-doctoral fellows. It is helpful if students and fellows from outside the specific research area of the practicing student participate because the examinee will then have to explain discipline-specific concepts clearly.

Students preparing the written proposal and oral qualifying exam should direct all questions regarding procedure and regulations to the Chair/Vice-Chair of the Curriculum Committee or the Program Director/Assistant Director as deemed necessary. Students who obtain conflicting information from sources other than this Handbook or the aforementioned individuals cannot use such conflicts as grounds for an appeal or time extension.

Performance Criteria

The three possible outcomes (determined by the examination committee) for the qualifying exam are pass, rewrite all or a portion of the written proposal, or failure. The final outcome will be reported to the student after the oral examination and in the form of an NIH-type consensus critique prepared by the chair of the student's committee. A failure constitutes unsatisfactory performance on a majority of the written and/or oral portions. If failed, the student will be allowed to retake the exam once more. In this case, a new qualifying exam committee will be formed. In order to proceed to the oral portion of the qualifying exam, the student must have an acceptable written proposal. A student may pass the oral examination, but be required minor or major revision of the written proposal. The student has **three weeks** to modify a written proposal that is unsatisfactory. If, after the oral defense, students are requested to rewrite a portion of their proposal, they must identify modified areas of the proposal by vertical lines in the margin, underlining or by bold type, and must include **an one-page Introduction** that details their responses to the critique prepared by the student's committee. A revised written proposal that is still "Unsatisfactory" constitutes a failure. Regardless of the final performance on the exam (pass or fail), the outcome will be reported to the GSBS whose policies will then be followed.

H. Candidacy:

Students apply for candidacy after the qualifying examination has been successfully completed and the program faculty recommends his/her admission to candidacy. Passing grades for the written and oral components of the qualifying examination fulfills the qualifying requirements for the MICR Program. Students cannot be admitted to candidacy with a grade of I, NR or failing (F, WF or U) on the transcript. The student cannot be on probation and must have an overall 3.0 grade point average or better at the time of admission to candidacy. The MICR Program requires that students enter candidacy within two terms of passing the qualifying exam (within one term if the student passes the exam in the third year of study).

A list of faculty who will serve on the Supervisory Committee and a Dissertation or Thesis Proposal must be submitted with the application for Ph.D. candidacy. The Supervisory Committee for doctoral students should include the research advisor, two other members of the MICR Program, one graduate school faculty member who is in an area of research distinctly different from that of the research advisor (preferably faculty from a different program), and an external examiner who is selected by the student with input from the student's research advisor. The supervisory committee for students in the Master's degree program includes the thesis mentor and two other members of the MICR Program. The student must provide the committee members with a copy of the dissertation or thesis proposal, and allow enough time for a thorough review before applying for candidacy. The following GSBS website (<http://gsbs.utmb.edu/candidacy/info.asp>) provides more information.

After admission to candidacy, a Ph.D. student must register for Dissertation and a M.S. student for Thesis. All Ph.D. students are required to present their work at a national or international meeting, and to publish one or more original, first-author manuscripts in peer-reviewed, scholarly journals. At least one of these manuscripts must have been accepted for publication before a Ph.D. student may schedule a dissertation defense. In addition, a dissertation is required of all Ph.D. students and a thesis or equivalent publication is required of all M.S. students. In both cases, the work must be an original contribution to the literature based on independent scientific investigation. Students in

the M.S. program are encouraged to publish their research findings in peer-reviewed, scholarly publications.

While in candidacy, students must meet with their Supervisory Committee semi-annually to review progress. A brief written report and a PowerPoint presentation of the progress, future proposed work, and plans for publications has to be prepared by the student before each of these meetings and distributed to the Program Coordinator and members of the Supervisory Committee **at least 7 days** prior to the date of each meeting. Submitted manuscripts and abstracts submitted for presentation at national or international meetings should also be distributed. The Supervisory Committee continues to guide the student's research and assess his/her progress. The Chair of the Supervisory Committee will summarize the results of each meeting in writing to the Program Coordinator within one week of the meeting. This summary will include the student's progress, the committee responses/concerns, remaining requirements, and a timeline for finishing and defending the dissertation or thesis. An **Ongoing Research Assessment** form must be completed by the attending Supervisory Committee members at each of meetings and submitted to the Program Coordinator with the report.

I. Defense of the Dissertation:

Before being allowed to schedule the defense of a dissertation, students must have presented part of their research at a national or international meeting, and must have submitted at least one original, first-authored manuscript to reputed, peer-reviewed journals. At least one of these manuscripts must have been accepted for publication. Following approval of the Supervisory Committee, the student will write a dissertation in a format acceptable to the GSBS. The dissertation is a scholarly work that documents the student's novel research accomplishments, independence, and critical thinking skills.

Students will make copies of the dissertation available to the members of the Supervisory Committee at least three weeks prior to the scheduled final oral examination in order to enable the members to evaluate the document. Members of the student's Supervisory Committee are responsible for reading, discussing, and approving the dissertation in the context of novel and significant scientific content, clarity of writing, and the student's ability to demonstrate critical thinking skills.

As a part of the final oral examination, the candidate will present a formal, public seminar on the completed dissertation research to faculty members, postdoctoral fellows, and the scientific community at large. This seminar will usually include a 45-minute presentation by the student followed by 15 minutes of questions. After the seminar, the Supervisory Committee and the student will continue to discuss the dissertation research in closed session. During this time, members of the Supervisory Committee may also test the science knowledge of the student in all subjects deemed relevant for a doctoral candidate with emphasis in Microbiology & Immunology.

Successful completion of the defense is indicated by signatures of the members of the Supervisory Committee on the signature page of the dissertation, and the report of the final oral examination. The forms: **Dissertation Assessment – Written** and **Dissertation Defense – Oral** must be submitted by each member of the Committee to the Supervisory Professor who will give them to the Program Coordinator.

J. Defense of the Thesis:

Before being allowed to schedule the defense of a thesis, students must have received approval from their Supervisory Committee to write a thesis. The thesis must adhere to the format approved by the GSBS. Students must make copies of the thesis available to the members of the Supervisory Committee at least **three weeks** prior to the scheduled final oral examination in order to enable the members to evaluate the document.

The M.S. student may present a formal, public seminar, but is not required to do so unless instructed by the thesis Supervisory Committee. The members of the Supervisory Committee will test the knowledge of the student in the area of the student's thesis research. The student should also be prepared to answer questions on scientific knowledge relevant to a M.S. candidate with emphasis in Microbiology & Immunology. Successful completion of the defense is indicated by signatures of the members of the Supervisory Committee on the signature page of the thesis, and the report of the final oral examination. The forms: **Thesis Assessment – Written** and **Thesis Defense – Oral** must be submitted by each member of the Committee to the Supervisory Professor who will give them to the Program Coordinator.

K. Criteria for Inclusion of Data in the Results Section of the Dissertation:

In order for the student to include data as their own in the results section of their dissertation, the student has to contribute significantly to the production of the experimental data. If that is not the case, then the data has to be included in the introduction and background section or in the material and methods section with proper references. In cases where the student requires the participation of technical support staff to perform the experiments (i.e., BSL-4 work), the participation of the technical support personnel has to be insignificant in comparison with the contribution of the student (e.g., in the form of generation of the tools, methods, reagents, processing of the samples, analysis of the data). In the case of orphan data generated and left behind by a prior member of the lab, the same concept as listed above applies. The data can be referred to as preliminary studies with proper reference to the individuals who generated the data (even if unpublished); while in the Result section, data produced by the student are shown.

L. Plagiarism:

The Faculty of the MICR Graduate Program takes plagiarism very seriously, because it is a problem that affects academic honor and impairs life-long learning. All allegations of plagiarism, whether they involve an essay question on an exam, a qualifying exam, a thesis or dissertation proposal, or a final thesis or dissertation, will be investigated by the Curriculum Committee or the Executive Committee of the Graduate Program. Consequences depend on the form and gravity of the offense, and can result in the immediate dismissal from the Graduate Program. Allegations of plagiarism involving submitted grant applications or manuscripts will also be reported to the UTMB Scientific Integrity Committee for further investigation.

It is the student's responsibility to learn to recognize the various forms of plagiarism as an important step towards effective prevention. The BBSC and GSBS provide instruction on avoiding plagiarism. Graduate program faculty can also advise students about the types of plagiarism.

IV. Specific Student Concerns

A. Stipends

State-funded stipends will be awarded to students in the doctoral program as they are available at the time of admission, and continued throughout the ***first 16 months of study***, provided that the student remains in good standing in the GSBS. The student's research advisor or supervisory professor will then be responsible for obtaining the doctoral student's stipend and tuition from grants or other sources.

B. Performance

Students must maintain a B or better average (3.0) in all semesters in order to remain in good standing in the MICR Graduate Program. An overall average of B or better must be achieved before students can be admitted to candidacy and before students can graduate. Failure to maintain a 3.0 average for one semester places a student on academic probation. Failure to achieve a 3.0 average for two semesters is grounds for dismissal from the MICR Program and the Graduate School.

C. Supervisory Professor

Students select a Supervisory Professor as Research Advisor when entering the MICR Program, usually at the end of their first year of study. To assist in selecting an appropriate mentor, the students are encouraged to spend time in the laboratories of different faculty. Factors to consider in making the choice are the availability of a supportive network, expertise, and resources. The Supervisory Professor must be a member (or Special Member) of the MICR Program, and must communicate willingness to serve in the capacity of Supervisory Professor and to assume all responsibilities associated with being a Research Advisor. The Supervisory Professor must support the student's proposed research plan. A student may change the Supervisory Professor without prejudice.

D. Compact between Graduate Student and Research Advisor

The MICR Program supports the guiding principles established by the AAMC Group on Graduate Research, Education, and Training (Appendix III). Both the student and the Supervisory Professor must review these guiding principles and adhere to their spirit. Both must sign a form (Appendix II) stating that they have reviewed these principles before the student may advance to candidacy.

APPENDIX I

Recommended Courses for Future Microbiology & Immunology Students

BBSC 6210 Fundamentals of Inflammation Summer

BBSC 6219 Vaccine Development Pathway Summer

Required Courses for Students in the Microbiology & Immunology Graduate Program

BBSC 6217	Principles of Laboratory Safety	Fall of 1st year
BBSC 6301	Lab Rotations (minimum 9 credits)	Fall and Spring
MICR 6143*	Student Research Update Seminar	Fall and Spring
MICR 6195^	Current Topics in Infectious Diseases & Immunity	Fall and Spring
MICR 6408	Advanced Immunology	Spring of 1st year
MICR 6315	Pathogenic Bacteriology	Summer of 1st year
MICR 6403	General Virology	Fall of 2nd year
MICR 6255	Scientific Writing & Grant Proposal Preparation	Fall of 2nd year
MICR 6097	Research (up to 9 credit hours)	
MICR 6099	Dissertation	

*MICR 6143 must be taken by students while enrolled in the M&I graduate program.

^MICR 6195 must be taken during years 1 and 2 in the M&I graduate program.

Foundation & Core Courses

Foundation Courses:	BBSC 6401	Biochemistry I and II
	BBSC 6302	Cell Biology
	BBSC 6403	Molecular Biology & Genetics

Core Courses:	MICR 6408	Advanced Immunology
	MICR 6315	Pathogenic Bacteriology
	MICR 6403	General Virology

Students who receive a grade lower than B in one of the core courses may retake the exam or an appropriate make-up exam one time only within 6 to 12 months to demonstrate proficiency in the subject. The original grade will remain on the transcript. See also III. A on page 10 for academic performance requirements.

APPENDIX II

Please sign below confirming that you have read and discussed the “Compact between Biomedical Graduate Students and Their Research Advisors”.

This form must be signed by students and their mentors upon entering candidacy. Submit the form to your program director.

Student: _____
(Print Name)

Date: _____

Mentor: _____
(Print Name)

Date: _____

APPENDIX III



MILESTONES AGREEMENT FORM

This form is required by students enrolled in a Ph.D. track within the Graduate School. It is to be discussed and completed with your advisor. Due: Every Summer term through graduation by the last class day.

Student Name				
Program				
Date Entered GSBS	Year	Fall	Spring	Summer
Milestone	Expected Date of Achievement	*Date Achieved	NA	
Complete first-year Basic Biomedical Science Curriculum (BBSC students)				
Declare program & secure lab for dissertation project (BBSC students)				
Complete required program-specific coursework successfully				
Apply for external funding – <i>Required for those entering after 5.4.14</i>				
Complete an Individual Development Plan (I.D.P.) – <i>Required by NIH</i>				
Obtain research protocols and/or IRB/IACUC approval (as applicable)				
Schedule and successfully pass oral and/or written qualifying exams (ordinarily by end of 2 nd year)				
Form Dissertation Supervisory Committee, obtain Program approval, and appointment done by the GSBS				
Complete Dissertation research proposal and approval by committee				
Be Admitted to Candidacy for the Ph.D. degree (within 3 terms after qualifiers)				
Schedule final oral examination (defense of dissertation, within 5 years of advancing)				
Have Dissertation accepted by Graduate School				

See attached explanation for additional comments of items covered during this review period. [**explanation required for any milestone date that was not met*].

Students who are not making satisfactory progress may lose funding, be placed on academic probation, or be dismissed from the program. I understand the academic milestones that I am expected to reach in order to successfully complete the Program, as well as the expected timeline for completing these milestones.

_____/_____
 Student's Signature Date

_____/_____
 Advisor's Printed Name Signature Date

_____/_____
 Program Director's Printed Name Signature Date

Send completed form to GSBS, to the attention of Laura Teed (Rt 1050, 4.429 Levin).

May 2015