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A. Overview and Organization of the Master of Science Program in Immunology & Infection (MSI&I)

The Master of Science in Immunology & Infection (MSI&I) Program is supported by the Department of Microbiology, Immunology & Molecular Genetics of the School of Medicine in the University of Texas Health Science Center at San Antonio. The catalog of the Graduate School contains general information pertaining to policies and procedures of the Graduate School of Biomedical Sciences (GSBS), including the MSI&I Program, and all students are responsible for reading and adhering to them. The organization, procedures, policies and operating guidelines specific to the MSI&I Program are presented in this Handbook.

1. **Objectives**

Through classroom and laboratory experiences, provide an elevated level of expertise in evaluating and understanding immune defenses against infectious microbial pathogens. Students will be prepared to enter careers in laboratory research and biotechnology, or teaching careers that require master’s level training. Students already in the workforce will acquire experiences that should significantly enhance opportunities for career advancement. Alternatively, students considering advanced MD, DDS, or PhD education will acquire credentials for preparing more competitive applications.

2. **Microbiology Graduate Faculty**

The Graduate Faculty of the MSI&I Program are those individuals whose credentials have been reviewed and approved to train graduate students at the UTHSCSA, including the MSI&I Program. Graduate Faculty members are allowed to serve as instructors or course directors of MSI&I Program courses, and as mentors overseeing student research/thesis projects. In addition, MSI&I Program Graduate Faculty may serve on student recruitment and student admissions committees as needed, and on the MSI&I Program COGS. The current members of the MSI&I Graduate Faculty can be obtained from the MSI&I Academic Coordinator.

3. **Committee on Graduate Studies (COGS)**

Based on authority given by the Graduate Faculty Council and the Dean of the GSBS, the MSI&I Program Committee on Graduate Studies (COGS) administers the MSI&I Program. The COGS coordinates activities in the MSI&I Program such as evaluation and admission of program applicants, assessment of student progress, assignment of Research Advisors, changes in curriculum, mediation of disputes between students and Research Advisors, and other pertinent policy considerations including changes to this Handbook. The Chair of the MSI&I Program COGS is responsible for monitoring the progress of students, for advising students on their overall curriculum plans and their compliance with program guidelines, and for facilitating two-way communication between students and COGS.

The MSI&I Program is a two-year program that is in-class and didactic during Year 1, and concerned with original research during Year 2. The MSI&I COGS provides a required Plan of Study and programmatic timeline that can be found in subsequent sections (and in Supplement 1) of this Handbook.

4. **Email Policy**

Every student is issued a University e-mail address and account at the time of enrollment. As a matter of University Policy, communications between students and faculty that occur using the student’s University e-mail address is considered official business. **Students are expected to check their university email inboxes on a regular basis** so that any announcements, instructions, or information regarding the MSI&I Program will be received in a timely way. Missed communications due to inadequate monitoring of incoming emails on the University’s email server will never be a valid excuse for unsatisfactory academic progress.
B. Sequential Procedures and Requirements of the Master of Science in Immunology & Infection Program

A minimum of 30 credit hours of training is required for the M.S. degree. M.S. students are expected to meet particular milestones of the program (descriptions of program requirements follow). The Committee on Graduate Studies (COGS) of the MSI&I Program has established and will enforce the following timeline to insure that students are making satisfactory progress toward their degree (summarized in Supplement 1 of this Handbook). The MSI&I COGS will grant exceptions from this timeline only under unusual circumstances. The timeline assumes that a student enters the MSI&I Program in the Fall semester. Typically, no Spring semester admissions are allowed due to the nature and exact sequence of courses.

**Year 1. Fall Semester**

1. **Orientation** - During the week just prior to the beginning of the first semester, coinciding with the week of the GSBS orientation, the MSI&I Program offers its own orientation aimed at familiarizing the incoming MSI&I class with the activities to be faced during the first academic year and to acquaint the incoming students with some of the key members of the MSI&I Graduate Faculty.

2. **Course Requirements** - MSI&I Program students will take the courses required by the MSI&I Program in the order recommended (see Plan of Study in Supplement 1 and Course Descriptions in Supplement 2 of this Handbook). Graduate students are expected to attend all class meetings in courses for which they are registered. A student may petition MSI&I COGS, in writing, for an exemption from a particular required course based upon his/her previous academic training; the student must acquire the approval of COGS (in consultation with the course director).

3. **Selection of Research Advisor** – During the Fall Semester of Year 1, and as the main goal of the MICR 5091 course (Current Topics in Microbiology & Immunology), students will be given the opportunity to meet with all faculty members available as Research Advisors and to review their research programs. Information concerning faculty research interests can be found on the Department of M&I website: [http://uthscsa.edu/micro-immunology/primary.asp](http://uthscsa.edu/micro-immunology/primary.asp).

Prior to the end of the Fall semester of Year 1, it is anticipated that each student will request approval from the MSI&I COGS that a member of the MSI&I faculty be assigned as Research Advisor using the appropriate request form. Students are encouraged to consult with the Chair of the MSI&I COGS when making this important selection, and will only be granted following mutual agreement between the student and the faculty member, and COGS review of the readiness of the faculty member to take on the student as trainee. Within 4 weeks of formally selecting a Research Advisor, students should complete the student-mentor compact and submit the completed form to the COGS Chair.

**Year 1. Spring Semester**

1. **Course Requirements** – During the Spring semester, students will continue to enroll in the required courses indicated in the MSI&I Program’s Plan of Study and Course Descriptions shown in Supplements 1 and 2 of the Handbook. Any exemptions or deviations from this coursework must be approved by the MSI&I COGS.

2. **Selection of Research Supervising Committee** – Prior to the end of the Spring Semester of Year 1, each student, in consultation with the student’s Research Advisor, must invite one additional member of the MSI&I Graduate Faculty to serve with the Research Advisor. Students should be aware that each member of the MSI&I Graduate Faculty is expected to serve on a maximum of 3 Research Supervising Committees (not including committees of their own students); therefore, students may not always be able to engage their first
choice committee member. In addition, either the MSI&I Program Director or Associate Director will serve as a third member of each Research Supervising Committee in order to guarantee continuity among committees.

The student’s Research Supervising Committee will begin its participation as the research phase of the Program commences in Year 2 (below). The Committee is responsible for 1) certifying to the MSI&I COGS that the student is carrying out meritorious research of the caliber appropriate for an M.S. degree, and 2) serving as an important resource of scientific expertise for the student.

3. Guided Readings with Research Advisor - During the Spring Semester of Year 1, the MICR 5091 course (Current Topics in Microbiology & Immunology) will give students the opportunity, through a combination of library research and weekly discussions with their Research Advisors, to attain an in-depth understanding of selected topics in immunology & microbial pathogenesis related to the Research Advisor’s research program. These readings can include, but are not limited to, the following: Research papers and reviews from the published literature, methods papers, excerpts from the Research Advisors grant proposals, or even textbook chapters. Weekly meetings to discuss these readings will not only allow the student to become familiar with scientific concepts and methodologies, but also to “get to know” the student’s Research Advisor before formal research training begins. A letter grade will be recommended by the Research Advisor based on the level of preparation and participation of the student in the guided readings and associated discussions.

4. Writing of the Thesis Proposal – Also as part of MICR 5091, and no later than the last day of the Spring Semester of Year 1, each student, in consultation with, and approval by, the student’s Research Advisor, must finalize a Thesis Proposal that defines the student’s research project and a timeline for completing that project (see guidelines for writing the Thesis Proposal in Supplement 3 below). The Thesis Proposal should be submitted to the Chair of the MSI&I COGS no later than the last day of the Spring semester, Year 1. Failure to submit the proposal by the end of the semester will result in a one-grade reduction of the letter grade given for MICR 5091. Early in the Fall semester of Year 2, the Research Proposal must be submitted for approval by the student’s Research Supervising Committee during the first meeting of the committee, and upon approval by the committee then submitted for further approval by the MSI&I COGS (see below).

Year 2. Fall Semester

1. Course Requirements - Enrolling in a minimum of 8.0 credit hours is required to maintain full-time student status. All MSI&I students are expected to take MICR 6097 (Research) and at least one elective course. Research hours are to be adjusted based on the number of elective hours (maintaining a total of 8). A list of courses available as electives will be provided prior to the class enrollment period for the Fall semester Year 2. Selection of elective courses must have the approval of the student’s Research Advisor.

2. Thesis Research - Students are expected to work full-time in the laboratory of their Research Advisor to perform experimentation and to accumulate data in order to satisfy the aims of their Thesis Proposals. Each student must meet with his/her Research Supervising Committee at least twice during the Year 2 Fall semester to present and discuss the research project (see details below). The members of the committee will evaluate the student using the appropriate form provided by the student at the time of the meetings.

3. Meetings with the Research Supervising Committee - Students are required to meet with their Research Supervising committees a minimum of 2 times in the Fall semester Year 2 (advice for preparing for committee meetings can be found in Supplement 4 below).

The first meeting must occur within the first 30 days of the semester; specific meeting dates will be assigned by COGS to each student. The student will present the Thesis Proposal for approval by the Committee at this first meeting. Modifications of the proposal may be necessary that are responsive to the
advice given by the committee. The finalized Thesis Proposal, having been approved by the Research Supervising Committee, should be submitted to MSI&I COGS for final approval along with the report of research progress from the Research Supervising Committee.

The second meeting must occur within the month October of Year 2: specific meeting dates will be assigned by COGS to each student. The student will provide a report of research progress to the Research Supervising Committee. Additional meetings may be scheduled if needed. Failure to meet on the assigned dates will result in the student receiving an official grade of Unsatisfactory (U) for Research (MICR 6097). Rescheduling of assigned meeting dates is allowed only for exceptional circumstances and with the approval of the MSI&I COGS.

4. Petitioning for Admission to Candidacy for the M.S. degree - Once the student’s Thesis Proposal and Research Supervising Committee membership is approved by MSI&I COGS, the student should petition COGS for Admission to Candidacy for the M.S. degree. The petition must be made to the Chair of COGS on the official Graduate School form (GSBS Form 31). The approval by COGS for Admission to Candidacy is based on three criteria:

a) Approval of the student’s Thesis Proposal and Research Supervising Committee membership.

b) A positive evaluation of the student's potential for independent research (indicated by the signature of the Research Advisor).

c) Satisfactory performance in formal course work (i.e., 3.0 grade point average received for all required Year 1 course work). A student cannot advance to candidacy if he/she is on academic probation.

When all of these criteria are met, COGS will recommend to the Dean of the Graduate School that the student be admitted to candidacy.

5. Thesis Workshop - Students must attend the Thesis workshop provided by the Associate Dean for Student Affairs in order to receive instructions and advice regarding the preparation of the Thesis. Failure to participate in the workshop may delay graduation.

Year 2. Spring Semester

1. Course Requirements - Enrolling in a minimum of 8.0 credit hours is required to maintain full-time student status. In addition to MICR 6097 (Research) and at least one elective course, all MSI&I students are expected to take 1.0 credit hours of MICR 6098 (Thesis) during the final semester of the program. Research hours are to be adjusted based on the number of elective hours (maintaining a total of 8.0 SCH for Research, Thesis, plus elective). A list of courses available as electives will be provided prior to the class enrollment period for the Fall semester Year 2. Selection of elective courses must have the approval of the student's Research Advisor.

2. Thesis Research – Each student is expected to work full-time in the laboratory of the Research Advisor to perform experimentation and to accumulate data in order to satisfy the aims of the Thesis proposals. Careful attention must be paid to the proposed timeline so that not only the research is completed, but the thesis is written. Each student must meet with his/her Research Supervising Committee at least twice during the Year 2 Spring semester to present and discuss the research project. The members of the committee will evaluate the student using the appropriate forms provided by the student at the time of the meetings.

3. Meetings with the Research Supervising Committee – Students are required to meet with their research supervising committees a minimum of 2 times in the Spring semester of Year 2. A report regarding the student’s research progress will be submitted to COGS by the committee.
The first meeting must occur within the month of January of Year 2; specific meeting dates will be assigned by COGS to each student. The student will provide a report of research progress to the committee and a specific plan for writing the thesis document. Failure to meet on the assigned date will result in the student receiving an official grade of Unsatisfactory (U) for Research (MICR 6097). Rescheduling of the assigned meeting date is allowed only for exceptional circumstances and with the approval of the MSI&I COGS. If, at the January meeting, the Research Supervising Committee is satisfied that the research accomplished by the student is of sufficient quality and quantity to constitute an acceptable thesis, formal permission is granted to the student to begin writing his/her thesis (although continued benchwork is likely necessary).

The second meeting must occur no later than the end of April of Year 2 if requirements are to be completed necessary to graduate (details below). Usually, the second Spring semester meeting is the thesis seminar and defense. Additional interim meetings may be scheduled if needed.

The thesis seminar and defense may be postponed beyond the expected date only upon written request, and with the approval of the student’s Research Advisor and the MSI&I COGS.

4. Thesis and Thesis Defense - The format of the thesis must conform to the style and format guidelines of the Graduate School of Biomedical Sciences.

Thesis. Prior to writing the Thesis, the student should confer with the Associate Dean of Student Affairs for advice regarding form and content of the document. Also, review the following website:

Graduation Information.

In order to maximize the efficiency of completing the writing of the Thesis, students should consider initiating their writing well in advance of the end of the semester; certain sections of the Thesis can be written before all data has been collected, such and introductory and methods sections.

When writing the Thesis, the student should submit drafts to the Research Advisor until they are both satisfied that it is a well-written document describing all experimentation agreed upon with the Research Supervising Committee. Once the Research Advisor has approved a final draft of the Thesis, complete copies should be distributed to each member of the Research Supervising Committee who should be given a reasonable period of time to review the Thesis, usually no more than 2 weeks, and then presented with a formal Request for Final Oral Examination (GSBS Form 40). The signed form must then be submitted to the chair of the MSI&I COGS with all appropriate signatures and the examination date. If the thesis is judged to not be suitable for defense, the student shall make the appropriate changes to the satisfaction of the committee. COGS shall be the arbiter of any disputes that cannot be resolved between a student and the Research Supervising Committee.

Thesis Defense. Students are responsible for reviewing important information regarding administrative degree conferral timelines for ensuring timely graduation (Graduation Information). Note that the “May timeline” allows graduation in time to “walk the stage”. Also see Time to Completion of Degree Requirements described below in Section C.

A public announcement of the thesis seminar will be distributed so that all interested persons may attend. After presenting the thesis research, the candidate may be questioned by members of the audience who are not on the Research Supervising Committee. Following the oral presentation, the Research Supervising Committee will meet with the candidate in a closed-door session for an oral examination of the thesis research. The committee members will then vote on the candidate’s success or failure to defend the thesis. The committee members record their votes by signing GSBS Form 41 (Report on the Final Oral
Examination). The Research Supervising Committee members must also approve the final written version of the thesis.

If the student passes the Final Oral Examination and the final version of the thesis has been approved by the Research Supervising Committee, the MSI&I COGS will vote on whether or not to accept the recommendation by the Research Supervising Committee that the degree be awarded. Upon a favorable review by COGS, indicated by the signature of the Chair of COGS on GSBS Form 41, the Research Supervising Committee's recommendation will be forwarded to the Graduate Faculty Council. The student must also submit the signed thesis "Approval Page", indicating COGS approval of the written document, to the Office of the Graduate Dean for addition of the Dean’s signature.

More than one vote for failure indicates failure of the examination. If the student fails the final oral examination, the Research Supervising Committee should submit a recommendation regarding remedial action. COGS will then determine what action is to be taken. Should extensive revisions of the thesis be requested by the Research Supervising Committee, the Research Advisor will withhold his/her signature from Form 41 until all of the necessary changes are made to the thesis. Each member of the Supervising Committee should be given the option to review revisions of the revised thesis prior to the certification of the final document by the Research Advisor.
C. Evaluation of Student Progress

MSI&I Program Committee on Graduate Studies meets twice each year to review student progress in the program. The criteria used for evaluating student progress are described in the next sections. Students are notified of the outcome of these discussions only if COGS decides that a student is not making adequate progress in the program (see academic probation below).

1. Performance Expected in Course Work

Consistent with GSBS policy, students are expected to maintain a 3.0 GPA in all required and elective courses. If a student has a GPA that is less than 3.0 at the end of Fall semester Year 1, he/she will be placed on academic probation. If the student does not correct the deficit by excelling in the subsequent semester, the student will be subject to dismissal from the MSI&I Program.

If a student receives a "D" or "F" in any course, COGS may determine that he/she be considered for dismissal from the program. Alternatively, COGS may determine that the student should be allowed to remediate by retaking the course or 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. A grade earned by remediation may replace the original grade for purposes of calculating the GPA, but the original grade remains on the transcript. Any action resulting in consideration of dismissal or remediation will be communicated in writing to the student by the Chair of MSI&I COGS. Decisions to dismiss a student may be appealed as described below.

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

2. Research and Academic Progress

Each semester of Year 2 of the Program, a grade of satisfactory (S) or unsatisfactory (U) will be given for Research/Academic Progress (MICR 6097). A student who receives a "U" in Research/Academic Progress will be placed on academic probation and may be considered for dismissal from the Program. Grades of U” in two consecutive semesters will result in immediate dismissal from the Program.

The grade for Research/Academic Progress is given by the Chair of COGS in consultation with the student's Research Advisor, and is based upon the student's research effort and experimental progress, academic standing (i.e., GPA) and adherence to programmatic timelines (including holding timely meetings of the Research Supervising Committee and submission of all required paperwork), and, when appropriate, progress in writing and defending the Thesis. Each student must meet with his/her Research Supervising Committee at least twice each semester to present and discuss the research project. The members of the Research Supervising Committee will evaluate the student using the appropriate form, and these evaluations will be used, in part, by the Research Advisor in recommending the research grade for the student.

3. Time to Completion of Degree Requirements

MSI&I Program students are expected to complete all degree requirements, including the thesis defense and submission of required paperwork, prior to the end of the Spring semester, Year 2. If a student has not defended the thesis by that time, he/she is subject to dismissal from the program for lack of academic progress.

A student must complete all degree requirements in order to be presented by the COGS chair to the Graduate Faculty Council (GFC) for final review. The GFC meets on the second Friday of each month. Therefore, degree requirements should be met so that the COGS recommendation can be considered no later than the May
meeting of the GFC so that the degree can be conferred in May, thus allowing the student to “walk the stage” at the May graduation ceremony. This would require that the thesis defense occur no later than the end of April as suggested by the Graduation Timeline posted on the GSBS website:

http://gsbs.uthscsa.edu/current_students/graduation-information

**Delayed defense** - A student may submit a written request to the MSI&I COGS that the limit of 2 years for degree completion be extended a **maximum of one additional semester**, but such a waiver will be granted only if justified as judged by COGS. This request must be accompanied by an explanation of the reason for the delay, an endorsement from the student’s Research Advisor, and must also include a detailed timeframe for finishing the program that has been **approved by the student's Research Supervising Committee**.

### 4. MSI&I Program 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 MSI&I COGS will notify a student in writing that he/she has been placed 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. 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 program. If dismissal of a student is being considered by COGS, the student will be informed by the Chair of COGS. 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 in writing of the COGS decision, along with the reasons for the decision. The student will be allowed two weeks to make a written appeal of the decision to COGS. Further appeal is allowed to the Dean of the GSBS using procedures described in the GSBS catalog.

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**D. Financial Considerations for MSI&I Program Students**

**Student Stipends** - Students in M.S. programs are not financially supported by Department stipends.

**Tuition and Fees** - Students are responsible for paying all tuition and fees required by the University and the Master of Science in Immunology & Infection Program.

**Financial Aid** – Opportunities for receiving financial aid are available, and are outlined by the Office of Financial Aid (http://students.uthscsa.edu/financialaid/2013/02/how-to-apply/).

**Outside Employment** – It is understood that for some students it may be necessary to have outside employment in order to afford the costs of the MSI&I Program. However, no special exemptions from the requirements or expectations of the Program will be given due to the time spent at the outside job. That is, it is expected that a “working” student must 1) maintain the required 3.0 grade point average; 2) be available for all classes; and 3) when the research year begins, have sufficient time to meet the expectations of the Research Advisor and to demonstrate the required progress in the laboratory so that the thesis project is completed within the expected time frame (i.e., allowing the student to graduate at the end of Year 2 of the Program).

**Student Travel** - The costs incurred by students for travel to scientific meetings are assumed by the Research Advisor. Reimbursed costs are limited to those allowed by the University Rules and Regulations. Requests for travel authorization are required prior to making any plans for travel.
E. Personal Leave (Vacation) Policy for MSI&I Students

Consistent with official University policy, students of the UTHSCSA, including those enrolled in the Master of Science in Immunology & Infection Program, do not accrue vacation or sick leave, but are allowed to take official UTHSCSA student holidays. However, MSI&I students may be given permission by their Research Advisor to take extra time around official holidays or 7-10 days of personal leave during the year. If a student is expected to be absent from the lab for an extended period of time, they must get permission from their Research Advisor and from the Chair of MSI&I COGS.

F. Misconduct

The MSI&I Program and its students must adhere to the Procedures and Regulations Governing Student Conduct stated in the current UTHSCSA Student Catalog as prescribed by the UT System Rules and Regulations of the Board of Regents. Students are responsible for knowing and observing these Procedures and Regulations.

The MSI&I Program expects all students to exhibit the highest standards of conduct, honesty, and professionalism. Academic misconduct includes activities that undermine the academic integrity of the institution. The University may discipline a student for academic misconduct as outlined in the UT Health Science Center at San Antonio Catalog and Handbook of Operating Procedures. Academic misconduct may involve misuse of information obtained from any presentations from any individual, hard-copy, or electronic sources, whether originating from a department or school of the UTHSCSA or from outside the University. Policies of academic misconduct also apply to inappropriate representation of research results (including lab experiments, data collection, and analyses). All cases of academic misconduct must be reported to the Dean of the Graduate School of Biomedical Sciences (GSBS) who will assess the seriousness of the violation and determine the nature of the penalty required. Academic misconduct includes, but is not limited to, the following:

Cheating. Any attempt to use or provide unauthorized assistance, materials, information, or access in any form and in any academic exercise or environment is considered cheating and is expressly forbidden.

Fabrication. Falsification of any information or data including, but not limited to, records or reports, laboratory results, data analyses, or citations to the sources of information.

Plagiarism. Plagiarism is defined as presenting someone else’s work as one’s own. Ideas or materials taken from another source for either written or oral use must be fully acknowledged. The adoption or reproduction of ideas, opinions, theories, formulas, graphics, or research results of another person without acknowledgment is expressly forbidden. Credit must be given to the originality of others whenever:

- Quoting the works of another
- Using another person’s ideas, opinions, or theories
- Paraphrasing the words, ideas, opinions, results, or theories of others
- Borrowing facts, statistics, or illustrative material
- Offering materials assembled or collected by others

G. Amendments to This Handbook

Changes to these policies and procedures may be made to this Handbook at the discretion of the MSI&I Program COGS.
# SUPPLEMENT 1
## MSI&I PLAN OF STUDY

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<th>Year 1, Fall Semester*</th>
<th>Year 1, Spring Semester*</th>
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<td><strong>Courses</strong></td>
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<tr>
<td>MICR 5031 - Pathogenic Microbiology (4.0 SCH)</td>
<td>MICR 5025 - Eukaryotic Pathogens (1.0 SCH)</td>
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<tr>
<td>MICR 5051 - Introduction to Immunology (2.0 SCH)</td>
<td>MICR 5026 - Pathogenic Microbiology (1.0 SCH)</td>
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<tr>
<td>MICR 5091 - Current Topics in Microbiol &amp; Immunol (0.5 SCH)</td>
<td>MICR 5027 - Immunology (1.0 SCH)</td>
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<tr>
<td>INTD 5082 - Responsible Conduct of Research (1.5 SCH)</td>
<td>MICR 5028 - Virology (1.0 SCH)</td>
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<td><strong>Research</strong></td>
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<tr>
<td>Meet with faculty to identify research opportunities</td>
<td>Seek approval for Research Supervising Committee membership</td>
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<td>Seek approval for appointment of Research Advisor</td>
<td>Meet with Research Advisor to discuss guided readings in MICR 5091 course.</td>
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<th>Year 2, Fall Semester*</th>
<th>Year 2, Spring Semester*</th>
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<td><strong>Courses</strong></td>
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<tr>
<td>MICR 6097 - Research (Variable SCH)</td>
<td>MICR 6097 - Research (5.5 SCH)</td>
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<tr>
<td>Elective (Variable SCH)</td>
<td>MICR 6098 - Thesis (1.0 SCH)</td>
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<td><strong>MICR 6097 plus elective should equal 8.0</strong></td>
<td><strong>MICR 6097 plus elective plus MICR 6098 should equal 8.0</strong></td>
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<td><strong>Research</strong></td>
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<td>Meet with Research Supervising Committee</td>
<td>Complete Research</td>
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<tr>
<td>Seek approval of Research Proposal</td>
<td>Meet with Research Supervising Committee</td>
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<tr>
<td>Advance to Candidacy</td>
<td>Write Thesis</td>
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* Each semester must include a minimum of 8.0 credit hours; approximately 32 credit hours for the entire program. Research hours may be adjusted once electives are selected in order to ensure that total hours earned in a semester equal 8.0.
REQUIRED MSI&I COURSES

MICR 5025 - Eukaryotic Pathogens (1.0 credit hour)
Required during Spring semester of Year 1.
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 - Pathogenic Microbiology (1.0 credit hour)
Required during Spring semester of Year 1.
This is an introductory course in microbial pathogenesis focusing on bacterial pathogens that are important in human disease. Students 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 are illustrated.

MICR 5027 - Immunology (1.0 credit hour)
Required during Spring semester of Year 1.
This course extends beyond the introductory material presented in the Fall semester in MICR 5051 and focuses on advanced concepts in immunology with emphasis on experimental strategies for elucidating the cellular and molecular mechanisms underlying immune responses. Class time consists of student presentations in interactive sessions designed to develop skills necessary to read and analyze published papers, to explore and understand core concepts in the field of immunology, and to develop communication skills necessary for information exchange.

MICR 5028 - Virology (1.0 credit hour)
Required during Spring semester of Year 1.
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.

MICR 5031, Pathogenic Microbiology (4.0 credit hours)
Required during Fall semester of Year 1.
Descriptions of basic microbial structure, physiology, and genetics, and mechanisms by which bacterial, viral, fungal, and parasitic pathogens cause disease.

MICR 5051, Introduction to Immunology (2.0 credit hours)
Required during Fall semester of Year 1.
Descriptions of the basic structure, physiology, and genetics of cells and mediators of the innate and adaptive immune systems.
MICR 5091 - Current Topics in Microbiology & Immunology (0.5 credit hour)
Required during Fall and Spring semesters of Year 1.

**Fall Semester:** An opportunity for incoming students to examine the research programs of MI&I Program Graduate Faculty. Face-to-face meetings with departmental investigators will be arranged; written reports will be handed in weekly. The course will culminate in the identification and assignment of the student’s Research Advisor.

**Spring Semester:** A combination of library research and discussion with a member of the graduate faculty will give each student in-depth understanding of a selected topic in immunology & microbial pathogenesis. The course will culminate in the submission of the student’s Thesis Research Proposal.

**Prerequisite:** Typically, a student has identified his/her prospective Research Advisor prior to signing up for this course.

Student usually works with his/her prospective Research Advisor on this project. It is anticipated that information gained will apply to the development of an appropriate research project to begin the following Fall semester. Library research will culminate with a presentation of a thesis proposal at the first meeting of the student’s Research Supervising Committee in the Fall semester, Year 2.

MICR 6097 - Research (credit hours based on semester)
Required during Fall and Spring semesters of Year 2.

Independent, original research under the direction of Research Advisor. It is required that a student meet twice during the Fall semester and twice during the Spring semester during Year 2 with his/her research Supervising Committee to discuss research progress.

MICR 6098 - Thesis (1.0 credit hour)
Required during Spring semester of Year 2.

**Prerequisite:** Enrollment for Thesis credit requires that the student’s Research Supervising Committee composition and Research Proposal have be approved by COGS.

**REQUIRED CROSS-DISCIPLINE COURSES**

INTD 5082, Responsible Conduct of Research (1.5 credit hours)
Required Fall semester, Year 1.

By the end of the course, students will be aware of abuses of humans enrolled in clinical research, be able to recognize and identify different forms of scientific misconduct, and be able to develop strategies for self-assessment and validation of scientific objectivity in one’s own research.

CSBL 5095 – Experimental Design/Data Analysis (3.0 credit hours)
Required during Spring semester of Year 1.

An introduction to experimental design and statistical analysis with emphasis on the selection and application of proper tests of statistical significance. Practical experience will be provided in the use of both parametric and nonparametric methods of statistical evaluation. This course will be partially conducted online; therefore, access to a computer with Web access is required.
M.S. in Immunology & Infection
Policies and Procedures

MSI&I ELECTIVE COURSES

MSI&I students are required to enroll in at least one elective course each semester of Year 2. Courses are selected as a joint decision by the student and the student’s Research Advisor. Elective courses may be selected from the MICR courses shown below, or may be selected from any of the accredited courses offered in the Graduate School.

**MICR 5029 - Building Scientific Thinking Skills (2.0 credit hours)**

Graduate students will develop critical thinking skills necessary for reading the scientific literature, developing/critiquing scientific ideas, and effectively communicating one’s own scientific ideas. The course is offered in three stages. First, each student is assigned articles focusing on a topic in the areas of immunology and infection (microbiology). Subsequently, the student gives a 50 minute review presentation to the class; questions/critiques from fellow students and faculty members will follow. Second, each student develops a mini-proposal on a chosen topic followed by written critiques from fellow students and faculty members. Finally, each student will give an oral defense of his or her written proposal to the class followed by questions from fellow students and faculty members. This course provides an excellent opportunity for students to practice skills necessary for the writing and defending of their thesis.

**MICR 5030 - Journal Clubs (1.5 credit hour)**

Students are required to attend Journal Club meetings to participate in discussions regarding publications from the current journal literature. The student is encouraged to present a paper during the semester. Typically scheduled for 4:00 PM on Tuesdays.

**MICR 5090 - Acquiring Presentation Skills (1.0 credit hour)**

This course is designed to prepare students for giving scientific lectures or seminars. Students in the graduate program present work-in-progress type seminars to the M&I department faculty and students. Enrolled students are expected to present a seminar during the semester. Typically scheduled for 3:00 PM on Tuesdays.

**MICR 6091 - Seminars In Microbiology & Immunology (1.5 credit Hour)**

Presentations/discussions of recent advances in various areas of Microbiology & Immunology. Invited speakers from inside and outside the HSC. Typically scheduled for noon on Thursdays.
SUPPLEMENT 3
GUIDELINES FOR WRITING THE THESIS RESEARCH PROPOSAL

1. The description of the proposed work should not exceed 3-5 single-spaced typewritten pages.

2. Briefly, the proposal should include 1) an Abstract of 300 words or less; 2) a Background section with information that makes clear the significance of the problem being addressed and the rationale of the hypothesis to be tested; 3) the Specific Aims of the project; and 4) the Experimental Design and Methods required to test the hypothesis.

3. A detailed timeline for completing the thesis project must be included in the proposal (include as an appendix that is not counted in the 5 page limit).

4. References (not counted in the 5 page limit).

A few tips to writing a well-received Thesis Proposal:

★ Remember for whom you are writing this proposal. You are creating this document for your committee, not for you or your Research Advisor. Don't make it necessary for your committee to read you mind. Ask yourself, “If I knew nothing about this topic, would I understand what I'm reading?” The reader should be able to easily follow the logic and order of your thought process that have led you to your central hypothesis.

★ In the Background section, describe the general “big picture” problem that you are trying to address and its significance. Then provide a brief overview of what is already known related to the general problem and what question needs to be answered in order to advance the field. The background information should be presented in such a way as to lead the reader to your hypothesis; be sure to concentrate on those previous observations that are particularly important with regard to the hypothesis that you have developed. Then state your hypothesis; a clear concise statement of what you believe will be the answer to your main question. An hypothesis is a statement, not a question. And the hypothesis should provide enough detail so as to make it obvious that it is “testable”. If it is too vague, it will not be obvious how to test it.

★ List your Specific Aims. These are 2 or 3 statements that describe the specific experimental strategies that you intend to use to test your hypothesis. These are statements that begin with verbs such as: Determine or Identify or Prove etc. that require a specific endpoint to your experiment. Avoid verbs such as Explore or Describe or Investigate that leave the endpoint ambiguous and with no obvious prior understanding of the likely importance of the results. Listing sub-aims is acceptable to further detail the proposed experimentation.

★ In the Experimental Design section of the proposal, each Specific Aim should be addressed. Under each aim, include a subsection that describes the “Rationale” for performing the experiments to be performed and the methods chosen. After describing the experiments to be performed to accomplish that Specific Aim, include a section that describes “Anticipated Results and Alternative Approaches”. In this section, predict what
information the experiments are likely to yield, and a comment regarding what you will do if the experiment doesn’t work.

Be sure to include a description of how you intend to analyze the future data, or have analyzed the pilot data already obtained. Comment on statistical parameters required to determine how many samples will be needed to achieve statistical and biological significance of your data. Consider issues of reproducibility and validity of your conclusions.

★ A detailed timeline for completing your project must be included as an appendix. The purpose of the timeline is to convince your committee of the feasibility of accomplishing the goals of your project within the time available before the end of your MS program. At the very least, the timeline should be provided as a month-to-month progression of project milestones (in some cases, week-to-week may be appropriate). Although we all know that it is often impossible to predict how long it will take to develop and execute every experiment, make your best guess as to how long you believe it should take to successfully perform each proposed experiment. This timeline will be revised/refined for each of your committee meetings. Always be prepared to answer questions like “What if you find that this takes longer than predicted?”
SUPPLEMENT 4
Tips on Having a Successful Meeting With Your Research Supervising Committee

Write a clear concise thesis proposal (see Supplement 3 above).

Be extremely familiar with the publications referenced in the proposal document, paying very close attention to the principle concepts that led you to your main hypothesis and the experimental strategies that you have chosen to test the hypothesis.

Be extremely familiar with how your methods work, especially their strengths and their weaknesses.

Try to anticipate questions. That is, ask yourself, “If I knew nothing about this subject, what might I ask the presenter?”

Create a PowerPoint slide presentation that parallels your proposal:

TIMING:
Time your first presentation so as to complete it within 30 minutes; presentations at subsequent meetings may be a little longer, up to 45 minutes. Remember, time will be taken by questions asked of you by your committee.

FORMAT:
Remember you are creating this presentation for your committee, not for you or your Research Advisor. Don't make it necessary for your committee to read you mind; look at each slide and ask yourself, “If I knew nothing about this topic, would I understand what is being presented?”

Create simple concise slides; they should be easy to read by using font sizes that are never smaller than 28 pt and figures that are not so complex as to make them difficult to follow. When in doubt, create another slide rather than cramming too much on one slide.

Use bulleted statements and lots of images where appropriate. Avoid long runs of text; you want your committee listening to you, not preoccupied with reading huge sections of text on your slides.

CONTENT:
Provide a brief overview of what is already known in the field; concentrate on those things that are particularly important with regard to the hypothesis that you developed.

Provide a brief introduction explaining the main problem that you are trying to solve and its significance. State your hypothesis; a clear concise statement of what you believe will be the answer to your main question. An hypothesis is a statement, not a question.

List your Specific Aims. These are 2 or 3 statements that describe the main experimental strategies that are intended to test your hypothesis.
Each major experiment that you present should be preceded with a statement of the question that the experiment is intended to answer, and how that answer will help test your main hypothesis.

Include a description of how you intend to analyze the future data, or have analyzed the data already obtained. Be prepared to answer questions about statistical parameters required to determine how many samples will be needed to achieve statistical and biological significance of your data. Consider issues of reproducibility and validity of your conclusions.

Each major collection of data should be followed by a statement of the main conclusion.

At each Research Supervising Committee meeting, provide a timeline for completing your project. At the very least, the timeline should be provided as a month-to-month progression of project milestones (in some cases, week-to-week may be appropriate). Be prepared to answer questions like “What if you find that this takes longer than predicted?”

★ Practice your presentation prior to your meeting.
University of Texas Health Science Center at San Antonio Compact Between Graduate Students and Their Supervising Professors

Graduate training entails both formal education in advanced scientific knowledge and theory as well as research training under the supervision of one or more investigators who are qualified to fulfill the responsibilities of a mentor. A positive mentoring relationship between the graduate student and the supervising professor is a vital component of the student’s preparation for a successful biomedical career.

Individuals who pursue a biomedical graduate degree are expected to take responsibility for their own scientific and professional development. Faculty who advise students are expected to fulfill the responsibilities of a mentor, including the provision of scientific training, guidance, instruction in the responsible conduct of research and research ethics, and financial support.

This compact offers a set of guiding principles intended to promote and support the development of a positive mentoring relationship between the graduate student and his/her supervising professor(s).

Within 4 weeks of formally selecting a supervising professor, students should have discussed with their mentor each of the topics listed on pages 2 – 4 and submitted the form to the COGS chair. To tailor an individualized compact best suited for each student and mentor, specific commitments by both the student and the mentor, detailed processes, additions and specifications should either be added in the space below each topic or in an addendum as deemed appropriate.

With their signature, both the mentor and the students confirm that all topics listed have been discussed and they are committed to uphold the principles agreed upon in this individualized compact. Once approved by COGS, the compact will be placed in the student’s file held in the department’s office.

It is understood that various aspects of the student’s pursuit of their degree can change over time and therefore the compact should be reviewed regularly (at least once a year) and modified as needed.
DEFINING STUDENT AND MENTOR RESPONSIBILITIES AND EXPECTATIONS

Frequency and Methods of Communication between Mentor and Student (How often will student and mentor meet? How should updates or changes in expectations and issues be communicated?)

Research/Training Related and Professional Development of the Student (What is the student’s project? Is there a specific person that will oversee training other than the PI and to what degree will the student assist with other projects in the lab? What constitutes professional development?)

Common Laboratory Responsibilities (Which tasks and duties are shared among all lab members, including the student?)

Notebooks and Data (What is the policy of the laboratory related to the storage of data and laboratory notebooks?)

Work Hours/Attendance in the Laboratory (How many hours per week is the student expected to work in the laboratory?)

Authorship Policies (What is the policy that constitutes authorship in the lab? How is the order of authors determined in a manuscript or abstract?)

Manuscripts expected for Graduation (Are there specific expectations for the number of manuscripts (published, submitted and/or in preparation), and the student’s authorship position (e.g. first) on these manuscripts, required for the student to graduate?)
Intellectual Policy Issues: Disclosure, Patent Rights and Publishing Research Discoveries (What is the policy for patents that come out of the student’s work?)

Selection of a Thesis/Dissertation Committee (What is the process for determining the subject of the thesis/dissertation and the composition of the thesis/dissertation committee?)

Attendance of Professional and Scientific Meetings (Under which conditions can a student travel to a Regional, National, or International scientific meeting? For example, only if the student or student’s work is presenting? Who covers the cost and what will be covered?)

Career and Professional Development / Job Search and Placement / Individualized Career Development Plan (What is the career choice of the student and what arrangements can be made to allow the student to participate in courses, workshops, etc. for their particular interests without compromising their research training?)

Time off for Illness or University Holidays – Vacation Policy (HOP 4.3.5; 4.7.14) (What is the laboratory policy for vacations, holidays, and personal days?)

Conflict Resolution and Student Complaint Policies (refer to Student Catalogues; GSBS website)

Additional Topics
We have discussed all the above topics and made the mutually agreed upon additions, specifications and changes. We acknowledge our joint intention to re-evaluate the compact, the agreed upon milestones and the degree completion date at least once a year throughout the student’s period of academic standing.

____________________________________________________
Student’s Name

____________________________________________________
Signature of Student Date

____________________________________________________
Supervising Professor’s Name

____________________________________________________
Signature of Supervising Professor Date

This compact has been adapted from the UT System Health Institutions Compact Between Graduate Students and Their Research Advisors and the AAMC’s Compact Between Biomedical Graduate Students and Their Research Advisors (December 2008).