MICROBIOLOGY & IMMUNOLOGY
GRADUATE PROGRAM

utmb Health

GRADUATE PROGRAM HANDBOOK
AND BYLAWS

*Dates, Terms, and Conditions Subject to Change
February 2019
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 https://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 feedback. 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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Graduate Program Committees: Executive Program Committee
Admissions Committee
Curriculum Committee
M&I Student Organization

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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 Basic Biomedical Sciences Curriculum (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. Time required for completion of the PhD 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

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 performance evaluation at the end of each term rating the performance of the student in different areas: writing and comprehension, research proficiency, inter-personal communication, professional behavior. Mentors will have the opportunity to provide an overall summative evaluation of the student’s performance which will be shared with the student. Students will be required to sign/approve this performance acknowledge. The mentor should judge the performance of the student
using the following designations: Expected performance for level of training, Minimally below expected for level of training, Below expected for level of training, or Unacceptable performance for level of training. The mentor must also supply a grade; S (Satisfactory), N (Needs Improvement), or U (Unsatisfactory). Students will receive an Unsatisfactory (U) grade if the end of term report is not received by the given deadline. If a report is submitted but the mentor fails to submit an evaluation and/or grade by the given deadline the student will receive a Satisfactory (S) grade. The end of term report and evaluation must be submitted 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 graduation. Attendance is mandatory unless the student has been given permission by the supervisory committee to finalize and defend the dissertation within that term or has already defended. 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 feedback. In addition, all students in the program have to present a yearly seminar in the series.

G. Qualifying Examination:
The Graduate School of Biomedical Sciences (GSBS) requires students to pass a written qualifying exam to demonstrate mastery of the subject, which should be completed during the first two years of study. Any additional requirements are up to the rules of each individual graduate program. The Graduate Program in Microbiology & Immunology (MICR) requires that students in the program enter candidacy within two terms after passing the qualifying exam. Students who did not pass the qualifying exam are allowed to 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/Written Proposal
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. 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 mentor). The final draft must be reviewed by the student's mentor to ensure originality. This review by the student's mentor will take place after the written proposal is submitted and will be indicated by a memo/email from the mentor to the curriculum committee. 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**

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. Each student will also be required to submit a draft of their Specific Aims page for review by the curriculum committee prior to submitting the proposal. 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 Format and Rules**

Students will be required to submit a draft of their Specific Aims page for review by the curriculum committee, this submission will be due two weeks before the proposal submission deadline. The written proposal must be electronically submitted no later than **5:00 pm of the due date (TBA)**. Proposals received after the deadline will not be accepted. Incomplete proposals (by 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 doing research in an area outside of the student's proposal and be approved by the curriculum committee.

**Written Proposal Format (for initial and revised proposal)**

The written proposal will follow the NIH-style format with strict page-limits outlined below:

a) Title of the proposal (limited to 200 characters, including spaces and punctuation)
b) Project Summary/Abstract (30 lines)
c) Project Narrative (2 to 3 sentences)
d) Introduction (1 page, for revised proposal only)
e) Specific Aims (1 page)
f) Research Strategy: Significance and Innovation Sections (1 to 1 ½ pages)
g) Research Strategy: Approach including timeline (4 ½ to 5 pages)
h) Literature cited (full references; Does not count towards page limit)

The Introduction section (Item c) should detail his/her responses to the critique prepared by the exam committee. The Research Strategy (Items d and e combined) cannot exceed 6 pages. For the revised proposal, please identify modified areas of the proposal by vertical lines in the margin, underlining or bold type. The Literature cited section (g) will not be counted toward the page limit. The proposal must follow rules spelled out for preparing NIH grants (PHS form 398) with regards to margins and lines per inch. Our recommendation: Arial, size 11, single space, with 0.5-inch page margin.

**SPECIFIC INSTRUCTIONS FOR RESEARCH PROPOSAL:**

1. **Project summary:** This section is meant to serve as a succinct and accurate description of the proposed work when separated from the application. State the application's broad, long-term objectives and specific aims, making reference to the health relatedness of the project. Describe concisely the research design and methods for achieving the stated goals. This section should be informative to other persons working in the same or related fields and insofar as possible understandable to a scientifically or technically literate reader. Avoid describing past accomplishments and the use of the first person.

2. **Narrative:** Describe the relevance of this research to public health. Be succinct and use plain language that can be understood by a general, lay audience.

3. **Specific Aims:** State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed.

4. **Research Strategy:** Include sufficient information needed for evaluation of the project, independent of any other document. Be specific and informative, and avoid redundancies. You are not required to present preliminary data, although if you have any, you may include them in the research strategy section. If the preliminary data you
present are based on work by others in your research group, or based on data included in other publication(s) that you are using as the basis for your hypothesis and proposal, this should be clearly stated.

**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 you hypothesize 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 restrictions are based on those NIH uses for an R21 (or F31) application and will be strictly enforced. Proposals that exceed this limit or do not conform to the type size or margin limitations will be returned without review. The following web link will connect you to sample applications (R21) with annotations submitted to the NIAID: [https://www.niaid.nih.gov/grants-contracts/sample-applications](https://www.niaid.nih.gov/grants-contracts/sample-applications). As for R21 proposals, your proposal should present the strategy for 2-3 years of work.

Students will be allowed one *editorial/grammatical* review of the proposal by a second party such as a grant coordinator. 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 exam will be scheduled only after the written proposal has been deemed acceptable by the students qualifying exam committee, but must occur before the given deadline. 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 fail the qualifying exam and will have one more opportunity to take the qualifying exam in the following year.

The oral exam will be used to evaluate the student’s ability to defend their proposal, and to measure their breadth of knowledge of microbiology and immunology in general. In preparation for the oral examination, the student may practice their presentation with an audience of their student peers. This practice will not include participation by faculty members or postdoctoral fellows.

The oral exam is a closed exam and attended by committee members only. The outcome of the oral exam will be determined by the student's qualifying committee. The oral exam usually lasts about 2-3 hours; however, there is no time limit for the oral exam. The student will give an overview of his/her proposal (about 45 minutes) in 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 evaluation and proposal.** The oral defense of the proposal is 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. If the student’s performance in the oral examination is considered unsatisfactory, the student will fail the qualifying exam and have one more opportunity to take the qualifying exam in the following year.

**PERFORMANCE CRITERIA:**

The three possible outcomes 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 a consensus critique prepared by the chair of the committee. A “failure” constitutes unsatisfactory performance on a majority of the written and/or oral portions.

As described above, the student must have an acceptable written proposal in order to proceed to the oral exam. A student may pass the oral exam, but be required to rewrite a portion or the entire written proposal. The student will have **three weeks** to modify a written proposal that is unsatisfactory. 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 Graduate School of Biomedical Sciences whose policies will then be followed.

If failed, the student will be allowed to retake the exam once. This may be scheduled during the regular qualifying exam period the following year, or at an earlier date upon agreement of the curriculum committee, the student, and the student’s mentor. The student can request a new committee for the retake.

**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 [https://gsbs.utmb.edu/current-students/ready-for-candidacy/information-about-candidacy](https://gsbs.utmb.edu/current-students/ready-for-candidacy/information-about-candidacy) 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-minutes 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: From Discovery to Licensure      Summer

Required Courses for Students in the Microbiology & Immunology Graduate Program

BBSC 6217   Principles of Laboratory Safety    Fall of 1st year
BBSC 6129   Biomedical Research Conduct (1st year)    Fall, Spring, Summer
BBSC 6130   Small Sampling of Big Data    Fall of 1st year
BBSC 62222  Biostatistics    Spring of 1st year
BBSC 6043   Lab Rotations (minimum 9 credits)    Fall and Spring
MICR 6142*   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 6142 - 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, required until passing qualifying exam.

Required Foundation & Core Courses

Foundation Courses:  BBSC 6401   Biochemistry (Fall of 1st year)
                     BBSC 6302   Cell Biology (Fall of 1st year)
                     BBSC 6403   Molecular Biology & Genetics (Spring of 1st year)

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.

*Courses & Terms Subject to Change
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: _______________________________  Date:  __________________
(Print Name)

Mentor: ________________________________  Date:  __________________
(Print Name)
**MILESTONE 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.

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Program</th>
<th>Date Entered GSBS</th>
<th>Year</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
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<tr>
<th>Milestone</th>
<th>Expected Date of Achievement</th>
<th>Date Achieved</th>
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<tr>
<td>Complete first-year Basic Biomedical Science Curriculum (BBSC students)</td>
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<td>Declare program &amp; secure lab for dissertation project (BBSC students)</td>
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<td>Complete required program-specific coursework successfully</td>
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<td>Apply for external funding – Required for those entering after 5.4.14</td>
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<td>Complete an Individual Development Plan (I.D.P.)</td>
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<td>Obtain research protocols and/or IRB/IACUC approval (as applicable)</td>
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<td>Schedule and successfully pass oral and/or written qualifying exams (ordinarily by end of 2nd year)</td>
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<td>Assemble Dissertation Supervisory Committee &amp; obtain Program approval</td>
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<td>Complete Dissertation research proposal &amp; approval by committee</td>
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<td>Be Admitted to Candidacy (within 3 terms after qualifiers)</td>
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<td>Submit a first-author research or scholarly paper for publication prior to graduation – Required for those entering after 8.27.17</td>
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<td>Schedule final oral examination</td>
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<tr>
<td>Have Dissertation accepted by Graduate School</td>
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☐ 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).  
February 2019