

**Microbiology and Immunology Track
Graduate Training Program Guidelines**

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I. DEFINITION OF MICROBIOLOGY AND IMMUNOLOGY TRACK

The Microbiology and Immunology (MI) PhD track is part of the Health Science Center-wide integrated multi-disciplinary graduate program (IMGP). The MI PhD Track focuses on microbial infection, host responses to infection and other aspects of the immune system in health and disease. The track faculty members apply state-of-the-art experimental approaches, including genomics, proteomics and bioinformatics, as well as other genetic, biochemical, cellular and functional assays to study the regulation, host interactions and pathogenesis of viral, bacterial, fungal and parasitic infections. In addition to mechanisms of host interactions with microorganisms, responses to allergens, tumor and self-antigens are also investigated at the molecular, cellular and systemic levels. Students will gain the broad knowledge and skills necessary for future research careers in many different areas of basic and clinical life sciences, including Microbial Genetics, Physiology and Pathogenesis, Infectious Diseases, Immune Regulation, Vaccinology, Tumor Immunology, Autoimmunity and Allergy.

The MI PhD track is operated by the track committee on graduate studies (COGS). COGS's duties include the development and maintenance of curriculum, overseeing student admissions, monitoring student progress, assigning of Supervising Professors, mediating disputes between students and Supervising Professors, reviewing qualifications for membership on the track Graduate Faculty, and other pertinent policy considerations.

II. MI TRACK PhD STUDENT TRAINING PROCESS

1. Course Work

After finishing the IMGP common core course (10 semester credit hours, SCH), students who choose to enter MI track are required to take several MI track-specific courses, including “Core Concepts in Microbiology & Immunology” (4 SCH), “Building Scientific Thinking Skills” (2 SCH) and “Ethics in Scientific Research” (0.5 SCH) and one advanced course (with at least 1 SCH) from any track. Please note that although the 4 SCH track core concept course will be taught in four modules for the convenience of students from other tracks, all students in the MI track are required to take all four modules and it will be graded as a single course.

2. Laboratory Rotations and Selection of Temporary Supervising Professor

All students are required to complete at least three rotations before officially choosing a supervising professor. The three rotations should be completed by the end of April of the first academic year. In May, the students are to submit **COGS Form 101** to COGS requesting approval of their choice of a Temporary Supervising Professor. Before submitting this request, the student must confirm that the faculty member with whom the student wishes to work has a graduate faculty appointment in the MI track, and is both willing and able to provide a stipend for the student and to support the student's dissertation research. Once the Temporary supervising professor is approved by COGS, the student can prepare the GSBS “Selection of Dissertation Supervising Professor” form, which will be forwarded to the Dean's office once the required signatures are obtained.

3. Formation of Temporary Supervising Committee

Once the supervising professors are determined, a student may enroll in MI Track Research to begin dissertation research under the supervision of his/her Temporary Supervising Professor. By the end of the summer semester of year 1, each student must form a Temporary Supervising Committee, which assists the student in developing a dissertation research project, meets as required to assess the student's research progress, and serves as the core of the student's Qualifying Examination Committee. The committee must consist of the Temporary Supervising Professor and two other members of the Microbiology & Immunology Track Graduate Faculty. Members are selected by the student and his/her supervising professor and must be approved by COGS. Changes in the composition of the Temporary Supervising Committee are allowed at any time but are subject to the approval of COGS. The Temporary Supervising Committee functions until the student's Dissertation Supervising Committee is formed (usually in the student's third year). Members of the Temporary Committee may become members of the Dissertation Committee.

4. Advancement to PhD Candidacy

Only after passing the Qualifying Examination, can the students petition COGS for admission to candidacy for the Ph.D. degree. The petition must be made to the Chair of COGS on the official Graduate School form (GSBS Form 32). The approval of COGS for admission to candidacy is based on three criteria:

- a. Successful completion of the Qualifying Examination (evidenced by the signatures of the Examination Committee members on GSBS Form 32)
- b. A positive evaluation of the student's potential for independent research (indicated by the signature of the Temporary Supervising Professor on GSBS Form 32)
- c. Satisfactory performance in formal course work (including the elective advanced course). A student cannot advance to candidacy if he/she is on academic probation.

When all of these criteria are met, COGS recommends to the Dean of the Graduate School that the student be admitted to candidacy. This recommendation requires the signature of the Chair of COGS on GSBS Form 32.

5. Dissertation

a. *Establishing a Dissertation Supervising Committee:*

After entering into candidacy, a student, in consultation with his/her supervising professor, is to submit to the Chair of COGS a list of at least 5 individuals whom they recommend to serve as Dissertation Supervising Committee members for the student's dissertation research. The Dissertation Supervising Committee must be approved by COGS by the end of the first semester of the student's third year. After approval by COGS, the Dissertation Supervising Committee composition must be approved by the Graduate Faculty Council (GFC), along with the dissertation proposal, as described below.

The Composition of the dissertation supervising committee is predicated on providing expertise and objectivity in the training and education of graduate students.

The Committee must consist of at least five persons with the following suggested membership:

- a) A supervising professor and two credentialed faculty members in the same track as the student;
- b) A credentialed faculty member whose primary appointment is not in the same department as the supervising professor;
- c) An expert in the area of the dissertation research and who has no appointment in the UTHSCSA.

The Dissertation Supervising Committee is responsible for certifying to COGS that the student is carrying out meritorious research of the caliber appropriate for a Ph.D. dissertation, and is also serves as an important resource of scientific expertise for the candidate.

b. Approval of Dissertation Research Proposal:

The purpose of preparing and getting approval for a dissertation proposal(Appendix D) is to ensure that the student has a feasible research project that represents a likely significant contribution to his/her chosen field. The proposal is intended to serve as a framework for the dissertation project, not as a rigid, detailed agenda for the student's research efforts. Before the end of the second semester of the third year, each student must get approval for a Dissertation Research Proposal. The Dissertation Research Proposal is then circulated among the members of the student's COGS-approved Dissertation Supervising Committee (with the exception of the member from outside the University). The student is to meet with the Committee by the end of the fall semester of the third year to discuss his/her proposal at length and in detail. The student will modify the research proposal until it is acceptable to the Dissertation Supervising Committee. The proposal is then submitted for COGS approval to the Chair of COGS (preferably by email attachment or on a computer disk) along with a printed copy of GSBS Form 30 (with all signatures except that of the outside member).

Once COGS has approved both the composition of the Dissertation Research Committee and the Dissertation Research Proposal, GSBS Form 30 and a copy of the proposal is to be submitted by the end of the spring semester of the third year to the Office of the Graduate Dean for final GFC approval.

Once COGS and the Graduate Faculty Council approve a student's dissertation committee composition and dissertation proposal, certain amendments to either may require COGS/GFC approval. Re-approval would be needed if such changes involve the deletion or addition of a committee member, or a substantial revision to the candidate's dissertation research project. Re-approval is not necessary if alterations in the research plan do not substantially change the general context of the dissertation proposal.

c. Writing dissertation

When the Dissertation Supervising Committee is satisfied that the research accomplished by the student is of sufficient quality and quantity to constitute a significant contribution to the field (*i.e.*, the area of the student's studies), formal permission is granted to the student to write his/her dissertation.

Normally, all Ph.D. students must be enrolled as full-time students (9 credit hours in the Fall and Spring semesters, and 6 credit hours in the summer session). During a student's last semester, while finishing and defending his/her dissertation, a student may register for three credit hours (as Final Hours). This may be done only once. If registration for additional semesters is required, the student is expected to once again register as a full-time student.

The Supervising Professor should notify the Chair of COGS, in writing, that the student has been given permission to write the dissertation. The format of the dissertation must conform to the style and format guidelines of the Graduate School of Biomedical Sciences. These guidelines are available from the Office of the Graduate School Dean and should be consulted prior to drafting the dissertation. Whether the student uses the traditional dissertation format, or the optional "chapter" format, must be discussed and agreed upon with his/her Dissertation Supervising Committee.

When writing the dissertation, the student should submit drafts to the Supervising Professor until they are both satisfied that it is a well-written document containing all of the material (experiments) promised to the Supervising Committee. Once the Supervising Professor approves a final draft of the dissertation, complete copies are given to each member of the Dissertation Supervising Committee, including the external member. The members of the Dissertation Supervising Committee should be given a reasonable period of time, usually at least three weeks, in which to evaluate the dissertation. If the Dissertation Supervising Committee judges the dissertation to be suitable for defense, the student must submit a Request for Final Oral Examination (GSBS Form 40), with all of the appropriate signatures approving the dissertation and the examination date, to the Dean of the Graduate School. The appropriate number (inquire at Dean's office) of copies of this form, plus dissertation abstract and vita, must be received by the Dean at least two weeks before the dissertation defense date since the Dean publicizes the defense. If two or more members of the Supervising Committee feel that the dissertation is not suitable for defense, the student shall make the appropriate changes to until the committee is satisfied. COGS shall be the arbiter of any disputes that cannot be resolved between a student and a Supervising Committee.

d. *Final Oral Examination*

A public announcement of the Final Oral Examination is distributed by the Dean of the Graduate School so that all interested persons may attend the public defense and question the candidate. After presenting his/her dissertation research in a departmental seminar, the candidate fields questions from members of the audience who are not on the Dissertation Supervising Committee. Next, the Dissertation Supervising Committee meets with the candidate in a closed-door session to administer an intensive and detailed oral examination of the dissertation and the dissertation research. The committee members then vote on the candidate's success or failure on the Final Oral Examination; the committee members record their votes by signing GSBS Form 43 (Report on the Final Oral Examination in the appropriate place. More than one vote for failure indicates failure of the examination. If the student fails the Final Oral Examination, the Supervising Committee should submit a recommendation regarding remedial action; in such a situation, COGS is to decide on the recommendation and any other action to be taken. If the student passes the Final Oral Examination, the outcome of the Dissertation Supervising Committee's deliberations are sent to COGS using GSBS Form 43, and if acceptable, the recommendation to grant the Ph.D. is forwarded to the Graduate Faculty Council.

The Supervising Committee members must also indicate their approval of the final version of the dissertation by their signatures on the "Approval Page" of the dissertation. Should extensive revisions of the dissertation be requested by the Dissertation Supervising Committee, the Supervising Professor should withhold his/her signature on Form 43 until all of the necessary changes are made to the dissertation. Under these circumstances, each member of the Dissertation Supervising Committee should be given the option to review revisions in the dissertation prior to the certification of the final document by the Supervising Professor. Once requested revisions are made and the Approval Page is signed by members of the committee, the student submits the signed GSBS Form 43 to COGS. Even if the student passes the Final Oral Examination, the final version of the dissertation must be approved by the Supervising Committee before COGS will consider the recommendation by the Supervising Committee that the degree be awarded. The student also submits the dissertation "Approval Page" to the Office of the Graduate Dean for signature by the Dean. The Dean's signature and the approval of the dissertation by the GFC are required before the degree can be awarded.

6. Overview of MI track PhD program

		Fall Semester*	Spring Semester	Summer Semester
Year 1	Course	1. IMGP Core Course (8 SCH); 2. Laboratory Rotations (2 SCH);	1. MI Track Core Concept Course (4 SCH) 2. MI Track Think Skill Course (2 SCH) 3. Ethics in Biomedical Research (0.5 SCH) 4. Laboratory Rotations (2 SCH) 5. Journal Club (0.5 SCH)	Advanced course (1SCH) if available
	Research	1. Attend Seminars (once/week) and Journal clubs (once/week)	1. Complete Rotations; 2. Select a Temporary Supervisor 3. Attend Seminars (any track, once/week) and Journal clubs (MI track, once /week)	1. Do Research; 2. Set up Temporary Supervising Committee 3. Attend Student Seminars
Year 2	Course	1. Continue Electives if needed; 2. Present the first research seminar (Acquiring Presentation Skills; APS)	1. Continue Electives if needed; 2. Continue APS presentation#1; 3. Supervised Teaching of Med./Dent. Micro Labs	Continue Electives if needed
	Research	1. Do Research 2. Meet with Temporary Supervising Committee 3. Attend Seminars & Journal Clubs	1. Do Research; 2. Qualifying Examination 3. Attend Seminars & Journal Clubs	1. Do Research; 2. Advance to Candidacy 3. Attend Student Seminars
Year 3	Course	1. APS presentation#2 2. Supervised Teaching of Med./Dent. Micro Labs	1. Continue APS presentation#2 2. Supervised Teaching of Med./Dent. Micro Labs	None
	Research	1. Do Research; 2. Form Dissertation Committee 3. Meet with Dissertation Committee to discuss Dissertation Proposal 4. Attend Seminars & Journal Clubs	1. Do Research; 2. Meet with Dissertation Committee 3. Dissertation Proposal to GFC 4. Attend Seminars & Journal Clubs	1. Do Research 2. Attend Student Seminars
Year 4	Course	APS presentation#3	Continue APS presentation#3	None
	Research	1. Do Research; 2. Meet with Dissertation Committee 3. Attend Seminars & Journal Clubs	1. Do Research; 2. Meet with Dissertation Committee 3. Attend Seminars & Journal Clubs	1. Do Research 2. Attend Student Seminars
Year 5	Course	APS	APS	None
	Research	1. Do Research 2. Meet with Dissertation Committee 3. Attend Seminars & Journal Clubs	1. Do Research 2. Meet with Dissertation Committee 3. Attend Seminars & Journal Clubs	1. Do Research 2. Write Dissertation 3. Defend Dissertation

* Orientation and track introduction activities take place in August prior to the start of the first Fall semester; **Blue highlights IMGP common requirements** while **Red highlights various milestone steps in MI Track graduate training process**

7. Overview of MI track MD/PhD program

Dual degree (MD/PhD) students in the “M and I Track” will undertake an “abbreviated” course load in deference to the material that they have already taken as medical students. The Microbiology and

Immunology Track Curriculum Committee has recommended, and the Microbiology and Immunology COGS subsequently approved, the following:

a. MD/PhD students will be excused from INDT 5000 (Fundamentals of Biomedical Sciences), MICR 5003 (Core Concepts in Microbiology and Immunology), and INDT 6002 (Ethics in Scientific Research). The Curriculum Committee felt that the materials that are contained in these courses have already been given to the students during their 2 years of medical school. In addition, the students are excused from MICR 6071 (Supervised teaching). It is anticipated that the students will have opportunities to practice teaching when they return to their medical training.

b. The MD/PhD students will be expected to enroll in:

b1) MICR 5029 “Building Scientific Thinking” (2 Credits).

b2) One advanced elective course (at least 1 Credit).

b3) MICR 5030 “Journal Club” (0.5 Credits) each semester.

b4) MICR 5090 “Acquiring Presentation Skills” (1 Credit).

b5) MICR 6097 “Research” (Credit to be arranged).

b6) MICR 7099 “Dissertation” (Credit to be arranged).

III. The MICROBIOLOGY AND IMMUNOLOGY MS Program.

Although the Microbiology and Immunology (MI) program does not actively recruit students for a course of study specifically leading to an MS degree, it does maintain an MS program for students whose “special circumstances” would be best served by such a program. The MI MS program is operated by the M & I committee on graduate studies (COGS), with admission to the program determined by that body. Students in the MS program are not funded by the program, but may be supported by an individual faculty member once that individual is identified as the student’s supervising professor.

MI MS STUDENT TRAINING PROCESS

1. Course Work :

In keeping with the requirements of the Graduate School, a minimum of 30 semester hours is required for the MS degree. A full time course load for an MS student is a minimum of 6 semester hours during the fall and spring terms and 3 semester hours for summer terms.

Upon his/her entry into the MS program, the student will be expected to undertake the same courses as the M&I Track’s Ph.D. students. These are the IMGP common core course: INDT 5000 (10 credit hours), as well as the MI track-specific courses MICR 5003 “Core Concepts in Microbiology & Immunology” (4 credit hours), MICR 5029 “Building Scientific Thinking Skills” (2 credit hours) and “Ethics in Scientific Research” (0.5 credit hours). In subsequent “fall” and “spring” semesters, the student will be expected to enroll each semester in MICR 5030 “Journal Club” (0.5 credit hours) and

MICR 5090 “Acquiring Presentation Skills” (1 credit hour), as well as “research” and/or “thesis”, as appropriate.

2. Selection of Thesis Advisor and Supervisory Committee:

All students are encouraged to complete at least three rotations before officially choosing a supervising professor. After completing their rotations, the students should submit their choice for Thesis Advisor/Supervising Professor and Supervisory/Thesis Committee to the Chair of COGS on COGS form 111. Soon after forming the Thesis Committee, the student should meet with the committee to discuss the possible directions of his/her research project. The results of this meeting should be reported to COGS by submission of the “Committee Evaluation Forms” (COGS form 113), filled out by the committee members and delivered to the chair of COGS by the student.

3. Admission to Candidacy for the MS Degree.

Once a thesis project has been formulated, composed in a style as described in Appendix D, and approved by the “Thesis Committee”, the student can prepare GSBS form 42 “Composition of Supervising Committee” and submit it, along with the thesis proposal, to the Chair of COGS for approval by COGS and forwarding to the Dean’s Office. With the approval by the Dean’s Office of the thesis proposal and committee, the student may register for “thesis” in subsequent semesters.

There is currently no qualifying examination in the M&I Program for advancement to candidacy for the MS Degree. Once the required course work has been completed and the Thesis Proposal Approved, the student can submit a request for “Advancement to Candidacy for the MS Degree” (GSBS Form 31).

4. Preparation of Thesis:

Each “fall” and “spring” semester the student should meet with his/her supervisory Committee to assess the student’s progress on his/her project. The outcome of these meetings should be reported to the Chair of COGS on COGS form 116. When the Thesis Committee is satisfied that the research accomplished by the student is of sufficient quality and quantity, formal permission is granted to the student to write his/her thesis. Normally, all MS students are enrolled as full-time students (6 credit hours in the Fall and Spring semesters, and 3 credit hours in the summer session). During a student’s last semester, while finishing and defending his/her thesis, a student may register for one credit hour (as Final Hours). This may be done only once. If registration for additional semesters is required, the student is expected to once again register as a full-time student.

The Supervising Professor should notify the Chair of COGS, in writing, that the student has been given permission to write the thesis. The format of the thesis must conform to the style and format guidelines of the Graduate School of Biomedical Sciences. These guidelines are available from the Office of the Graduate School Dean and should be consulted prior to drafting the thesis.

5. Thesis Defense:

After the thesis has been written and approved by the student’s Thesis Committee, the student should submit a “Request for Final Defense and Oral Examination” GSBS form 40 to the Dean’s Office. A public announcement of the Final Oral Examination is distributed by the Dean of the Graduate School so that all interested persons may attend the presentation and question the candidate. After presenting

his/her thesis research in a departmental seminar, the candidate fields questions from members of the audience who are not on the Thesis Supervising Committee. Next, the Thesis Supervising Committee meets with the candidate in a closed-door session to discuss the thesis research. The committee members then vote on the candidate's success or failure on the Final Oral Examination; the committee members record their votes by signing GSBS Form 41. More than one vote for failure indicates failure of the examination. If the student fails the Final Oral Examination, the Supervising Committee should submit a recommendation regarding remedial action; in such a situation, COGS is to decide on the recommendation and any other action to be taken. If the student passes the Final Oral Examination, the outcome of the Thesis Supervising Committee's deliberations are sent to COGS using GSBS Form 41, and if acceptable, the recommendation to grant the MS degree is forwarded to the Graduate Faculty Council.

IV. EVALUATING STUDENT PROGRESS

The Microbiology and Immunology Track COGS should review the progress of students in the track at least twice a year. These meetings usually take place shortly after the fall semester is completed and soon after the spring semester is completed. However, if at any point in time a Graduate Faculty Member perceives that a student is not making sufficient progress in the program, the matter should be brought to the attention of the Chair of COGS so that COGS can evaluate the situation promptly. The criteria used in evaluating student progress are described in the next four sections. The students are notified of the outcome of these discussions only if COGS decides that a student is not making adequate progress in the program.

Whenever substantive assessment of a student is expected to occur at a COGS meeting, the subject of that review should be informed that such a review will be taking place. The Chair of COGS will solicit, from the individual under review, any relevant information or material that the individual would like COGS to consider in making its deliberations. Whenever a student's progress is being reviewed by COGS and it is anticipated that this review may result in an action that affects the status of the student in the program, the Chair of COGS will invite the supervising professor to comment to COGS on behalf of that student.

1. Performance Expected in Course Work

All students are expected to maintain a 3.0 GPA with no more than one "C" grade in any of the required or elective courses (Acquiring Presentation Skills, Ethics, Teaching, Research, Thesis and Dissertation are not included in the GPA calculation since they are graded as "S" or "U"). If a student has a GPA less than 3.0, he/she will be placed on academic probation. If a student has two "C" grades, he/she will be placed on academic probation, even if his/her GPA is 3.0 or greater. If either of these two situations is not corrected in the manner and time frame recommended by COGS, the student will be subject to dismissal from the program.

If a student receives a "C" in any course, COGS may recommend remediation. Remediation may entail retaking the course or may consist of some other process (taking an exemption exam, writing a paper, etc.) The form of the remediation will be decided by COGS in consultation with the appropriate Course Director and will be communicated to the student by the Chair of COGS in writing. A grade earned by remediation may replace the original grade for purposes of calculating the GPA, but the original grade remains on the transcript.

If a student receives a "D" or "F" in any course, he/she will be considered for dismissal from the program. If the student is not dismissed from the program, he/she will be placed on academic probation and must retake the course.

Students may withdraw from a course only after getting the approval of COGS and the director of the course from which they wish to withdraw. In general, students will be allowed to drop a course only if there are extenuating circumstances. Poor academic performance alone is not an extenuating circumstance.

2. Performance Expected in Other Graduate Student "Activities"

There are certain other Track activities in which students are expected to participate, when appropriate, for their degree objective. If a student does not show an appropriate level of proficiency in these activities as judged by COGS with the input of the activity directors, the student will be placed on academic probation. The activities included in this category, and the expectations of the students, are:

- a. *Acquiring Presentation Skills*: Each student must present one seminar a year in this course, which is graded with an "S" (satisfactory) or a "U" (unsatisfactory) by a panel of faculty members. A student receiving a second "U" in this course will be placed on track academic probation. Students are also expected to attend the presentations of all of the other students in the track. Students who do not attend regularly may be placed on academic probation by COGS.
- b. *Supervised Teaching*: Each student is required to participate in teaching for a minimum of two semesters. The teaching requirement is usually fulfilled by participation as a teaching assistant in the Medical and Dental Microbiology Labs. In addition, graduate students are expected to attend, and occasionally present, pretutorials for each lab. A grade of "U" (unsatisfactory) in this course may be cause for COGS to put a student on academic probation.
- c. *Journal Clubs*: Each student, after their first year, is expected to participate in any COGS-approved track journal club at least 10 times with one presentation. Failure to do so may be cause for COGS to put a student on academic probation.
- d. *Research Seminars*: Each student is expected to attend one research seminar per week. Students who do not attend regularly may be placed on academic probation by COGS.

3. Performance Expected in the Research Laboratory

Each semester, a grade of satisfactory (S) or unsatisfactory (U) is given in research. The grade is given by the student's Supervising Professor, in consultation with the student's Supervising Committee, and is based upon the student's overall performance in the laboratory including their experimental progress, academic development, effort and, when appropriate, progress in writing their dissertation. Each student must meet with his/her Supervising Committee at least once every six months to present and discuss their project. The meetings should be scheduled to take place during the fall and spring semesters. Specifically:

<u>Year of student in program</u>	<u>Fall semester</u>	<u>Spring semester</u>
2 nd	November	April
3 rd	October	March

4th and beyond

September

February

At the meeting the student will distribute a brief written progress report to each member of the committee. The report should include a statement of the aims of the research project/dissertation proposal, the progress that was made toward satisfying the aims, and an outline of future plans. Data in the form of figures and tables may be included, where appropriate. During the meeting, the student summarizes the project background, relevant published work that has an impact on the research, and the results that he/she has obtained with emphasis on the experimental findings made since the last meeting. The members of the Supervising Committee will evaluate the student using the appropriate forms (COGS evaluation form 103, 104, or 105 and the COGS summary form 106) provided by the student. It is the student's responsibility to complete the "student information section" at the top of the forms and to provide the forms to the committee members. The student collects the forms after the meeting and distributes a copy to each member of the supervisory committee and the Graduate Advisor. These evaluations are used, in part, by the Supervising Professor in assigning a research grade for the student. If a student does not hold a meeting of his/her Supervising Committee within the prescribed semester, he/she will receive a grade of incomplete (I) in research for the semester in which no meeting was held. If a student does not rectify the situation by holding a Supervising Committee meeting within one month of the semester in which a meeting should have been held, the research grade shall be changed from incomplete to unsatisfactory (U). Any student who receives a "U" in research will be placed on track academic probation by COGS.

4. Expectations in the Qualifying Examination

Candidates for the Ph.D. degree must pass the Qualifying Exam as described in Appendix B. The Qualifying Examination Committee will base its decision on the satisfactory preparation and defense of the research proposal, as well as the adequacy of the student's general knowledge to pursue his/her chosen discipline. The Examination Committee can make one of three recommendations:

- i) The student has passed the research Qualifying Examination with no restrictions.
- ii) The student has not adequately passed the Qualifying Examination but shows signs of promise. In this case, the student will be placed on academic probation and will repeat the examination with the same committee. The re-examination of the student should normally be completed within three months of the original examination. Failing a re-examination is cause for dismissal from the Ph.D. program. A student who has failed the Qualifying Exam may petition COGS for admission to the M.S. degree program.
- iii) The student has failed the Qualifying Examination and the Examination Committee agrees that the student is not qualified for admission to candidacy for the Ph.D. degree. If the Qualifying Examination Committee reports to COGS that a student has failed the Qualifying Examination, COGS will review the student's overall graduate record as soon as possible to determine the student's fate in the program. If COGS does not accept the Qualifying Examination Committee's recommendation and decides to allow the student to take a re-examination, the second examination shall be with a new Examination Committee. If COGS decides that the student should not continue toward the Ph.D., COGS may recommend dismissal from the program or a switch from the Ph.D. to the M.S. degree objective.

5. Time to Completion of Degree Requirements

If the Supervising Committee, without dissent, approves a student's dissertation or thesis and its defense, the Chair of COGS may forward that recommendation to the Dean of the Graduate School without a formal vote of COGS. However, if one or more members of COGS request a formal vote of COGS regarding the awarding of a degree to a particular student, such a vote will be held by the Chair of the COGS prior to signing GSBS Forms 41 or 43. Such a request must be sent to the Chair of COGS, in writing, within one week of the oral defense of the student's dissertation or thesis.

Ph.D. students are usually expected to complete their degree requirements, including the dissertation defense, in approximately five years of full-time studies. If a student has not defended dissertation before completing six years of full-time studies, he/she is subject to dismissal from the program for lack of progress. A student may request that COGS extend the limit of six years for degree completion, but such a waiver will be granted only under exceptional circumstances.

6. Academic Probation/Dismissal

A student can be placed on academic probation by COGS for failure to meet any of the expectations of the program described above. The Chair of COGS notifies a student in writing that he/she is on probation. This communication will include the reason for the probationary status, the requirements to rectify the probation and the time allowed to complete the requirements (usually one semester). A student who fails to meet the probationary requirements in the time allowed or fails to meet any of the other expectations of the program while on probation is subject to dismissal from the Ph.D. program. If dismissal of a student is being considered by COGS, the student will be informed by the Chair of COGS that such an action is being considered. The Chair of COGS will solicit, from the student being considered for dismissal, any relevant information the student would like COGS to consider in its deliberations. The student will be notified of COGS' decision in writing, along with the reasons for the decision. The student will be allowed two weeks to make a written appeal of the decision to COGS.

V. MI TRACK FACULTY MEMBERS

The faculty mentors who have expressed interests in training Ph.D. students under the M&I track come from a wide variety of departments and institutions in the San Antonio area, including the Departments of Microbiology and Immunology, Medicine, Pathology, Cell and Structural Biology at UTHSCSA, the department of Biology at UTSA, Children's Cancer Research Institute, San Antonio Cancer Institute and Southwest Foundation for Bio-medical Research.

1. Appointment to MI Track Graduate Faculty

a. *Nomination:* Any full-time faculty member is eligible to be nominated by a member of the Microbiology and Immunology Track Faculty. Self nominations are also accepted. A nominee should submit, to the Chair of COGS, a cover letter requesting membership with a statement indicating that the nominee understands the criteria for appointment and understand his/her rights and responsibilities as a member of the Graduate Faculty. In addition, the nominee should include a copy of his/her curriculum vitae, and documentation of particular qualifications for participation in the MI track (on the form provided).

b. *Evaluation*: COGS will use the criteria detailed below to evaluate each nominee for membership in the Graduate Faculty. The nominee will be notified, in writing, by the Chair of COGS as to the decision. If the nominee is approved by COGS for membership on the Microbiology and Immunology Track Graduate Faculty, the Chair of COGS will notify the Dean of the Graduate School of said appointment using GSBS Form 80.

c. *Recertification*: As required by the ByLaws of the Graduate Faculty Assembly and the Graduate Faculty Council, every faculty member's participation as a Graduate Faculty member will be assessed and recertified at least every three years. Whenever substantive assessments of a graduate faculty member is expected to occur at a COGS meeting, the subject of that review will be informed that such a review will be taking place. The Chair of COGS will solicit, from the individual under review, any relevant information or material that the individual would like COGS to consider in making its deliberations. The Chair of COGS may also solicit relevant information from other individuals, if such input is deemed necessary for a fair review.

2. Criteria for Appointment to the MI Track Graduate Faculty

The following list includes contributions one can make to the Microbiology and Immunology Track. Candidates for membership on the Microbiology and Immunology Track Faculty are expected to meet some of the requirements on this list.

- a. Provide a laboratory environment that is academically and intellectually rewarding for the pursuit of the Ph.D. degree. Evidence for this would include the scientific achievements of present and former students.
- b. Have an active, quality research program that shows evidence of scholarly activity appropriate to the training of Ph.D. students. This would include publication of significant literature in reputable journals and invited presentations of research at national meetings, symposia and seminars.
- c. Demonstrate a record of intermediate/long term funding for a research project(s).
- d. Contribute to Track teaching responsibilities through major participation in basic and advanced graduate courses.
- e. Actively participate (25%) in Track and student seminar programs, journal clubs, and student qualifying and dissertation exam committees.
- f. Actively assist in recruitment of prospective graduate students

3. MI Track Graduate Faculty Rights

The major privilege provided to MI track faculty members is the opportunity to train graduate students. COGS approval of students entering a particular laboratory will be based on available financial support for graduate students by the faculty member, the past success demonstrated by the faculty member with regards to progress demonstrated by trainees in that laboratory that reflects likely future training success, and the interest of the student involved. There are no absolute limits on the number of students that can be mentored by any member of the Microbiology and Immunology Track at any one time as long as the above mentioned criteria are met.

4. MI Track Graduate Faculty Responsibilities

a. *Research Program*: Members of the Graduate Faculty of Microbiology and Immunology are expected to maintain an active, high quality research program that is conducive to the training of graduate students.

b. *Graduate Student Training*: Members of the Graduate Faculty of Microbiology and Immunology are expected to participate actively in the training of the Track's Graduate Students. Such participation usually includes providing a laboratory environment that is appropriate for the academic and intellectual advancement of graduate students, contributing to Track teaching activities and being involved in Track seminars, journal club and supervising committees.

c. *Graduate Student Financial Support*: Members of the Graduate Faculty of Microbiology and Immunology Track are expected to provide financial support for Ph.D. students in their laboratories. The provision of this support will start at the beginning of the student's second year, and continue until the student has graduated. In general, students are expected to complete their degrees within six years. If a Supervising Professor cannot continue to provide a stipend for a student, the faculty member must give the affected student reasonable notice. The level of support will be commensurate with the stipend level for the Ph.D. students in the Microbiology and Immunology Track and is expected to come from research grants or other sources. The Supervising Professor is not obligated to provide support for a M.S. degree student, but may do so at his/her discretion. Although this manual is for PhD only, a Master degree can be offered to the candidates who choose to opt out of our PhD program for a Master degree due to reasons such as failure to pass the candidacy.

d. *Other*: Members of the Graduate Faculty of Microbiology and Immunology Track are expected to have significant and collegial interactions with other graduate faculty. This interaction could include, but is not limited to, collaborative research efforts, collaborative or interdisciplinary teaching, service on student examination or supervising committees, participation in joint lab-research meetings, or other scholarly joint ventures.

APPENDIX A

MI TRACK COURSE REQUIREMENTS AND DESCRIPTIONS

A. Courses Required for the Ph.D. Degree.

Students enrolled in the MI Track must take all of the following courses in the semesters indicated. Exemption from a required course is rarely given, and must be approved by both COGS and the course director. In addition, each student is expected to attend one research seminar per week.

INTD 5000, Fundamentals of Biomedical Sciences (10 credits, Fall semester, first year). This course will cover the fundamentals of biochemistry, molecular biology, cell biology and organismal & systems biology. The course is designed for first year graduate students matriculating into the integrated, multidisciplinary graduate program.

MICR 5003, Core Concepts in Microbiology & Immunology (4 credits, Spring semester, first year). This course will provide students with an integrated view of the microbial world and the mammalian immune response. Students will receive a foundation in the basic concepts and experimental approaches that are crucial for understanding core concepts in pathogenic microbiology, virology, parasitology, mycology and immunology through directed readings and didactic instruction. A special emphasis will be placed on integrating knowledge from each discipline using specific examples to illustrate important concepts in host-pathogen interaction.

MICR 5029, Building Scientific Thinking Skills (2 credits, Spring semester, first year). The goal of this course is to provide the opportunity for graduate students to develop critical thinking skills in reading scientific literature, developing/critiquing scientific ideas and grant proposals and effectively communicating one's own scientific ideas with peers. The courses will be offered in three consecutive stages. First each student will be assigned/encouraged to read articles focusing on a topic in the areas of Microbiology and Immunology and give a 50 minute review presentation on the topic to the class followed by questions/critiques from fellow students and faculty members. Second, each student is guided to develop a mini-proposal on a chosen topic followed by written critiques from fellow students and faculty members. Finally, each student is arranged to give an oral defense of his or her written proposal to the class followed by questions from fellow students and faculty members. Since the proposal writing and defense portions mimic the process involved in M&I track qualification examination, this course will not only have a long lasting impact on the student's scientific skill development, but also prepare the student for the immediate qualification examination.

MICR 5030, Journal Clubs (.5 credits, Spring and Fall semesters each year). Students are required to be present at any of the COGS approved journal clubs 10 times per semester with at least one presentation. The journal clubs can be any journal clubs and are not restricted to MI Track as long as the students obtain prior approval from MI COGS. At the end of each semester, each student is required to submit a list of journal club meetings he or she attended. After the course instructor verifies the attendance with the journal club organizers, the credit will be granted to the student. This requirement continues until the student reaches his or her thesis defense

MICR 5090, Acquiring Presentation Skills (1 credit, taken Spring and Fall semesters each year after first year). This course is designed to prepare the student for giving a scientific lecture or seminar. Each student is coached by a faculty member on effective public speaking and on the critical analysis of scientific data. Students enroll in this course each fall and spring semester and present one lecture per academic year. Students, even if they are not required to present a lecture (i.e., year 5) are still expected to enroll in this course and attend all seminars given by other students

INTD 6002, Ethics in Scientific Research (0.5 credits, Spring semester, first year). Round table discussions of current issues in scientific ethics.

MICR 6071, Supervised Teaching (Credit to be arranged). Prerequisite: Consent of Chair of Department. Teaching, usually in the Medical and Dental Microbiology & Immunology Labs, under the close supervision of instructors. More advanced students may present formal lectures in the classroom. Students are required to participate in two semesters of Supervised Teaching.

MICR 6097, Research (Credit to be arranged). Independent, original research under the direction of Supervising Professor. Research includes meeting with a supervising or dissertation committee at least once every six months.

MICR 7099, Dissertation (Credit to be arranged). Prerequisite: Approval of Dissertation Research Committee composition and Dissertation Research Proposal. Completion of independent, original research under the direction of Supervising Professor. *Registration for a least two semesters is required for Ph.D. candidates.*

B. Elective Courses

Students enrolled in the Microbiology & Immunology Ph.D. program must take at least one advanced course, usually in their third or fourth year. Advanced courses offered by the Microbiology & Immunology track are listed below. Alternative elective courses may also be taken with the approval of the student's Supervising Professor and the Chair of COGS.

MICR 6022, Advanced Microbial Physiology (2 credits). Prerequisite: Microbial Physiology and consent of instructor. Current concepts and experimental studies in microbial structure-function relationships and regulatory mechanisms.

MICR 6024, Advanced Microbial Genetics (2 credits). Prerequisites: Molecular Biology or consent of instructor. In depth study of selected areas of microbial genetics through the presentation and discussion of current literature.

MICR 6026 - Advanced Mycology (2 credits). Prerequisite: Molecular Biology, Microbial pathogenesis, and consent of instructor. In depth study of current concepts in fungal pathogenesis.

MICR 6043, Advanced Topics in Virology (2 credits). Prerequisites: Introduction to Virology, Biochemistry and consent of instructor. In-depth study of selected molecular topics from the current literature in virology.

MICR 6052, Advanced Immunobiology (2 credits). Prerequisites: Introduction to Immunology or consent of instructor. An in-depth study of the immune system and how it is regulated. Presentation and discussion of current literature in these areas.

The following courses are appropriate for Ph.D. students only under unusual circumstances where a specific academic deficit needs to be corrected.

MICR 5092, Special Problems in Microbiology & Immunology (Credit to be arranged). Prerequisite: Consent of instructor. Course provides an opportunity for the student to engage in a special research project or to develop proficiency in the use of certain laboratory methods.

MICR 5091, Special Topics in Microbiology & Immunology (Credit to be arranged). Prerequisite: Consent of instructor. Students will be given an opportunity to gain in-depth understanding of selected topics in Microbiology & Immunology through a combination of library research and discussion with faculty.

MICR 5011, Medical Microbiology (5 semester hours). Prerequisite: Consent of instructor. This course is designed primarily for medical students; graduate credit will be permitted only under unusual circumstances. Broad coverage of human immunology, virology, bacteriology, mycology, and parasitology with emphasis upon problems likely to be encountered in medical practice.

Students outside of the Microbiology & Immunology track may elect to enroll in one of the following courses which are individual modules of MICR 5003, Core Concepts in Microbiology & Immunology.

MICR 5025, Eukaryotic Pathogens (1 credit). This course will provide students with a basic comprehensive understanding of parasitology and mycology. The first part of this course will focus on virulence mechanisms and the host immune response with respect to a variety of parasites that cause major human diseases. The second part of this course will cover several important areas of medical mycology including molecular biology, diagnostic/epidemiology, mating/phenotypic switching, morphology, pathogenesis and antifungal therapies.

MICR 5026, Bacterial Pathogenic (1 credit). This is an introductory course in microbial pathogenesis focusing on bacterial pathogens that are important in human disease. Students will receive a foundation in the basic concepts and experimental approaches that are crucial for understanding the discipline through directed reading and didactic instruction. Specific concepts, strategies, and mechanisms used by human bacterial pathogens to cause disease will be illustrated.

MICR 5027, Immunology (1 credit). This course will focus on fundamental concepts in immunology with emphasis on experimental strategies for elucidating the cellular and molecular mechanisms underlying immune responses. Lecture topics will illustrate important concepts in innate immunity, cytokine signaling, antigen recognitions and presentation, the genetics of immune receptors and the major histocompatibility complex, immunity to infection, and immunopathology (e.g. hypersensitivity, autoimmunity, immunodeficiency, etc.).

MICR 5028, Virology (1 credit). This course focuses on the molecular and cellular biology of animal viruses, and their interactions with host cells. Many of the viruses to be covered in this course are medically significant or have provided critical information that has expanded our understanding of cell biology, immunology, development, and differentiation.

APPENDIX B

Qualifying Examination Format

Purpose: The examination is designed to test whether or not the student is capable of scientific problem solving and has acquired sufficient background in Microbiology and Immunology to function in these disciplines. The examination consists of the oral defense of a Qualifying Examination Proposal that has been prepared by the student and general knowledge questions related to some aspect of the proposal.

Considerations:

1. The test should measure both general knowledge and scientific reasoning.
2. The time at which the exam is administered need not be the same for all students.
3. The exam will be administered by a group of graduate faculty including several faculty who are likely to serve as members of the student's dissertation committee.
4. Faculty must be "realistic" in their expectations of student performance on the test.

Mechanics:

1. The student's Temporary Supervising Committee will determine when a student is ready to undertake his/her qualifying examination.

This test is normally taken during the spring semester of the second year. The student is expected to have identified all committee members for the Qualifying Exam Committee (see below for composition) and begin work on formulating the major question of the research problem by January 15. It generally takes 3-4 weeks for the student to select the research question for this examination and get approval from his/her examination committee (see below) on the question. If the committee believes that a student is not ready to take the examination in the spring semester of his/her second year in the program, it must justify this stand to the Committee on Graduate Studies (COGS), which will have the authority to insist on an immediate examination if the justification for a delay is not reasonable.

2. Composition the Preliminary Examination Committee:

- A) Qualifying Exam Committees will be composed of **5** faculty drawn from the MI Track, consisting of:
 - a. Two members of the student's temporary supervising committee, one of whom will serve as committee chairman.
 - b. A member of the Graduate Faculty chosen by the student and examination committee chairman based on his/her expertise in the area of the examination.
 - c. Two additional members, chosen by lottery from among the remaining members of the MI track.

The student's supervising professor, although not a member of the examination committee, is expected to attend the examination to advise the committee on how closely the student's performance in the exam mirrors his/her performance in other academic situations.

- B) All graduate faculty in the Microbiology and Immunology Track (excluding the student's supervising professor and temporary supervising committee) will form a "pool" of potential examination committee members. The two additional faculty members needed for a given examination will be randomly drawn from this pool to serve on the examination committee.
- C) Students will be allowed to veto one randomly drawn committee member, but it must be for cause (i.e., personality conflict) with the reason(s) provided to the Chair of COGS.
- D) Serving on two preliminary examination committees in the same exam year normally excludes the faculty member from future random drawings for committee service that year.

Randomizing an exam committee likely will result in some committee members being unfamiliar with a student's exam area. This arrangement often reflects real life in the grant review world and should be viewed as strength of our exam process. It will be to the student's benefit if they understand this possibility when they write and defend their proposal.

3. The student provides a draft of a research problem to the Chair of the Examining Committee. The document should be no longer than one page in length (references excluded). It should contain two or three paragraphs on the background and significance of the proposed research with selected key references and then simply state the question(s) or hypothesis to be addressed. The proposed research problem statement should not contain Specific Aims; those are part of the actual Qualifying Proposal. The Chair of the Examination Committee will then work with the student until a suitable question has been formulated. Subsequently, the Chair of the Committee circulates the proposal to the other members of the Examination Committee for their suggestions and approval. The Examination Committee is ultimately responsible for ensuring that the research question is:
 - A) Not a topic on which the student is actively performing research although it may be broadly related to the student's area of interest (e.g. immunology, bacterial physiology, etc.).
 - B) Narrowly defined so that the student may focus his/her efforts, yet broad enough to require the student to use several research strategies to solve. An appropriate problem would be one that could normally form the basis of a NIH or NSF postdoctoral grant proposal.
 - C) Current.

After being approved by the Qualifying Examination Committee, the proposed research question is sent by the Chair of the Examining Committee to the Chair of COGS for approval. COGS reviews the research problem to ensure consistency in the "quality" of the research question from student to student and returns its recommendation to the Chair of the Examination Committee. Disagreements between COGS and the Examination Committee over the content of the research problem will be resolved by discussion between the Chair of COGS and the Chair of the Examination Committee.

4. The Chair of the Examination Committee presents the final research problem to the student and briefs the student, in general terms, on what is expected in his/her answer. The format of the research proposal is that of a modified federal grant proposal(Appendix C). The proposal (in six printed copies or via email) is due back to the Chair of the Examination Committee no later than three weeks after it is received by the student.
5. The Chair of the Examination Committee distributes the copies of the research proposal to each committee member and to the Chair of COGS. After the Examination Committee determines, usually within ten days, that the proposal is of adequate quality, the student consults with the Examining Committee members to schedule a date for the oral examination. This examination is normally scheduled within one week of the approval of the Qualifying Proposal. If the Examination Committee feels that the student's proposal was of inadequate quality and therefore indefensible, the student will be asked to make appropriate revisions; the revised proposal is due back within two weeks after its return to the student.

6. The Chair of the Examination Committee distributes a memo to all members of the Microbiology and Immunology Track Graduate Faculty inviting them to attend and participate in the oral examination. The Chair of the Examination Committee will officiate at the oral examination, which normally has the following format:
 - A) The student presents a short (5 to 10 minute) description of his/her research proposal including the parameters of the problem as he/she views them and the rationale that he/she used to solve the problem.
 - B) The Chair of the Committee solicits questions, first from the members of the Examination Committee and then from the assembled faculty. These questions will be directed initially toward the research proposal, but will not be limited to the proposal. The student will be expected to answer general knowledge questions that flow from his presentation/proposal as a demonstration of his/her grasp of basic concepts learned in courses, seminars and from the literature.
 - C) Upon completion of the oral examination, the student is excused and those faculty who wish to express their opinions of the student's performance are invited to do so.
7. Decisions on whether a student has passed or failed the examination are normally arrived at as a consensus decision among the committee members; however, if a consensus can not be reached the decision will be made by a majority vote of the committee members. This recommendation is delivered to the Chair of COGS.

In considering its recommendation to pass or fail the student, the Examination Committee will base its decision on the satisfactory preparation and defense of the research proposal, as well as the adequacy of his/her general knowledge to pursue his/her chosen discipline. The Examination Committee can make one of three recommendations:

- A) The student has passed the research Qualifying Examination with no restrictions. This recommendation cannot be made if more than one member of the committee disagrees.
 - B) The student has not adequately passed the Qualifying Examination but shows signs of promise. In this case, the student will repeat the examination with the same committee. Depending upon the circumstances, the Examination Committee will decide whether the student should attempt to write a revised proposal to solve the original problem or if a new problem should be devised. If a new research proposal is to be given to the student, it must be reviewed and approved by COGS. The reexamination of the student should normally be completed within three months of the original examination.
 - C) The student has failed the Qualifying Examination and the Examination Committee agrees that the student is not qualified for admission to candidacy for the Ph.D. degree.
8. If the Qualifying Examination Committee reports to COGS that a student has failed the Qualifying Examination, COGS will review the student's overall graduate record as soon as possible to determine the student's fate in the program. If COGS decides that the student should not continue toward the Ph.D., the student will be notified of this, along with the reasons for the decision. COGS may recommend dismissal from the program or a switch from the Ph.D. to the M.S. degree

objective. The student will be allowed two weeks to make a written appeal of the decision to COGS.

APPENDIX C

GUIDELINES FOR PREPARING A QUALIFYING EXAMINATION PROPOSAL

The following outline is the guide for preparing the research proposal for the Ph.D. Qualifying Examination. The format is similar to that required by most grant agencies, so in essence you are being given the first opportunity to prepare a document which will resemble a research proposal one might submit for funding to NIH or NSF. The MAXIMUM length of the proposal should be 10 single-spaced typewritten pages (excluding title page, abstract, illustrations and references). The purpose of the page limitations is to help you learn to write succinctly in order to create a clear, more readable, document. Don't make your Exam Committee struggle with your writing.

Title Page - title; name of candidate; graduate program

Abstract (approx 400 words) - summarize objectives, protocol, and significance of your work.

Research Plan - (limit to 10 single-spaced pages):

1. **Specific Aims** (approximately ½ page) - State concisely the overall objective of the proposal. It is imperative that you then present your objective broken into 2-4 related and testable hypotheses (*e.g.*, Specific Aims).
2. **Background** (approximately 3 pages) - Describe the work of others that lead you to your hypothesis, citing only the most relevant references. It is in this portion of the proposal that you should provide the reader with a clear rationale for your research problem. State the overall importance of your proposed research along with its potential impact on the present perceptions in your field. DO NOT feel obligated to go back to the first paper published on your subject and proceed forward. Use numbers when citing the literature references.
3. **Experimental Design** (remaining pages) - Each Specific Aim that is outlined in the first section (above), should have a parallel section in the Experimental Design section. Outline the experiment(s) which will test each hypothesis. It is often advisable to separate design strategies and methods into sub-sections in order to maintain the "flow" of thought. One single methods section could be provided at the end of the Experimental Design section. When describing the general design and purpose of each of the major analytical procedures you plan to utilize in your research, provide sufficient detail to allow the reader the opportunity to critically evaluate the methods and the experimental approach chosen. However, avoid lengthy descriptions of methods common to the field (*e.g.*, details concerning the formulation of phosphate-buffered saline, or the performance of SDS-PAGE is not necessary).

- 4. References** - Follow a well established format such as the one presented in Index Medicus. Include titles of the references cited. Since citations should be numbered consecutively as they are cited in the text, references should also be arranged in numerical order reflecting when they were cited in the proposal. Use only standard accepted abbreviations for the names of journals. BE CONSISTENT in the way you construct the citations.

APPENDIX D

GUIDELINES FOR DOCTORAL STUDENTS PREPARING THE DISSERTATION PROPOSAL

The description of the proposed work should not exceed five double-spaced typewritten pages (excluding references). It should be written using language at a scientific and technical level comparable to an article in a magazine that is aimed at a wide audience, such as the Scientific American. The proposal should specify 1) the specific aims, 2) background and hypothesis, and 3) the general methods and techniques to be utilized. Include key references.

APPENDIX E

GUIDELINES: FORMATION AND FUNCTIONS OF MI TRACK COMMITTEE ON GRADUATE STUDIES (COGS)

1. Introduction

The Committee on Graduate Studies (COGS) for the Microbiology and Immunology track is empowered by the ByLaws of the Graduate Faculty Assembly and the Graduate Faculty Council of the University of Texas Health Science Center at San Antonio to administer the PhD Track in Microbiology and Immunology under the school-wide integrated multi-disciplinary graduate program. The COGS, consisting of selected members of the Microbiology and Immunology track faculty, acts on such matters as curriculum, student admissions, student progress, assignment of Supervising Professors, mediation of disputes between students and Supervising Professors, reviewing qualifications for membership on the track Graduate Faculty, and other pertinent policy considerations.

2. Membership of COGS

Six members of the full-time Graduate Faculty with membership in the Microbiology and Immunology Track will constitute the track's COGS. Membership on COGS will be for 3 years, with two committee members rotating off the committee each year. Membership on COGS will be offered to all members of the Microbiology and Immunology Track by random drawing to replace one of the two committee members who rotate off the committee each year. If the selected Track member declines membership on COGS, a replacement will be selected by random drawing. The other rotating off member will be replaced by nomination/election via consultation with experienced faculty by Track co-directors, which is to ensure that sufficient mentoring expertise and experience is retained in the committee. One member of COGS will assume the role of Chair of COGS for a 2 year term. The Chair of COGS will be chosen by the members of COGS from among the COGS membership.

3. The Chair of COGS

The Chair of COGS is also called the Graduate Advisor and serves as the Microbiology and Immunology Track representative to the Graduate Faculty Council (GFC). The Chair of COGS may, without consulting COGS, make certain decisions consistent with established Track policies. Such decisions would include, but are not limited to, the following: advising students on their curricula, approving students' choices for rotations, approval of student advancement to candidacy and approval of dissertation formats. The Chair of COGS is responsible for monitoring the progress of students, for advising students on their overall curriculum plans and their compliance with Track guidelines, and for facilitating two-way communications between students and COGS. It is the responsibility of the Chair of COGS to keep the other members of COGS informed about the status of all graduate students and about any Graduate Faculty Council actions that affect the Microbiology and Immunology Track.

The following actions, and any other major decisions regarding the graduate track, require a majority vote of COGS members before they can be implemented by the Chair of COGS: admitting a student, recommending dismissal of a student, granting unprecedented course waivers, approving students' choices of supervising committees and professors, approving the qualifying exam question and committee for each student, approving dissertation proposals prior to presentation at GFC, waiving any track requirements and establishing new policies.

4. Conducting the business of COGS

a. Mail Votes

When necessary and appropriate, the Chair of COGS may conduct a vote of COGS by mail. A simple majority of the entire membership is required to pass a motion. Votes which are not returned are considered abstentions. Decisions which are typically made by mail vote include: approving students' supervising committees and professors, approving qualifying exam questions and committees, approval of dissertation proposals and waiving certain departmental requirements.

b. COGS Meetings

COGS will routinely meet once a month, unless there is insufficient business to justify a meeting. When necessary and appropriate, the Chair of COGS may call for a meeting of the Committee on Graduate Studies to discuss and/or vote on major issues regarding graduate students or the graduate program. Such issues include, but are not limited to: student admission decisions, student dismissal decisions, removal of individuals from the graduate faculty, major curriculum changes and other substantive changes to the program.

b1). *Rules of Procedure:* Robert's Rules of Order for small groups shall govern the conduct of COGS meetings.

b2). *Agenda:* Copies of the meeting agenda will be sent to COGS members prior to the meeting. No action will be taken at a COGS meeting unless the item of business was on the published agenda. Exceptions to this require the unanimous consent of the members of COGS present at the meeting.

b3). *Voting:* A quorum of voting COGS members must be present to conduct a meeting. One-half plus one of the Track's COGS members constitutes a quorum. A motion is considered passed when it is approved by a majority of those COGS members present and voting.

b4). *Minutes:* The Chair of COGS and the recording secretary shall compile and sign the minutes of each COGS meeting. Copies of the minutes will be distributed to the members of COGS within one week of a meeting for revisions and approval. The original copy of the minutes will be filed permanently in the Microbiology and Immunology Track secretary. Following approval of the minutes, copies will be distributed to Graduate Faculty who are members of the Track.

b5). *Guests/openness*: In principle, all COGS meetings are announced and open to all MI track members. However, to protect the privacy of the students and faculty members being discussed, COGS reserves the right to hold closed door meetings. In addition, the Chair of COGS or COGS may invite faculty members, students or other interested parties to attend a COGS meeting as a guest of COGS. All non-COGS members attending COGS meetings will have the privilege of the floor, but will not have the right to vote. COGS may selectively allow or disallow individuals to attend portions of COGS meetings so that confidential information can be safe guarded and conflicts of interest can be avoided.

5. Guidelines for specific decisions that are made by the chair of COGS

The following sections authorize the Chair of COGS to make certain decisions without consulting COGS and which serve as guidelines in making those decisions.

a. *Approval of Dissertations*

If the Supervising Committee, without dissent, approves a student's dissertation or thesis and its defense, the Chair of COGS may forward that recommendation (by signing GSBS Forms 41 or 43) to the Dean of the Graduate School without a formal vote of COGS. However, if one or more members of COGS request a formal vote of COGS regarding the awarding of a degree to a particular student, such a vote will be held by the Chair of the COGS prior to signing GSBS Forms 41 or 43. Such a request must be sent to the Chair of COGS, in writing, within one week of the oral defense of the student's dissertation or thesis.

b. *Assignment of Research Grades*

Usually the Chair of COGS shall assign a grade of "S" (Satisfactory) or "in progress", as appropriate, to each student taking Research, Thesis, Dissertation or Final Hours, without consulting the student's Supervising Professor. However, if any of the most recent Student Evaluation Forms are marked unsatisfactory ("U") or contain a lot of negative comments, the Chair of COGS shall contact the Supervising Professor to determine the grade to assign.

c. *Graduate Faculty Council Decisions*

The Chair of COGS, as the Microbiology and Immunology Track's Representative to the Graduate Faculty Council, may make most decisions on Council matters without consulting the other members of COGS. However, if a substantive issue is to be discussed and/or voted on at Graduate Faculty Council, the Chair of COGS shall solicit the input or call for a vote of the membership of COGS. The Chair of COGS shall then vote on the particular Council action following the decision of COGS. Substantive Graduate Faculty Council issues that warrant consideration by the full membership of COGS include, but are not limited to: the institution of new graduate programs, the modification of admission requirements for the graduate school, or the addition of new requirements for current or incoming graduate students.

6. Amending the operating procedures for MI track COGS

Changes to these Operating Procedures may be suggested, in writing, to the Chair of COGS by any Graduate Faculty Member. The suggested amendment shall be considered by COGS following normal procedures for voting. If the amendment is approved by COGS, the Chair of COGS will send an appropriate memo to all members of the Microbiology and Immunology Graduate Faculty and to the Associate Dean of the Graduate School to inform them of the revision and will amend these Operating Procedures accordingly

APPENDIX F

MICROBIOLOGY & IMMUNOLOGY TRACK FACULTY

Faculty	Department	Phone	E-mail	Research interests
Kraig, Ellen	C&SB	567-3818	kraig@uthscsa.edu	Molecular immunology; autoimmunity; bacterial pathogenesis
Infante, Anthony	Pediatrics	567-0510	INFANTEA@uthscsa.edu	Immunology; T cell receptor repertoires in health and disease; autoimmunity; immunodeficiency states
Gao, S.J.	CCRI	592-9030	gaos@uthscsa.edu	tumor viruses, herpesviruses, viral latency and reactivation, cellular transformation, inflammation, angiogenesis and microRNA.
Ahuja, Sunil	Medicine- Infectious Diseases	567-6511	ahujas@uthscsa.edu	Role of chemokine and chemokine receptors in immune system development, defense against chronic or infectious diseases, and HIV-1 pathogenesis
Clark, Robert	Medicine-Asst. V.P. for Research	567-0866	clarkra@uthscsa.edu	
Curiel, Tyler	Medicine- Medical Oncology	567-4788	curielt@uthscsa.edu	Antigen presenting cell dysfunction in tumors; Regulatory T cells in tumors and infections; Generation of adaptive immunity using T. gondii infection as the model; Function of MAP kinases in parasitic infections using T. gondii as the model
Melby, Peter	Medicine-VA	567-4614	melby@uthscsa.edu	Immunopathogenic mechanisms and protective immunity in leishmaniasis
Baseman, Joel	Micro/Immun	567-3939	baseman@uthscsa.edu	Host-pathogen interplay, emphasizing human mycoplasmas; mechanisms of cytoadherence, invasion, intracellular persistence, molecular basis of virulence, and gene regulation
Bergman, Molly	Micro/Immun	567-3969	Bergman@uthscsa.edu	CD8+T cell responses to al extracellular pathogen. The role of apoptosis during <i>Yersinia</i> infection.
Berton, Michael	Micro/Immun	567-3931	berton@uthscsa.edu	Cytokine signaling; regulation of gene expression; antibody class switching; B lymphocyte differentiation; immune response to infection
Bose, Santanu	Micro/Immun	567-1019	bose@uthscsa.edu	Innate immunity against negative strand RNA viruses; virus-host interactions; identification and characterization of anti-viral factors; anti-viral signaling pathways induced by NF-kappa B and interferons; human parainfluenza and respiratory syncytial viruses; innate immune anti-viral response in respiratory epithelial cells
Dube, Peter	Micro/Immun	567-0657	dube@uthscsa.edu	Bacterial host-pathogen interaction <i>in vivo</i> ; inflammation; dendritic cells; <i>Yersinia enterocolitica</i> ; biodefense research; <i>Yersinia pestis</i>
Haldenwang, William	Micro/Immun	567-3957	haldenwang@uthscsa.edu	Molecular genetics; bacterial sporulation; RNA polymerase biochemistry
Izumi, Kenneth	Micro/Immun	567-3935	izumi@uthscsa.edu	Epstein-Barr virus transformation of B-lymphocyte growth; viral oncoprotein signal transduction; nuclear transactivation
Kadosh, David	Micro/Immun	567-3976	kadosh@uthscsa.edu	Control of filamentous growth and virulence in the major fungal pathogen <i>Candida albicans</i> ; identification and characterization of novel <i>C. albicans</i> virulence factors; transcriptional regulation; <i>C. albicans</i> genomics
Kolodrubetz, David	Micro/Immun	567-3967	kolodrubetz@uthscsa.edu	Bacterial genetics; virulence mechanisms in periodontal pathogens; transcriptional regulation; function of microbial surface layer proteins
Krolick, Keith	Micro/Immun	567-3968	krolick@uthscsa.edu	Immunobiology; Autoimmune disease; Two-way communication between the immune system and autoimmune target tissues; Immune and muscle responses in Myasthenia Gravis
Orihuela, Carlos	Micro/Immun	567-3973	orihuela@uthscsa.edu	Use of comparative genomics to identify differences between invasive and non-invasive clinical isolates of <i>Streptococcus pneumoniae</i> ; Identification of novel virulence determinants and assessment of their vaccine potential
Xiang, Yan	Micro/Immun	567-0884	xiangy@uthscsa.edu	Poxvirus pathogenesis and immune modulation; virus-host interactions; protein structure-function
Wickes, Brian	Micro/Immun	567-3938	wickes@uthscsa.edu	Medical mycology; molecular mechanisms of fungal pathogenesis, mating and development in <i>Cryptococcus neoformans</i> , <i>Candida albicans</i> biofilms molecular biology, animal models of invasive aspergillosis
Zhong, Guangming	Micro/Immun	567-1169	Zhongg@uthscsa.edu	Molecular basis of Chlamydia-host interactions; <i>Chlamydiae pneumoniae</i> in atherosclerosis; Proteomics analysis of chlamydial hypothetical proteins; Vaccine development
McManus, Linda	Pathology	567-4071	mcmanus@uthscsa.edu	
Dhandayuthapani, S.	RAHC - Med Res Div	563-6431	dhandayutha@uthscsa.edu	Molecular basis of host-pathogen interaction; stress signaling and regulation of gene expression in <i>Mycobacterium tuberculosis</i> and <i>Mycoplasma genitalium</i>
Giavedoni, Luis	SFBR	258-9603	lgiavedo@sfbr.org	Innate and adaptive immune responses to viral infections; SIV pathogenesis and vaccine development
Griffiths, Anthony	SFBR	258-9557	agriffiths@sfbr.org	Molecular biology and pathogenesis of herpes simplex virus and herpes B virus
Lanford, Robert	SFBR	258-9445	rlanford@sfbr.org	Molecular biology and pathogenesis hepatitis B virus, and hepatitis C virus

Patterson, Jean	SFBR	258-9431	jpatters@sfbr.org	Molecular Biology of RNA viruses and development of Anthrax therapeutics
Arulanandam, Bernard	UTSA	458-9452	barulanandam@utsa.edu	
Cole, Garry	UTSA	458-7017	Garry.Cole@utsa.edu	Development of human and veterinary vaccines against fungal diseases, and investigations of virulence mechanisms of medically-important fungi.
Klose, Karl	UTSA	458-6141	Karl.Klose@utsa.edu	Molecular mechanisms of <i>Vibrio cholerae</i> and <i>Francisella tularensis</i> pathogenesis; transcription regulation; biodefense and food-borne disease vaccine development
Teale, Judy	UTSA	458-7024	judy.teale@utsa.edu	Immunobiology, immunology and pathogenesis of neurocysticercosis, immune response to <i>Francisella tularensis</i> , lymphocyte differentiation