

Master of Science in Immunology & Infection (MSI&I)

Handbook of Policies and Procedures (Last revised August 2019)

Preface

This Handbook of Policies and Procedures describes the academic and administrative structure that is the framework for the Master of Science Program in Immunology & Infection (MSI&I) and defines for MSI&I students and faculty mentors the procedures for meeting the programmatic expectations and achieving the milestones required for students to graduate.

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

The MSI&I Program is a two-year, thesis (research)-requiring program that is designed, through both classroom and laboratory experiences, to integrate the fields of immunology and infectious disease (*i.e.*, microbiology). The result is to provide a big-picture multidimensional view of host-pathogen relationships. Moreover, the MSI&I program is designed to provide a rigorous and thorough experience that produces thinkers and problem solvers. This ensures MSI&I graduates will also be multidimensional, and prepared to contribute solutions to diverse problems that face our biotechnology research and development industries, health care infrastructure, and teaching needs. 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 to those programs.

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I. ORGANIZATIONAL STRUCTURE OF THE MS PROGRAM IN IMMUNOLOGY & INFECTION

The general organizational structure of the MSI&I program is summarized in the Preface of this document. The rights and responsibilities of the Graduate Faculty, as well as the structure and function of Committees that support the MSI&I Program are described below.

A. Program Director

- **Responsibilities**

The Program Director of the MSI&I Program is responsible for the administration, monitoring, review and evaluation of the MSI&I Program according to criteria and schedules established by the agencies requiring such reviews, *e.g.*, the UT System, the Texas Higher Education Coordinating Board, and the Southern Association of Colleges and Schools (SACS).

The MSI&I Committee on Graduate Studies (COGS) will report to the Program Director on all aspects of the MSI&I Program by making recommendations for additions and improvements to Program policies and procedures, mechanisms for implementation of policies and procedures, and for resolving problems that arise as students progress through the Program.

The Program Director will seek appropriate input from the Dean of the Graduate School of Biomedical Sciences (GSBS), and in collaboration with the MSI&I COGS, will be responsible for periodically reviewing and evaluating the operations of the Program.

B. Committee on Graduate Studies (COGS)

- **Membership**

- Director of the MSI&I Program
- Assistant Director of the MSI&I Program
- Chair of the Microbiology, Immunology & Molecular Genetics Department (*ex officio*)
- Three selected members of the MSI&I Graduate Faculty

- **Responsibilities**

Based on authority given by the Graduate Faculty Council and the Dean of the GSBS, the MSI&I Committee on Graduate Studies (COGS) administers the MSI&I Program by creating and implementing all policies and procedures of the Program. The MSI&I COGS coordinates activities conducted by the MSI&I Program such as evaluation and admission of program applicants, assessment of student progress as they meet their academic milestones, 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 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 COGS will facilitate communication between students and faculty, and among faculty members to ensure consistency, cohesiveness, integration and quality control within the Program.

The MSI&I COGS will be responsible for providing an organized Plan of Study and programmatic timeline (found in **Supplement 1 of this Handbook**) and will establish the academic requirements and processes for matriculating high quality students into the Program, providing a high quality

curriculum with requisite coursework, granting approvals of student research mentor and thesis committee memberships, advancing students to candidacy for the MS degree and ensuring that research goals are met that are consistent with graduates from an exemplary MS program.

- **COGS Meetings**

The MSI&I COGS will meet throughout the year as often as deemed necessary. When necessary and appropriate, the chair of the COGS may call for a special meeting of the committee to discuss and/or vote on critical issues regarding graduate students or the graduate program. Such critical issues include, but are not limited to, student dismissal, major curriculum changes and other substantive changes to the program. Meetings will be conducted as follows:

- *Agenda:* Copies of the meeting agenda will be sent to the MSI&I COGS members prior to a meeting. No action will be taken at a COGS meeting unless the item of business was on the published agenda. Exception to this requires unanimous consent of members of the COGS who are present.
- *Voting:* A quorum of voting COGS members must be present to conduct official business. One-half plus one of the COGS members constitutes a quorum. A motion is considered passed when it is approved by a majority of those COGS members present and voting.
- *Minutes:* The Chair of COGS and a recording secretary, typically the MSI&I Academic Program Coordinator, shall compile and sign the minutes of each COGS meeting. Copies of the minutes will be distributed to the members of COGS for revision prior to approval. The original copy of the minutes will be filed permanently in the office of the Academic Program Coordinator. Following approval of the minutes, copies will be distributed to all COGS members.

C. MSI&I Graduate Faculty

- **Membership and Appointment**

All full-time UT Health San Antonio faculty members are eligible for appointment as Graduate Faculty. Individuals from non-HSC institutions may also be eligible for appointment but must first receive adjunct appointments to the faculty of a HSC department before consideration. Every request by a faculty member for appointment must first be approved by the Chair of the department in which the faculty member hold a primary appointment. Requests for appointment must follow the policies and procedures of the Graduate School of Biomedical Sciences. Credentials of Graduate Faculty must be reviewed every 5 years.

The Graduate Faculty of the MSI&I Program are those individuals whose credentials have been reviewed and approved to train graduate students at UT Health SA. A listing of MSI&I Graduate Faculty members will be kept in the office of the MSI&I Academic Program Coordinator. MSI&I Graduate Faculty members may be invited to serve as instructors or course directors of MSI&I Program courses, members of Thesis Supervising Committees, and as Research Advisors who provide to students laboratory guidance and resources for performing 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 Program Coordinator.

It is expected that any members of the Graduate Faculty who wish to mentor graduate students must demonstrate sufficient research resources, a laboratory environment and research projects

appropriate for the training of an MSI&I graduate student, as well as some mentoring experience. Under certain circumstances, a new Graduate Faculty member may be assigned a senior co-mentor to enhance graduate student training.

▪ **Rights and Responsibilities**

Rights and Responsibilities of Graduate Faculty:

- Graduate Faculty members may mentor MSI&I students.
- Graduate Faculty members may serve on student Thesis Supervising Committees of MSI&I students.
- Only Graduate Faculty members can act as directors of courses in the Plan of Study of the MSI&I Program. Non-Graduate Faculty can serve as instructors but cannot take on primary responsibilities in directing or organizing such courses.
- Only MSI&I Graduate Faculty members can serve on MSI&I committees (*e.g.*, COGS, admissions, recruitment, curriculum committees).
- Only a MSI&I Graduate Faculty member can serve as the MSI&I Program Director.
- Graduate Faculty members are expected to demonstrate collegial interactions with other members of the graduate faculty including, but not limited to, research and/or teaching collaborations, service on student Thesis Supervising Committees and other joint scholarly ventures.

D. Student Recruitment Committee

• **Membership**

The MSI&I Student Recruitment Committee is to be composed of the Program Director and Assistant Program Director, two additional MSI&I Graduate Faculty members selected by the Program Director, with administrative support from the Academic Program Coordinator.

▪ **Responsibilities**

The Student Recruitment Committee has the authority to make decisions regarding student recruitment, including the development and implementation of recruitment strategies. The Recruitment Committee is responsible for organizing and coordinating all recruitment activities. This includes, but is not limited to, recruitment activities undertaken at relevant scientific conferences or at undergraduate campuses, departmental tours, and advertisements.

The Recruitment Committee will meet throughout the year as often as deemed necessary, most frequently prior to the start of the upcoming application season. The committee may request additional individuals to attend specific meetings who have special knowledge and expertise that may be deemed useful.

E. Student Admissions Committee

• **Membership**

The MSI&I Student Admissions Committee is to be composed of the Program Director and Assistant Program Director, and two additional MSI&I Graduate Faculty members selected by the Program Director, with administrative support from the Academic Program Coordinator.

▪ **Responsibilities**

The Student Admissions Committee will make recommendations to the MSI&I COGS regarding student admissions into the MSI&I Program. That is, the Admissions Committee will review all applications for admission into the MSI&I Program, identify the most highly qualified students, interview students if needed, and recommend applicants to MSI&I COGS. The MSI&I COGS chair will then forward approved recommendations to the Dean of the GSBS for admission.

F. Curriculum Committee

• **Membership**

The MSI&I Curriculum Committee is to be composed of the Program Director and Assistant Program Director, and two additional MSI&I Graduate Faculty members selected by the Program Director, with administrative support from the Academic Program Coordinator.

▪ **Responsibilities**

The MSI&I Curriculum Committee has the authority to make recommendation to the MSI&I COGS regarding the content and logistics of the MSI&I curriculum. The Curriculum Committee is responsible for all aspects of the curriculum including the development and oversight of core courses applicable to the program, elimination of redundant courses, requests for new course approvals, coordinated scheduling of all courses and evaluation of all courses (a SACS requirement).

II. STUDENT PROGRESSION/SEQUENTIAL PROCEDURE OF THE MSI&I PROGRAM

It is the responsibility of every MSI&I student to adhere to the timeline dictated by the MSI&I Plan of Study and to submit all documents required to verify appropriate academic progress in the MSI&I Program. A delay in the progression described below could result in a student receiving a grade of unsatisfactory (“U”) for research/academic progress and possibly recommendations for dismissal from the program. The COGS may grant temporary delay due to extreme or extenuating circumstances.

A. Email Policy

Every student is issued a University e-mail address and account at the time of enrollment. As a matter of University Policy, any communication 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 manner. 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.

The following describes the general expectations and requirements of all students enrolled in the Master of Science Program in Immunology & Infection:

B. New Student Orientation

Approximately one week prior to the beginning of the first semester, the MSI&I Program offers an orientation meeting to familiarize the incoming MSI&I class with the activities of the first academic year and to acquaint the incoming students with some of the key members of the MSI&I Graduate Faculty.

Prior to the orientation, each student should have already been directed by the GSBS Dean’s Office (in the acceptance letter) to visit the Registrar’s website in order to complete the New Student Checklist. Failure to complete the new student checklist may result in “holds” placed on student accounts hindering a student’s ability to register for courses.

C. Milestone and Compact Agreement Between graduate student and Research Advisor

Certain documents must be completed and submitted in order to comply with UT System and GSBS mandates designed to ensure productivity and accountability, and to provide evidence to the Southern Association of Colleges and School (SACS) that the requirements and expectations of the MSI&I Program are being met. Students must complete both the *Milestone Agreement* and the *Student-Mentor Compact*.

A positive mentoring relationship between a student and his/her Research Advisor is fundamental to a student’s success in graduate school. Therefore, within 4 weeks into the **Year 1 Spring Semester**, a formal meeting and discussion between a student and his/her Research Advisor is mandatory in order to ensure the integrity of the guiding principles and milestones of the MSI&I Program and to encourage a good mentoring relationship. This meeting is to be documented by submission of the **Student-Mentor Compact** found online via the IMPACT website. With their signatures, both student and mentor confirm that all topics listed in the compact have been discussed and that they are committed to upholding the principles agreed upon. The signed form is to be filed in the office of the Academic Program Coordinator.

In addition to the Student-Mentor Compact, each student and Research Supervisor must also complete and submit a **Milestone Agreement** via the IMPACT website. This document verifies that a student and the student’s Research Advisor have been clearly informed regarding programmatic milestones that are expected prior to receiving the MS degree and that the student is expected to reach particular milestones

within a specific time period in order to demonstrate satisfactory academic progress through the program. Failure to meet such milestones could impact satisfactory academic progress and result in a student being placed on academic probation or dismissal from the program.

D. Plan of Study and MSI&I Coursework – Overview

A minimum of 30 semester credit hours (SCH) of training is required for the MS degree. A minimum of 8.0 SCH each semester is required to maintain “full-time” student status. MS students are expected to meet particular milestones of the program (descriptions of program requirements follow). The MSI&I Committee on Graduate Studies (COGS) has established and will enforce the following timeline to insure that students are making satisfactory progress toward their degree (summarized in **Supplement I** 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. No Spring semester admissions are allowed due to the nature and exact sequence of courses.

Year 1 Fall Semester

- Course Requirements – **To maintain full-time student status, a student must enroll in 8.0 SCH per semester.** MSI&I students will take the courses required by the MSI&I Program in the order recommended (see Plan of Study in **Supplement I** and Course Descriptions in **Supplement II** of this Handbook). Students should consult with the MSI&I Academic Program Coordinator to ensure that the correct courses are taken. MSI&I 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 a rare 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).
- 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 possible research projects available in their laboratories. Information concerning faculty research interests can be found on the Department of MIMG’s website: <https://wp.uthscsa.edu/mimg/faculty-list/>

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 MSI&I Program Director when making this important selection, and approval will only be granted following 1) mutual agreement between the student and the faculty member, and 2) COGS review of the readiness of the faculty member to take on the student as trainee. After formally selecting a Research Advisor, and within 4 weeks following the beginning of the Year 1 Spring semester, students should **complete the Student-Mentor Compact** via the IMPACT website (see below).

Year 1 Spring Semester

- Course Requirements - During the Spring semester of Year 1, students will continue to enroll in the required courses indicated in the MSI&I Program’s Plan of Study (**Supplement IV** of this Handbook). Any exemptions or deviations from this coursework must be approved by the MSI&I COGS.

- Milestone and Compact Agreement Between Graduate student and Research Advisor. Certain documents must be completed and submitted in order to comply with UT System and GSBS mandates designed to ensure productivity and accountability, and to provide evidence to the Southern Association of Colleges and School (SACS) that the requirements and expectations of the MSI&I Program are being met. Students must complete both the *Milestone Agreement* and the *Student-Mentor Compact*.

A positive mentoring relationship between a student and his/her Research Advisor is fundamental to a student's success in graduate school. Therefore, **within 4 weeks into the Year 1 Spring Semester**, a formal meeting and discussion between a student and his/her Research Advisor is mandatory in order to ensure the integrity of the guiding principles and milestones of the MSI&I Program and to encourage a good mentoring relationship. This meeting is to be documented by submission of the **Student-Mentor Compact** found online via the IMPACT website. With their signatures, both student and mentor confirm that all topics listed in the compact have been discussed and that they are committed to upholding the principles agreed upon. The signed form is to be filed in the office of the Academic Program Coordinator.

In addition to the Student-Mentor Compact, each student and Research Supervisor must also complete and submit a **Milestone Agreement** via the IMPACT website. This document verifies that a student and the student's Research Advisor have been clearly informed regarding programmatic milestones that are expected prior to receiving the MS degree and that the student is expected to reach particular milestones within a specific time period in order to demonstrate satisfactory academic progress through the program. Failure to meet such milestones could impact satisfactory academic progress and result in a student being placed on academic probation or dismissed from the program.

- 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 1) one additional member of the MSI&I Graduate Faculty and 2) one individual from outside the MSI&I Graduate Faculty to serve on the Thesis Supervising Committee with the Research Advisor. The "outside" member can be from any accredited university. Students should be aware that each member of the MSI&I Graduate Faculty may only serve on a maximum of three Research Supervising Committees (not including committees of their own students); therefore, students may not always be able to engage their first choice as a committee member. In addition, either the MSI&I Program Director or Associate Director will serve as a fourth 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 MS degree, and 2) serving as an important resource of scientific expertise for the student.

- 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 projects. Students are **expected to be proactive** in setting up weekly meeting schedules with their Research Advisors. Readings for discussion 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 discussions will not only allow a student to become familiar with scientific concepts and methodologies of their chosen lab, 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.

- **Research Preview** – Although the primary objective of the first year students is to perform to their highest ability in the classroom and maintain a grade point average of 3.0 or above, Research Advisors are expected to invite their new students into the laboratory to perform limited experimental activities (perhaps 10-20 hours per week). The purpose of these lab experiences is to allow students to learn the fundamentals of the techniques and technology that they are likely to use when the official research year commences, as well as to get to know the lab personnel. The combination of the Research Preview and the Guided Readings is to guarantee that when the students enter their labs in Year 2, they will "hit the ground running".
- **Writing 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 III** of this Handbook). The Thesis Proposal should be submitted to the MSI&I Program Director 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 Thesis Proposal must be submitted to the student's Research Supervising Committee at least one week prior to the first meeting of the committee. The student will orally present the proposal at the first committee meeting and the Research Supervising Committee will then approve the proposal as written or request revisions (see below). Once the finalized Thesis Proposal is approved by the Research Supervising Committee, it must then be submitted for final approval by the MSI&I COGS.

Year 2 Fall Semester

- **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.
- **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 Proposal. 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. The members of the committee will evaluate the student and report on research progress using the appropriate evaluation form provided by the student at the time of each meeting.

- 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 IV** of This Handbook).

The first meeting must occur within the **first 30 days of the Fall semester**; specific meeting dates will be assigned to each student by the Academic Program Coordinator in consultation with the MSI&I COGS. Each student will present a 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 the 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 of **October of Year 2**; specific meeting dates will be assigned to each student by the Academic Program Coordinator in consultation with MSI&I COGS. Each 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.***

- Petitioning for Admission to Candidacy for the MS degree - Once the student's Thesis Proposal and Research Supervising Committee membership is approved by the MSI&I COGS, each student should petition the COGS for Admission to Candidacy for the M.S. degree. The petition must be made via the IMPACT system. The approval by the MSI&I 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, the MSI&I COGS will recommend to the Dean of the Graduate School that the student be admitted to candidacy.

- Thesis/Dissertation Workshop - Students must attend the online Dissertation/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. The workshop can be found on the [Graduate School of Biomedical Sciences website](#) under **Quicklinks → Resources (Graduation Information)**.

Year 2 Spring Semester

- 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 required 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.
- Thesis Research – Each student is expected to work full-time in the laboratory of the student's Research Advisor to perform experimentation and to accumulate data in order to satisfy the aims of the Thesis proposal. Careful attention must be paid to the proposed timeline so that the research is completed and the thesis document is written to the satisfaction of the Research Advisor and the Research Supervising Committee. 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 last meeting being the Thesis defense). The members of the Research Supervising Committee will report on the progress made a student using the appropriate forms provided by the student at the time of the meetings.
- Meetings with the Research Supervising Committee – Each student is required to meet with the student's research supervising committee a minimum of 2 times in the Spring semester of Year 2. A report regarding the student's research progress must be submitted to the MSI&I COGS by the committee.

The first meeting must occur within the month of **January of Year 2**; specific meeting dates will be assigned to each student by the Academic Program Coordinator (in consultation with the COGS). Each student will provide a review of research progress to the Research Supervising Committee. In addition, a detailed timeline must be presented indicating a specific plan for completion of the research and the writing the thesis document. Modifications of the original timeline are allowed but must be approved by the Research Supervising Committee. ***Failure to meet on the assigned meeting 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 a 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 bench work is likely necessary).

The second meeting must occur no later than the end of April of Year 2 if the requirements necessary to graduate are to be completed. Usually, the second Spring semester meeting is the thesis seminar and defense. Additional interim meetings may be scheduled if needed. If a student intends to participate in the Spring graduation ceremony, strict adherence to deadline dates as prescribed by the GSBS Dean's Office found on the GSBS website must be followed with regard to submitting required paperwork. **It is the student's responsibility to ensure that the deadlines are met.**

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.

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

Thesis document – Prior to writing the Thesis, students should confer with the Associate Dean of Student Affairs for advice regarding form and content of the document. Also, review the [GSBS website](#) under **Quicklinks → Resources (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 as 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 **at least 1 week**, and then presented with a formal **Request for Final Oral Examination (GSBS Form 40)**. The Form 40 must then be submitted to the chair of the MSI&I COGS with the examination date indicated and with all appropriate signatures. The deadline for submission of the GSBS Form 40 is posted each semester on the [GSBS website](#) under **Quicklinks → Resources (Graduation Information) → Graduation Timelines** and must be strictly followed. **If the thesis is judged to be unsuitable for defense**, the student shall make the appropriate changes to the satisfaction of the committee. The MSI&I 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 and adhering to all information regarding administrative degree conferral timelines for ensuring timely graduation. This information can be found on the [GSBS website](#) under **Quicklinks → Resources (Graduation Information) → Graduation Timelines**. Note that the “May timeline” allows graduation in time to “walk the stage”.

A public announcement of the thesis seminar will be distributed so that all interested persons may attend. After oral presentation of 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 indicate their approval of the final written version of the thesis by signing the “Thesis Approval Page”.

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 the COGS, indicated by the signature of the Chair of the MSI&I 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 Thesis "Approval Page", signed by the Research Supervising Committee and the MSI&I COGS chair, to the Office of the Graduate Dean for 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. The MSI&I 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 GSBS 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.

E. Evaluating Student Academic Progress

The MSI&I Committee on Graduate Studies will meet each semester to review student progress toward meeting the requirements and milestones of the Program. The criteria used for evaluating student progress are described in the following sections. Students are notified of the outcome of these discussions *only if* COGS determines that a student is *not* making adequate progress in the program (see academic probation below).

- **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, MSI&I COGS may determine that the student may be considered for dismissal from the program. Alternatively, the COGS may determine that the student should be allowed to remediate by retaking the failed course or by some other process (*e.g.*, taking an exemption exam, writing a paper, etc.). The form of the remediation will be decided by the COGS in consultation with the appropriate Course Director. A grade earned by remediation may replace the original grade for purposes of calculating the student's GPA, but the original grade remains on the student's transcript. Any action resulting in consideration of dismissal or remediation will be communicated in writing to the student by the Chair of the 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 the MSI&I 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.

- **Research and Academic Progress**

At the end of 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 receive an official academic warning from the MSI&I COGS. Grades of "U" in two consecutive semesters will require that the MSI&I COGS consider if a recommendation of dismissal from the MSI&I Program should be sent to the GSBS Dean.

The grade for Research/Academic Progress is given by the Chair of the MSI&I 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 report research progress of 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.

- **Time to Completion of Degree Requirements**

The 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 MSI&I COGS Chair to the Graduate Faculty Council (GFC) for final review. The GFC meets on the second Friday of each month. Therefore, degree requirements must be met in time for final review by the GFC at its May meeting. This will allow the degree to be conferred in May, and will allow the student to "walk the stage" at the May graduation ceremony. This would usually require that the Thesis defense occur no later than the third week of April as suggested by the Graduation Timeline posted on the [GSBS website](#) (see **Quicklinks** → **Resources (Graduation Information)** → **Graduation Timeline**).

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 the COGS. This request must be accompanied by an explanation for the requested 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.

- **MSI&I Program Academic Probation/Dismissal**

A student can be placed on programmatic probation by the MSI&I 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 MSI&I COGS chair. The COGS chair will solicit from the student being considered for dismissal any relevant information the student would like the 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 the COGS. Further appeal is allowed to the Dean of the GSBS using procedures described in the GSBS catalog.

F. Financial Considerations for the MSI&I Program Students

Student Stipends - Students in MS 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. **NOTE:** During the second year of the MSI&I Program, an additional Laboratory Use Fee of \$2000 per semester will be imposed.

Financial Aid – Opportunities for receiving financial aid are available, and are outlined by the Office of Financial Aid.

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 (usually 30-40 hr/wk in the laboratory) 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.

G. Withdrawal or Leave of Absence (LOA) from the MSI&I Program

A student who wishes to withdraw from the MSI&I Program should consult the MSI&I COGS chair in order to establish the circumstances resulting in the decision to withdraw, and if the student should consider a complete break with the Program, or if a Leave of Absence is more appropriate. Thus, the student must submit a written request to the Chair of the MSI&I COGS with a copy to the Program Director. The Chair of the COGS will forward the request to the Dean of the Graduate School. The step-by-step procedure for requesting LOA is as follows:

1. The student must submit a letter or email requesting a LOA to the Chair of the MSI&I COGS. The letter needs to include the reason for the request (explanations do not have to go into great detail) and the expected time of the student’s return. A LOA is allowed for *up to one year*, at which time the student will be allowed to return to the program. A copy of the letter should be sent to the MSI&I Program Director.
2. A meeting between the student and the MSI&I Program Director is recommended.
3. The Chair of the MSI&I COGS will confirm that all relevant people have been informed that the request has been made (*i.e.*, Academic Program Coordinator, Research Advisor).
4. The student’s request and the COGS chair’s recommendation will be sent to the Graduate School Dean.

5. Once this process is complete the student must pick up and complete a withdrawal form from the Registrar's Office. The form must be filled out with all required signatures.
6. The student will receive a letter from the GSBS Dean's Office (copied to the MSI&I COGS Chair and MSI&I Program Director) indicating approval of the request for LOA or withdrawal.

H. Student Vacation & Personal Leave Policy

Consistent with official University policy, students of the UT Health SA, 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 UT Health SA 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 the MSI&I COGS.

I. Misconduct

The MSI&I Program and its students must adhere to the Procedures and Regulations Governing Student Conduct stated in the current UT Health SA 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 UT Health SA 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

J. Change of Research Advisor

If at any time during a MSI&I student's course of study, a student wishes to change from an approved Research Advisor to another approved Research Advisor the following process must be followed:

1. Only members of the MSI&I Graduate Faculty are eligible to train MSI&I graduate students; therefore, any change of mentor must be to the laboratory of a member of the MSI&I Graduate Faculty.
2. Prior to making an official request, a student should send written notification of the intent to change Research Advisor to the MSI&I COGS chair. A face-to-face meeting between the student and the COGS chair may be requested.
3. The MSI&I COGS chair will confirm that the student is in satisfactory academic standing.
4. The MSI&I COGS chair will ensure that all relevant parties are aware of the impending student request. That includes: The student's original Research Advisor, the student's proposed Research Advisor, the student's Academic Program Coordinator and the GSBS Associate Dean for Academic Affairs.
5. In the event that a student wishes to leave the laboratory of a faculty member, but has not yet identified a new Research Advisor, the student will meet with the MSI&I COGS chair to discuss other Research Advisor options.
6. Once a new Research Advisor has been identified and approved by MSI&I COGS, a new non-IBMS Selection of Mentor form must be completed in IMPACT.
7. Consideration of the request:
 - a. The proposed new Research Advisor must be willing to have the student enter his/her laboratory as a full-time MS trainee, and be financially able to support the research activities of the student.
 - b. If all relevant parties are in agreement that the request should be approved, the MSI&I COGS Chair will grant approval.
 - c. If all relevant parties are NOT in agreement, the COGS Chair will bring the request to the full membership of the MSI&I COGS for their deliberation and advice.
 - d. Final approval for the change of Research Advisor will be given by the MSI&I COGS Chair and GSBS Associate Dean for Academic Affairs by signing the new Selection of Mentor form on IMPACT.

K. Amendment to Thesis Proposal or Membership of Thesis Committee

If changes to the original research proposal are considered minor, no revised proposal needs to be submitted to the MSI&I program or the GSBS. However, if changes to the proposal are considered significant/major, the entire proposal submission process must be repeated in order to seek approval for the revised proposal. If any change is made to the membership of the Thesis Supervising Committee, the process of requesting approval for the committee membership must be repeated.

L. 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. A suggested amendment will be considered by the COGS following normal procedures for voting. If the amendment is approved by COGS an appropriate memo to all MSI&I Graduate Faculty and graduate students will be sent to inform them of the revision and will amend this document accordingly.

SUPPLEMENT I: STANDARD MSI&I PROGRAM PLAN*

* *Full-time student status requires enrollment in a minimum of 8.0 credit hours per semester; approximately 32 credit hours for the entire program. Beginning Year 2, research hours may be adjusted so that, with elective, credit hours do not exceed 8.0.*

Year 1 – Fall Semester Required Courses

MICR 5031 Pathogenic Microbiology	3.0 SCH
MICR 5051 Introduction to Immunology	2.0 SCH
MICR 5091 Current Topics in Microbiology & Immunology**	1.0 SCH
TSCI 5070 Responsible Conduct of Research	<u>2.0 SCH</u>
	TOTAL 8.0 SCH

Milestones

** Meet with Faculty to identify research opportunities; Seek approval for appointment of Research Advisor.

Year 1 – Spring Semester Required Courses

MICR 5025 Eukaryotic Pathogens	1.0 SCH
MICR 5026 Pathogenic Microbiology	1.0 SCH
MICR 5027 Immunology	1.0 SCH
MICR 5028 Virology	1.0 SCH
MICR 5091 Current Topics in Microbiology & Immunology***	<u>1.0 SCH</u>
CSAT 5095 Experimental Design/Data Analysis	3.0 SCH
	TOTAL 8.0 SCH

Milestones

*** Meet weekly with Research Advisor to formulate ideas for research project. By semester's end, seek approval for Thesis Supervising Committee membership and submit penultimate draft of research proposal to MSI&I COGS Chair,

Year 2 – Fall semester

MICR 6097 Research	6.5 SCH
Elective	<u>varies</u>
	TOTAL 8.0 SCH

Milestones

Meetings with Research Supervising Committee; Seek approval of final Research Proposal and advance to candidacy for the M.S. degree..

Year 2 – Spring semester

MICR 6097 Research	5.5 SCH
MICR 6098 Thesis	1.0 SCH
Elective	<u>varies</u>
	TOTAL 8.0 SCH

Milestones

Complete research, meetings with Research Supervising Committee, write thesis and defend thesis.

SUPPLEMENT II: COURSE DESCRIPTIONS

Required Courses

MICR 5031, Pathogenic Microbiology (3.0 credit hours)

This lecture-only course integrates different disciplines (immunology, cell biology, genetics, biochemistry, molecular biology, physiology, and medical microbiology) with a central theme focused on molecular mechanisms of microbial pathogenesis in humans. Required during the fall semester of Year 1.

MICR 5051, Introduction to Immunology (2.0 credit hours)

This course is a study of immune responsiveness with emphasis on integrating fundamentals and problem solving so as to elucidate cellular and molecular mechanisms. Three approaches are taken: (1) Consider structures and molecular biology of antibodies, lymphocyte receptors, and products of the major histocompatibility complex; (2) Consider cell interactions, and immune activation and regulation; and (3) Consider immunopathologies (hypersensitivity, autoimmunity, immunodeficiency, and transplantation rejection). Required during the Fall semester of Year 1.

MICR 5025 - Eukaryotic Pathogens (1.0 credit hour)

This course will provide students with the opportunity to gain 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. Required during the spring semester of Year 1.

MICR 5026 - Pathogenic Microbiology (1.0 credit hour)

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 readings and didactic instruction. Specific concepts, strategies, and mechanisms used by human bacterial pathogens to cause disease will be illustrated. Required during the spring semester of Year 1.

MICR 5027 - Immunology (1.0 credit hour)

MICR 5027 is designed to build on the immunological concepts covered in MICR 5051 given in the Fall semester and to put those concepts to use as we focus on understanding the world of the mammalian host response to infection and on applying fundamental immunological concepts to the understanding of current immunological research questions in a student-presentation and in-class discussion format. Required during the Spring semester of Year 1. Prerequisite: MICR 5051.

MICR 5028 - Virology (1.0 credit hour)

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. Required during the Spring semester of Year 1.

MICR 5091 - Current Topics in Microbiology & Immunology (1.0 credit hour)

Fall Semester: An opportunity for incoming students to hear about the research programs of MSI&I 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 face-to-face discussion with the student's Research Advisor will give each student in-depth understanding of a selected topic in immunology & microbial pathogenesis. Students are expected to be proactive in making arrangements for meetings with Research Advisor. It is anticipated that information gained will apply to the development of an appropriate research project to begin the following Fall semester. The course will culminate in the submission of the student's Thesis Research Proposal. In addition, completion of this course will allow the student to present the thesis proposal at the first meeting of the student's Research Supervising Committee in Fall semester of Year 2.

Prerequisite: Typically, prior to the Spring semester continuation of this course, a student has identified his/her prospective Research Advisor prior to signing up for this course.

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 semesters of Year 2. Enrollment for Thesis credit requires that the student's Research Supervising Committee composition and Research Proposal have been approved by the MSI&I COGS.

Cross-Discipline Courses

TSCI 5070 - Responsible Conduct of Research (2.0 credit hours)

Required during Fall semester of 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.

CSAT 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. A camera and microphone/headphone attached to the computer will enhance the learning experience.

Elective Courses

MICR 5029 - Building Scientific Thinking Skills (2.0 credits)

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 Club (0.5 credit hour)

Students are required to attend Journal Club meetings to participate in discussions regarding publications from the current journal literature. The student is not required to present a paper during the semester.

MICR 5090 – Research Progress Report (1.0 credit hour)

This course is designed to prepare students to give scientific seminars/lectures regarding data generated by their research projects. Students are coached by their Research Advisors on effective public speaking and on the critical analysis of scientific data. Grading is determined by two factors. Grading is determined based on attendance and participation as described in the course syllabus.

MICR 6091 - Seminars In Microbiology & Immunology (1.0 Credit Hour)

Students are required to attend a minimum of 16 seminars per semester and to complete a requirement to demonstrate their attendance and participation. To fulfill the minimum number of seminars, students may include seminars offered by disciplines other than their own in which they are enrolled. However, to enroll, students should obtain permission from the course Director.

SUPPLEMENT III: GUIDELINES FOR WRITING THE THESIS RESEARCH PROPOSAL

1. The description of the proposed research **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:

*** General outline of proposal components**

- a. Abstract – 300 words or less
- b. Specific Aims of the project – usually 1-2 aims
- c. Background and Significance section; strong rationale for the project
- d. Experimental Design and Methods
- e. Detailed timeline for project
- f. References using a standard consistent format
- g. Length and format
 - i. 3-5 pages, single-spaced, not including title page, abstract page and references; may include but does not require preliminary data.
 - ii. 1 inch margins; 11 point arial
 - iii. Clearly marked sections as listed above; paginated

*** General elements of a well-written 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 your mind. Ask yourself, "If I knew nothing about this topic, would I understand what I'm reading?" Remember, science is a step by step process/progression of thought and experimentation. The reader should be able to easily follow the logic and order of your thought process that have led you to your central hypothesis. So tell a story; step by step, beginning, middle, end. Summarizing:

- a. Who is your target audience? Remember you are not writing this for you.
- b. Tell a compelling story. Lead the reader through the logic of your thought process.
- c. Be persuasive. Use the active voice as much as possible. Sell it!
- d. Be clear and concise. Unnecessarily complex or flowery language does not impress anyone. Give reader a feeling of confidence that you know what you're talking about.
- e. Highlight significance and innovation.
- f. Write, carefully read what you have written, re-write and repeat.
- g. You may get second opinions *i.e.* peer review.

- * **Background and Significance** section describe the general “big picture” problem that you are trying to address and its significance, such as its importance with regard to human health. Then provide a brief overview of what is already known from studies of other investigators that is 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 or too broad, it will not be obvious how to test it.
- * **Specific Aims** section. These are 2 or 3 statements that describe the specific experimental strategies that you intend to use to test your hypothesis. Be appropriately narrow in scope; often describing a single experimental strategy. Be clear and direct. These are statements that begin with verbs such as: Determine or Demonstrate or Identify or Prove etc. that require a specific endpoint to your experiment. Consider that each aim often represents the testing of a “sub-hypothesis” of the central hypothesis. 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.
- * **Experimental Design** section, 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.
- * **Required 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 IV: Tips for Successful Meetings With Your Research Supervising Committee

Distribute a clear concise Thesis proposal to you Committee (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 45-60 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.**