
IOWA

**Interdisciplinary Graduate
Program in Immunology**

Graduate Student Guidelines

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Immunology Graduate Program STUDENT GUIDELINES THE UNIVERSITY OF IOWA

In addition to the [Graduate College Manual of Rules and Regulations](#), this handbook is for use by the Immunology Graduate Students to clarify Immunology Program-specific policies. The document lists the program leadership, course requirements, laboratory rotation policies, Immunology seminar, Comprehensive Exam format and schedule, and Dissertation Committee guidelines.

I. Program Academic Objectives

- a. To educate and train students toward independent careers as investigators and educators in cutting-edge research, teaching, and service in basic and applied Immunology
- b. To develop the student's ability to think critically and evaluate data and scientific literature, to problem solve, to expand their technical skills, and to design rigorous and reproducible experiments that increase both their knowledge base and allow them to address scientific questions in immunology
- c. To develop the student's ability to communicate their scientific findings and knowledge via both written and oral methods to a variety of audiences

II. PROGRAM LEADERSHIP:

Program Director:

Dr. Kevin Legge 108C MRC 335-6744

Executive Committee Members:

Dr. Vladimir Badovinac 1023 ML 384-2930

Dr. Noah Butler 3-632 BSB 335-7789

Dr. John Colgan 2000 ML 335-9561

Dr. Jon Houtman 2210 MERF 335-7780

Dr. Kevin Legge 108C MRC 335-6744

Dr. Wendy Maury 3-750 BSB 335-8021

Graduate Studies Committee Chair:

Dr. John Harty 3-530 BSB 335-9720

Admissions Committee Chair:

Dr. Ashutosh Mangalam 1080A ML 335-8558

Comprehensive Exam Committee Co-Chairs:

Dr. Vladimir Badovinac 1023 ML 384-2930

Dr. John Colgan 2000 ML 335-9561

Curriculum Committee Co-Chair:

Dr. Ashutosh Mangalam 1080A ML 335-8558

Dr. Prajwal Gurung 429 EMRB 335-4536

Seminar Committee Chair:

Dr. Scott Lieberman 2191A ML 353-4399

Program Administrator:

Rob DuBay 354 MRC 335-7748

Program Associate:

Mackenzie Goss 357 MRC 335-6512

III. When To Contact the Program Office

a. Educational Milestones

Students must contact the Program Office at each of these milestones:

- i. Anytime your name, address, home phone number, cell phone number, or office/lab contact information changes
- ii. When you make rotation mentor choices
- iii. When you choose your mentor
- iv. Anytime your funding source changes
- v. When you choose your committees
- vi. When you have changes in your committee membership
- vii. Immediately upon scheduling a Thesis Committee meeting. We need to track these, and Mackenzie will reserve a room.
- viii. As soon as you know you plan to defend in a particular semester
- ix. As soon as you know your defense date
- x. Alumni—whenever you have a change of position, institution, name, or other contact information

b. Noteworthy Accomplishments

- i. You receive fellowships, grants, or other monetary awards
- ii. You publish papers or chapters
- iii. You receive any honors or awards
- iv. You receive any positive media attention
- v. Any other items for the website or social media

c. Primary contacts

First Contact	Question or Request
Rob	Registration changes (adds, drops, and change of hours forms)
Mackenzie	Website updates and corrections
Mackenzie	Rotation evaluations
Mackenzie	Room reservations
Mackenzie	Travel arrangements and reimbursements
Mackenzie	Meeting arrangements
Mackenzie	Invoice payments (e.g. restaurant or supply bills)
Mackenzie	Reports for Committee meetings
Mackenzie	Reports for Comprehensive Committee meetings
Mackenzie	Completed Individual Development Plans
Mackenzie	Poster printing
Mackenzie	Course evaluations
Rob	Budget questions
Rob	Policy questions
Rob	Stipend questions
Rob	U-Bill questions
Rob	Grant and fellowship questions
Rob	Complaints/concerns/problems
Rob	Research rotations approval
Rob	Lab affiliation requests
Rob	Committee approval requests
Both Rob and Mackenzie	At educational milestones listed above

IV. Calendar

Academic Calendar:

Fall semester 2021:

First day of classes	August 23
Last day of classes	December 10
Close of Finals week	December 17

Spring semester 2022:

First day of classes	January 18
Last day of classes	May 6
Close of Finals week	May 13

Rotation Schedule

Fall Rotation	August 23 – November 12, 2021
Winter Rotation	November 15, 2021 – February 11, 2022
Spring Rotation	February 14, 2022 – May 6, 2022

Registration for Fall, Spring, and Summer semesters are performed through the program office during the early registration period.

Graduate College Deadlines: <https://www.grad.uiowa.edu/deadlines>

UI Academic Calendar: <https://registrar.uiowa.edu/academic-calendar>

V. GUIDANCE:

The Graduate Studies Committee is charged with overseeing the progress of all graduate students at all stages of their training. Incoming first year students are assigned a primary advisor from the Graduate Studies Committee who will advise the student on courses, lab rotations, and all other aspects of their education. Soon after arriving on campus, the students will meet with either the chair of the Graduate Studies Committee or their assigned advisor to discuss their specific interests, course work, and laboratories for rotations. In addition, the Graduate Studies Committee may occasionally meet with students to discuss their academic progress. When a student completes their rotations and enters a laboratory to perform dissertation work, the faculty member in charge of the laboratory will assume the role of advisor. The Graduate Studies Committee will however, continue to oversee the students' academic and research progress. The Graduate Studies Committee is also available to the student for advice should problems or questions arise.

VI. FORMAL COURSE WORK:

Immunology graduate courses are offered not only to teach students the current concepts and paradigms within the field, but to emphasize the scientific approaches and methods used to attain this understanding.

NOTE: It is expected that the great majority of graduate students will follow the prescribed curriculum. However, it is recognized that circumstances may arise that require a student's course of study to be altered. Therefore, a student may ask the Graduate Studies Committee for permission to amend the curriculum requirements.

a. Required Courses:

Fall year one

i. **IMMU:6247 Graduate Immunology and Human Disease** (4 sh)

This course provides an overview of the important principles and key concepts in immunology including the induction of the innate and adaptive immune systems, the molecular events that control immune cell activation and the function of the immune system in infection and pathophysiological events. Offered fall semester only. Required of all first-year students.

ii. **PCOL:5204 Basic Biostatistics and Experimental Design** (1 sh)

This course is designed to provide a brief overview of the theory of experimental design and data analysis in the biological sciences for graduate-level students. Upon completion of this course, students will feel comfortable identifying the types of analyses that are available for common types of data generated in the biomedical sciences, and will be empowered to critically review the statistical methods used in published studies.

iii. **BMED:5207 Principles of Molecular and Cellular Biology** (3 sh)

The goals of this course are to familiarize new graduate students with important principles and key concepts in contemporary molecular and cellular biology; to help students develop the skills required to critically evaluate current research publications; and to familiarize students with the experimental techniques utilized to test specific hypotheses. These

goals will be achieved through formal lectures on specific topics and discussions focus on evaluation of published research papers (recent or classical). Students are encouraged to ask questions for clarification and to seek out individual faculty members for additional assistance when needed.

Spring year one

i. **IMMU:6201 Graduate Immunology** (3 sh)

This course emphasizes the purpose and design of experiments, and how their interpretation has led to current concepts in immunology. Sessions take the form of background presentation by the lecturer followed by analysis of primary research papers. Participation by students in the form of discussion and responding to questions is a key goal. Required of all first-year students.

Fall year two

i. **IMMU:7221 Advanced Topics in Immunology** (3 sh)

Graduate Immunology is a prerequisite for this course, although MSTP students, who have taken MS1 Immunology, may elect to take Advanced Topics for credit in either year 1 or year 2. This course is split into three sections with each section proctored by a different faculty member. The goal is for each instructor is to present the seminal papers in one area of immunologic expertise. This is done through the use of primary research papers and student presentations. Second year students are required to take this course for credit. Subsequently, students are required to attend an additional two sections as exemplars for younger students, and to enhance their knowledge of a wider variety of immunologic topics. These two sections need not be taken during the same semester, but can be spread out during the ensuing years. This will enable students to choose two areas which are of particular interest to them. While participating in these additional modules, advanced students will be asked to lead discussions, and demonstrate proper presentation and critique of papers.

ii. **IMMU:6221 Rigor and Reproducibility in Immunology** (1 sh)– Beginning Fall 2022

Graduate Immunology is a Prerequisite for this course. Principles and concepts in rigor and reproducibility including rigorous experimental practices in immunology and study design including concepts in redundancy (replication, validation, generalization, perturbation, and consistency), controls, authentication of key reagents and resources, biological variables, recognition of error, avoidance of logical traps, and intellectual honesty.

iii. **IMMU:6241 Writing a Scientific Proposal** (2 sh)

The goal of this course is to teach the skills of scientific writing, using the highly relevant vehicle of scientific proposal preparation. This skill is crucial in many future scientific careers, not restricted to academic research. Students will practice skills of hypothesis and rationale formulation, experimental design, and the ability to present ideas clearly

and convincingly in a concise format. During the course, each student will prepare a proposal that can subsequently be submitted to external funding agencies.

Fall & Spring each year

- i. **IMMU:6211 Immunology Graduate Student Seminar** (1 sh awarded during the fall semester and the spring semester each year)

During both the Fall and Spring semesters, all graduate students will attend, and will present their research data under the supervision of the Immunology Program faculty. This exercise is designed to foster oral communication skills and collaboration among graduate students. *Faculty evaluators will provide student presenters with useful written and oral feedback on their presentations.*

Years 1-2. (1sh total)

- i. **BMED:7270 Scholarly Integrity/Responsible Conduct of Research 1**
- ii. **BMED:7271 Scholarly Integrity/Responsible Conduct of Research 2**

Courses entitled *Scholarly Integrity/Responsible Conduct of Research 1 and 2* are required for all graduate students in Immunology. These courses are designed to expand on and advance training in the principles of scholarly integrity and responsible conduct of research (SI/RCR). As a prerequisite, all individuals taking these courses will have completed basic SI/RCR training through completion of CITI online, web-based training in the first year. Following verification of successful completion of all required CITI modules, graduate students **must** complete the 2-semester sequence (BMED:7270, BMED:7271) for meeting full SI/RCR training requirements per the CCOM Office of Graduate & Postdoctoral Studies and their respective departments and programs. Individuals typically start the series in the Fall semester of the 2ed year, however in some cases may start the series in the Spring of year 2. Once started students must complete the series in the following semester (e.g., Fall > Spring; or Spring > Fall series). The workshops emphasize small group discussions and foster ongoing conversations that explore important aspects of the ethical and responsible conduct of scholarly research. Case studies are assigned that cover all core competency areas emphasized by NIH – data acquisition, management, sharing and ownership; conflict of interest and commitment; human subjects; animal welfare; research misconduct; publication practices and responsible authorship; mentor/trainee responsibilities; peer review; collaborative science; financial management; research safety; responsibility to society.

b. Elective Courses:

Students will take **3 sh of elective credits**. The following courses are suggested; others may be substituted with prior approval of the Graduate Studies Committee. These are either a 3 sh course or a 5-week 1-credit module on various areas of cellular and molecular biology, taught for graduate-level students. Students have the option to take additional approved electives, on a case-by-case basis, in consultation with the student's advisor and the Curriculum Committee. Course of study will be approved and supervised by the Graduate Studies Committee until a dissertation advisor and dissertation committee has been chosen.

- ACB:5218 Microscopy for Biomedical Research (3 sh)
- BIOC:7251 Introduction to Protein Structures (1 sh)
- BIOC:7252 Enzymes, Carbohydrates, Nucleic Acids, & Bioenergetics (1 sh)
- BIOC:7253 Metabolism I (1 sh)
- BIOC:7254 Cellular Biochemistry (1 sh)
- BIOC:7255 Metabolism II (1 sh)
- BIOC:7256 Molecular Biology (1sh)
- BIOS:4120 Introduction to Biostatistics (3 sh) (formerly BIOS:5110)
- MICR:6240 Graduate Eukaryotic Pathogens and Human Disease (2 sh)
- MICR:6259 Graduate Bacteria and Human Disease (3 sh)
- MICR:6260 Graduate Molecular Microbiology (3 sh)
- MICR:6267 Graduate Viruses and Human Disease (4 sh)
- MICR:6268 Biology & Pathogenesis of Viruses (2 sh)
- MICR:6269 Graduate Virology Discussion (1 sh)
- MICR:6270 Graduate Microbial Genetics (3 sh)
- MMED:3310 Practical Data Science & Bioinformatics (3 sh)
- MMED:6225 Growth Factor Receptor Signaling (1 sh)
- MMED:6226 Cell Cycle Control (1 sh)
- MMED:6227 Cell Fate Decisions (1 sh)
- MMED:6220 Mechanisms of Cellular Organization (3 sh)
- PATH:5270 Pathogenesis of Major Human Diseases (3 sh)
- PCOL6207 Ion Channel Pharmacology (1 sh)
- PCOL6208 G-proteins and G-protein Coupled Receptors (1 sh)
- PCOL6209 Steroid Receptor Signaling (1 sh)

c. MSTP Student Curriculum

MSTP students affiliating with the Immunology program enter the program with two years of medical school course work completed. As a result, their curriculum is adjusted. The Graduate College also allows 30 sh of course work to be applied to the required 72 sh to earn a PhD degree. In addition to the required courses listed below, it is recommended MSTP students who are not comfortable with Immunology research take IMMU:6247 Graduate Immunology and Human Disease prior to IMMU:6201 Graduate Immunology.

MSTP Required Courses:

IMMU:6211 Immunology Graduate Student Seminar
IMMU: 6221 Rigor and Reproducibility in Immunology – Beginning Fall 2022
BMED:7270 Scholarly Integrity/Responsible Conduct of Research 1
BMED:7271 Scholarly Integrity/Responsible Conduct of Research 2
PCOL:5204 Basic Biostatistics and Experimental Design

MSTP students are not exempt from taking the 1 module of Biostatistics. MSTP students may take with Advisor approval any of the elective courses listed in (b).

d. Minimum Number of Credits for the Ph.D. degree – 72:

It is anticipated that most students will complete classroom work (except for Immunology Graduate Student Seminar and two additional modules in Advanced Topics) by the end of the 3rd semester. Other credits required by the Graduate College for the Ph.D. can be fulfilled by research laboratory course credits. The minimum number of credits required for the Ph.D. degree (coursework plus laboratory) is 72.

e. Academic Progress:

An Immunology Program Graduate Student shall be sent a written notification if, after completing 9 sh (at least 6 sh of which carries a letter grade other than S/U) of graduate coursework at The University of Iowa, the student's cumulative grade-point average falls below 3.00. The student will then have one semester to raise their grade point average above 3.0. Two consecutive semesters of a cumulative grade point average of less than 3.0 will lead to a dismissal from the program due to a failure to make satisfactory academic progress. In addition, any Immunology Program graduate student who earns a grade below a B minus in the core Immunology Program courses of: Graduate Immunology and Human Disease, Graduate Immunology, Writing a Scientific Proposal, and/or Rigor and Reproducibility in Immunology will be required to retake the course(s) the next semester that it is offered. If the student again earns a grade of less than a B minus, the student will be dismissed from the program due to failure to make satisfactory academic progress. The student must also make satisfactory progress during laboratory rotations with at least 2 of the 3 rotation mentors indicating that the student had performed satisfactorily during the rotation as indicated on the rotation evaluation form. Unsatisfactory performance in one or more rotations can lead to dismissal from the program. The student must also make satisfactory progress toward their degree and dissertation committee reports should indicate that the student has performed satisfactorily during the last evaluation period and is on track to graduate. Unsatisfactory performance and/or failure to make satisfactory progress toward the degree as indicated in one or more dissertation committee reports can lead to dismissal from the program. *It should be noted that some of these policies are separate from the general Graduate College policy regarding academic probation (Section IV.B.), and will be enforced for Immunology Graduate Program students independently of the Graduate College policy.*

VII. LABORATORY ROTATIONS:

Prior to selecting a laboratory for dissertation work, students are expected to perform three laboratory rotations, with each rotation being approximately 10-12 weeks in duration. During the first semester, a student should become acquainted with the research interests of the faculty members in the Program. Students are encouraged to meet with specific faculty to discuss their research programs. Students can then make an informed decision about their laboratory rotations, with the guidance and approval of their advisor and the Graduate Studies Committee. At the latest, students should begin their first rotation within the first week of graduate study. MSTP students and students with M.S. degrees (which include a research-based dissertation), may be excused from one rotation. Students having difficulty identifying a dissertation laboratory may perform a fourth rotation. Failure to successfully match with a laboratory after a fourth rotation will lead to dismissal from the program. The rotations are graded as either "Satisfactory" or "Unsatisfactory". This grade is based upon a number of criteria including attendance and work habits. It is important to note that when not in classes or seminars, the students are expected to spend the remaining portion of the day in the laboratory. Without a strong commitment to the rotation project, it is difficult to fulfill the purpose and aims of the rotation. A "satisfactory" grade is required in each of the laboratory rotations. If a "satisfactory" grade is not obtained in one of the rotations, an additional rotation will be assigned. Failure to obtain a "satisfactory" grade in the extra rotation will result in the student being placed on academic probation. After each rotation, an evaluation by the faculty member of the student and by the student of the faculty member will be submitted to the Graduate Studies Committee.

VIII. IMMUNOLOGY SEMINAR:

The Immunology Program oversees a weekly seminar series. During the school year, the weekly Immunology Seminar features a number of well-known Immunologists from around the country, as well as Immunology Program faculty. *Although seminar is not part of the formal curriculum, students are required to attend.*

IX. TEACHING REQUIREMENTS:

All incoming students will have a one-semester teaching requirement. A variety of courses are available in several Departments, and the Program leadership will place students in courses based upon interest, expertise, and scheduling.

X. OTHER IMMUNOLOGY EVENTS:

In addition to classes and seminar, a number of other events are available for graduate students. A Program highlight is informal dinners scheduled with some of the visiting scientists who present in the Immunology Seminar series. Typically, this dinner is held at a faculty member's home, and is attended by only students, postdoctoral fellows, and the visiting speaker. These dinners are designed for the benefit of the students, and are an excellent opportunity to personally meet outstanding scientists, and "pick their brains" on contemporary issues. ***Students are expected to attend.*** Aside from Immunology Seminar, a number of other meetings are available. These include focused or topic-oriented journal clubs, seminars in other departments (e.g. - Microbiology or Physiology seminar series), and Ph.D. dissertation defense seminars. All graduate students are strongly encouraged to affiliate themselves with a journal club and to become a regular participant. Students are also strongly encouraged to join the Center for Immunology & Immune-Based

Diseases at The University of Iowa (<https://medicine.uiowa.edu/immunologycenter/>), which sponsors an annual Research Retreat each year in August, as well as a monthly Research In Progress series. Collectively, these events are not only key for one's education, but are important in getting to know all of the other immunologists on campus, and fostering scientific collaborations.

XI. Individual Development Plan (IDP):

The IDP is a tool to assist trainees with career and professional development. The IDP provides a platform for trainees to identify professional goals, assess competencies relevant to these goals, and develop a plan to achieve specific objectives related to their career goals. The trainee-developed IDP becomes a platform for discussion with their Ph.D. mentor, to foster communication important for the trainee's professional development. The process is interactive and iterative to ensure training success and satisfaction. Several steps are involved in the development, implementation, and revision of the IDP. The trainee and mentor are active participants, working together to design a plan that helps the trainee meet goals identified in the IDP. The process involves identification of short-term objectives, with clear expectations and milestones that address long-term career goals.

a. Basic steps for Trainee

- i. Conduct a self-assessment
 1. Define your time commitment to various components of the graduate experience.
 2. Assess your skills and interests.
 3. Use outside resources to get feedback on your skills, strengths, and weaknesses. The following **self-assessment tools** provide a nice resource for this self-assessment.
 4. <http://myidp.sciencecareers.org>
 5. <https://www.grad.uiowa.edu/individual-development-plan>
- ii. Survey opportunities with mentor
 1. Identify career opportunities that interest you.
 2. Define differences between your current skills and additional skills needed for your identified career objectives.
 3. Prioritize areas for development and discuss strategies for addressing objectives with your mentor.
- iii. Write/update your IDP, share it with your mentor, and review together
 1. Identify specific skills that you need to develop in the short-term (e.g. 1-2 years)
 2. Define strategies to develop each skill. Use the "SMART" principle:
 - S**pecific - is it focused and unambiguous?
 - M**easurable - define metrics to know whether the objective is achieved.
 - A**ction-oriented - identify concrete steps to achieve the objective.
 - R**ealistic - is the strategy feasible?
 - T**ime bound - define a deadline.
 3. Discuss draft with mentor

- iv. Implement the plan, and revise as needed
 1. Review your plan with your mentor on a regular basis. Completion of the IDP is required on a yearly basis and after completion must be submitted to the Program.
 2. Revise as necessary.

b. Basic steps for Mentor

- i. Be familiar with training requirements and opportunities.
- ii. Discuss opportunities with trainee.
- iii. Review your trainee's IDP and help revise. Provide written comments at the end of this document.
- iv. Establish regular periods for IDP review and revision, as needed.

XII. COMPREHENSIVE EXAMINATION:

a. Overview:

The purpose of the Comprehensive Exam is to evaluate whether students have successfully acquired the skills and competence to continue on to the research and dissertation phases of the Ph.D. program. Two essential skills that will be evaluated are:

- i. The ability to learn and understand the state of knowledge in an area of inquiry, identify a significant knowledge gap in that area, formulate a hypothesis or hypotheses to test, and design an effective approach to testing the hypothesis(es).
- ii. The ability to communicate clearly with other scientists orally and in writing.

Each student taking the Comprehensive Exam in a given cycle will prepare a single abstract of an original research proposal, to be submitted to the examining committee according to the schedule outlined below.

It is anticipated that most students will take their Comprehensive Exam in the second semester of their second year. MSTP students who joined the dissertation laboratory at the beginning of the first year of graduate study may begin the Comprehensive Exam process in September of the second year of graduate study.

If the first attempt is failed, a student may begin the examination process again no sooner than 4 months after the first exam is taken, according to the regulations of the Graduate College. If a student fails to pass after two attempts, the student will not be permitted to remain as a Ph.D. candidate.

Failure to take the Comprehensive Exam by the end of the fifth semester will, unless a specific exception is granted by the Graduate Studies Committee, result in a grade of "Incomplete" for the student's research for that semester. Exceptions must be fully explained and justified in a letter to the Chairperson of the Graduate Studies Committee. This letter will also be made part of the student's file. If the grade of "Incomplete" is not removed by the end of the next full semester, it will be changed automatically to an "F" and the student will be required to leave the program.

b. Exam Format:

i. Abstract:

The abstract must describe a proposal that does not overlap in major approach or topic with the student's dissertation research, or any other ongoing projects in the dissertation laboratory. The student must not consult with his/her dissertation advisor during this process, except to ask an opinion about potential overlap of a topic. The Abstract will:

1. consist of a *Rationale* section, explaining the context of the area of focus, and the significance of the question(s) to be addressed;
2. contain *Specific Aims*, which briefly outline the major experimental objectives of the project, as well as an overview of the approaches (not the detailed Methods) proposed to address the Specific Aims of the project.
3. have 0.5" margins and no smaller than 11-point Arial font type and is limited to 2 single-spaced pages (references not included in the 2-page limit)
4. be submitted to the Program Office.

Students are encouraged to review abstracts and Rationale/Aims pages of grants of their mentors or senior postdoctoral fellows as examples for what sort of information this should contain, while they prepare their own documents.

ii. Abstract Outcome:

The Examination Committee for the student will then determine a) if the abstract topic is appropriate as non-overlapping and b) if the abstract is scientifically sound and could potentially serve as the basis for a defensible research proposal. Three outcomes are possible.

1. The abstract is judged acceptable; the student may begin work on the written proposal.
2. The topic of the abstract is acceptable, and the committee believes that the abstract could potentially lead to a defensible proposal, but first requires revision. The student will receive a written summary of the deficiencies in the abstract and the revisions required. If the needed revisions are substantial, part or all of the examining committee will convene a meeting with the student, to discuss the nature of the revision needed. A revised abstract will be due one week after this summary is sent to the student. The student will have one opportunity to revise the abstract so it forms a suitable basis for the written proposal.
3. The abstract is judged to be fatally flawed. The student will be informed in writing of the basis for the committee's decision, and will be instructed to prepare a new abstract on a different research topic. The second abstract will be due 3 weeks after this notification. If the second abstract cannot be revised to a level of acceptability, the student will have failed (i.e. an "Unsatisfactory") the first attempt at the Comprehensive Exam, and must wait a minimum of 4 months before a second attempt.

After the abstract is accepted, the student will be given 4 weeks to complete and submit the written Comprehensive Exam proposal. The oral defense will be scheduled 10-14 days after the exam is submitted, depending on availability of the committee members. The Comprehensive Exam will be written in the form and style of an NIH R21 grant proposal based on the abstract and instructions from the Comprehensive Exam Committee.

iii. Proposal:

The proposal must be submitted to the Program Office for distribution to the committee. The proposal will be limited to 7 single-spaced pages (one of which should be a Specific Aims page), with 0.5-inch margins and 11-point Arial font type. References will not count in the 7-page limit, but cannot constitute more than five pages. This document should be formatted similar to a NIH R21 application. It should address the following:

1. Significance
2. Innovation
3. Rationale of/for the project
4. Approach for each Aim/SubAim. The Approach section should address:
 - a. the experimental approach, including controls
 - b. expected and alternative results,
 - c. interpretations,
 - d. possible pitfalls and alternative approaches

Rather than list all the details of specific protocols, students are urged to refer to published literature whenever possible, and instead focus on why a method was chosen, and its strengths and limitations that impact data interpretation. Students should consider the feasibility of the approaches chosen and choose approaches that are technically feasible.

Comprehensive Exam abstracts and proposals should be the result of the student's own ideas. Students may discuss their abstracts and proposals with other students and postdoctoral fellows. They are also allowed to consult faculty other than their dissertation advisers for questions regarding specific techniques, as well as general knowledge questions. However, they cannot ask faculty to review their rationale or Aims, or provide experimental design details. *It should be emphasized that no matter who provides advice, the student is responsible for whatever is in his/her proposal, regardless of what any other scientist may offer as an opinion.* "Dr. _____ said so" is NOT an excuse for incorrect information or flawed reasoning. The description of the exam as "comprehensive" means that the student should have a clear understanding of the state of knowledge that underlies the rationale upon which the proposal is built. When published papers are used as the basis for designing further experiments, be sure such papers are read thoroughly and carefully (not just the Abstract).

Primary advisors should excuse themselves from any administrative committee deliberations (other than the Dissertation Committee) which directly concern their students. Administrative committees will communicate

directly with students. Advisors should not act as an intermediary in this process. If an Advisor feels compelled to raise a concern about a decision by an administrative committee, he/she should contact the Program Director.

iv. Oral Defense:

The Comprehensive Exam Committee will hear the student's oral defense, which will begin with a brief overview presentation outlining the background, rationale, specific aims, and experimental approaches. The student may use visual aids, such as PowerPoint slides, which are specifically related to the presentation of the proposal. However, no additional reference material, besides the written proposal, will be allowed in the room during the defense. The student's presentation will be followed by questions from the Comprehensive Exam Committee on the content of the oral defense and of the written proposal. The Committee may also ask questions designed to more generally probe the depth and breadth of the student's understanding of fundamental aspects of immunology concepts, functions, and mechanisms. All proposals submitted by the required deadline will be defended orally unless they are judged by the committee as significantly substandard. In this case, the Comprehensive Exam Committee, at its discretion, can decide a) that the outcome the exam is "Unsatisfactory" and the student has failed the first attempt at the Comprehensive Exam; or b) the student should significantly revise the submitted proposal. The student will be informed in writing of the basis for the committee's decision, and will be instructed to prepare a revised proposal. The revised proposal will be due 3 weeks after this notification. If the revised proposal is also judged to be substandard, the outcome the exam is "Unsatisfactory" and the student will have failed the first attempt at the Comprehensive Exam. Students who fail their first attempt must wait a minimum of 4 months before a second attempt.

v. Exam and Defense Outcome:

The outcome of the comprehensive examination will fall into one of the three following categories:

1. The Comprehensive Exam is judged as "Satisfactory". The student passes and will be permitted to continue to work toward the Ph.D.
2. The Comprehensive Exam is judged as "Reservations". The student will be given an opportunity to eliminate the reservation(s) according to specific written instructions and time-line provided by the Comprehensive Exam Committee. If the student is asked to make written revisions to their proposal, the student should provide a point-by-point response to the written critique provided by the committee and highlight the changes made in the revised document. If the reservation is not adequately addressed, this will result in a "Unsatisfactory" grade and constitute a failure of the Comprehensive Exam.
3. The Comprehensive Exam is judged as "Unsatisfactory". The student fails.

vi. Exam Schedule

1. Spring Comprehensive Exam Schedule:

A typical Ph.D. student who spends Year 1 in the Program performing required coursework and 3 laboratory rotations will begin the Comprehensive Exam process in February of the second year of graduate study.

Sample Timeline

February 1: Deadline for abstract submission. Abstracts must be submitted to the Program Office.

February 8: Deadline to notify students if the abstract is acceptable (with or without modification) by the Comprehensive Exam Committee, or whether an entirely new abstract is needed.

February 15: Deadline for submission of revised abstract, if appropriate.

February 29: Deadline for submission of new abstract, if first abstract was judged fatally flawed.

The remainder of the timeline will follow the same approximate schedule as for the first abstract, if a second abstract is required. Note: Abstracts must be submitted to the Program Office. The Program Office will distribute the abstract to the student's committee. As soon as an abstract has been accepted, the Program Office will contact the committee members to schedule a meeting. The student will be given 4 weeks to complete the NIH R21-style grant proposal following notification of acceptance of the abstract. The proposal must be submitted to the Program Office for distribution to the committee. The oral defense will be scheduled within 2 weeks of proposal distribution, whenever possible.

2. Autumn Comprehensive Exam Schedule:

MSTP students who joined their dissertation laboratory at the beginning of the first year of graduate study may begin the Comprehensive Exam process in September of the second year of graduate study.

Sample Timeline

September 15: Deadline for abstract submission. Abstracts must be submitted to the Program Office.

September 22: Deadline to notify students if the abstract is acceptable (with or without modification) by the Comprehensive Exam Committee, or whether an entirely new abstract is needed.

September 29: Deadline for submission of revised abstract, if appropriate.

October 13: Deadline for submission of new abstract, if first abstract was judged fatally flawed.

The remainder of the process and timeline will be similar in intervals and decision points to that outlined above for the Spring schedule.

NOTE: *The Comprehensive Exam guidelines are written to promote uniform schedules and uniform treatment of graduate students. However, exceptions may be made in the case of illness, family crisis, or other serious circumstances that could interfere with a student's ability to follow the schedules outlined above.*

XIII. DISSERTATION RESEARCH:

By or before the beginning of the third semester (usually at the end of the Spring semester of the first year), the student should choose a laboratory in which to do research. The faculty member from that laboratory will serve as the student's research advisor unless a Mentor of Record is required.

a. Dissertation Committee:

Together the student and the student's research advisor will select a Dissertation Committee for the student prior to the start of the third semester of graduate study and submit these selections to the program for approval by the Graduate Studies Committee. The Dissertation Committee will consist of at least five members, including the student's research advisor. At least four members of the committee will be members of the Immunology Graduate Program. The fifth faculty member may be from outside the Program but must have an appointment in a Ph.D.-granting program/department. Unless the student has a Mentor of Record (who in that case will serve as Chair), the Dissertation Committee will elect a chairperson (who will not be the research advisor) and inform the Program.

The Dissertation Committee will meet with the student at least once each year to review the plan of study and to receive a written report of research progress prepared by the student. The first of these meetings must be held in the Fall of the 2nd year. All subsequent annual reports and Dissertation committee meetings must be completed within one month of the anniversary date of the student's passing the Comprehensive Exam. The purpose of this yearly meeting is to determine whether the student's progress has been appropriate to allow for enrollment in the academic year beginning the following Fall semester. Unsatisfactory progress, as judged by the Dissertation Committee, during the yearly thesis committee meeting can lead to dismissal from the program. The written report will then be forwarded to the Graduate Studies Committee and will be made part of the student's record. If the annual written report is not received within 60 days of this anniversary date, the student will receive an "incomplete" for that semester's research (IMMU:6231: Research in Immunology). If the student has not submitted a satisfactory report within the next 60 days, the grade will be changed automatically to an F and the student may be required to leave the Program.

Each year which follows successful completion of the comprehensive examination, students will present their research to the members of the immunology community at the University of Iowa by giving a research seminar to be scheduled by the seminar committee in consultation with the Dissertation Committee.

The student or any member of the Dissertation Committee may, with reasonable notice, request a meeting, at other times of the year, in which the student and the Committee members would participate. This is especially encouraged during the latter stages of the student's dissertation work.

The Dissertation Committee will be responsible for administering the final examination, or dissertation defense.

Students are guaranteed stipend and tuition support for 5 years, provided they display satisfactory performance in fulfilling all academic requirements, as well as in the progress of their dissertation research. Support after 5 years is not guaranteed, but the student and mentor may petition the Program to continue support, if satisfactory progress is being made.

It is expected that the dissertation project be of sufficient breadth, depth, and novelty to result in first-author research publications in high quality peer-reviewed journals.

b. Publication Requirements:

A minimum of one peer-reviewed paper must be published or in press prior to completion of the Ph.D. In addition, a second publication, in which the student is a co-author on a peer-reviewed article, a review, or book chapter must be published or in press prior to the completion of the Ph.D. The student will not be permitted to schedule a dissertation defense until it has been demonstrated that both of these requirements have been met.

c. Mentor of Record (MOR):

If the research advisor selected by the student has not mentored a student through successful completion of the Ph.D. degree, the student and advisor must additionally select a Mentor of Record (MOR). Any Immunology Program faculty member who has mentored a student who achieved the Ph.D. degree is eligible to serve as Mentor of Record. The research advisor must submit the name(s) of the suggested Mentor of Record for final approval by the Graduate Studies Committee. The Mentor of Record should be selected as soon as possible (typically in the summer of year 1) after the student has chosen the research advisor. The Mentor of Record will serve as the chairperson of the student's Dissertation Committee. In addition to the required annual meeting of the student with the entire Dissertation Committee, the student, mentor, and MOR meet separately every 6 months to discuss progress. The first of these meetings will occur with 3 months of selecting a MOR. It is emphasized to the student and mentor that the MOR is a resource for experienced advice and assistance to both. The MOR files written reports of these meetings to the Program, and is encouraged to bring any problems to the attention of the Graduate Advisory Committee.

XIV. THE PH.D. DISSERTATION:

To be awarded the Ph.D. degree, a candidate must satisfactorily defend the Ph.D. dissertation.

The procedure to be followed by the student regarding the Ph.D. dissertation is as follows:

- I. The student's completed or nearly completed research should be presented orally to members of the Dissertation Committee for consideration. If the Dissertation committee considers progress to be adequate, the student will be advised to write the dissertation. The style of the dissertation will conform to that presented in the CBE Style Manual.
- II. When a draft of the dissertation has been approved by the student's research advisor, a copy will be distributed to each member of the Dissertation Committee at least two weeks before the date of the final defense.
- III. This draft of the Dissertation must conform to the rules of the Graduate College office and must be presented to said office according to their schedule for that semester. <https://grad.uiowa.edu/academics/thesis-and-dissertation>
- IV. The student will present a one hour public seminar on the dissertation work. All graduate students and faculty in the program will be encouraged to attend. The seminar will be followed by a defense of the dissertation before the student's Dissertation Committee. A final draft of the dissertation will then be prepared incorporating revisions suggested by the committee and approved by the advisor and the committee.
- V. Final corrected copies of the dissertation must be submitted to the Graduate College office at least ten days before the graduation date.
- VI. Expenses for typing the dissertation, any illustrative material, and copies of the dissertation, are the responsibility of the student.
- VII. In addition to the copies required by the Graduate College, the student will present one final copy of the dissertation to the Program for the permanent library file, and at least one copy to the advisor.

XV. Food & Beverages for Meetings

The Immunology Graduate Program does not expect students to provide food and/or beverages for Committee meetings, Comprehensive Exams, or defenses. Further the lack of food/beverages will not be looked at negatively by those attending. This is supported by the Graduate Student Senate Resolution Addressing Food at Meetings.

XVI. PAY AND TIME OFF:

Successful graduate education in the sciences does not begin and end with the usual academic calendar, but rather is a full-time occupation. Reasonable vacation periods are certainly appropriate, but long or repeated absences are generally not permitted. Vacations or any other planned absences should be discussed in advance with the individual in whose laboratory a student is rotating or working.

Kirschstein-NRSA trainees and fellows are eligible for other types of leave (vacations and holidays, sick leave, parental leave). Please refer to NIH Parental Leave Policy for NRSAAs <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-18-154.html>

Currently enrolled University of Iowa Ph.D. students with a 25% or more appointment employed as:

- Teaching Assistants (FT19)
- Research Assistants (FR19-01, FR19-02)
- Graduate students appointed on federal training grants or federal fellowships

a. Paid Leaves

Ph.D. students are entitled to University-designated holidays and up to (15) working days per fiscal year of absence without pay deduction. All paid leave must be scheduled with the approval of the mentor. Ph.D. students may be absent for the University-designated holidays unless the mentor specifically requires the Ph.D. student to work. At such time, the mentor and the Ph.D. student shall schedule alternate paid time off. Mentors will make an effort to minimize holiday work for Ph.D. students and if they require work on a holiday, shall provide Ph.D. student(s) with no less than thirty (30) days written notice, whenever feasible.

i. University-designated Holidays:

- i. New Year's Day
- ii. Dr. Martin Luther King, Jr.'s Birthday
- iii. Memorial Day
- iv. Independence Day
- v. Labor Day
- vi. Thanksgiving Day
- vii. Friday after Thanksgiving Day
- viii. Christmas Day
- ix. A day before or after Christmas Day

Monday will be recognized as a holiday for all holidays occurring on a Sunday and Friday for all holidays occurring on a Saturday.

Any further paid leave should have the additional approval of the DEO/Director, which may be granted without financial support.

ii. Sick Leave

Ph.D. students may be absent due to illness without loss of pay not to exceed (18) days during a twelve-month appointment.

If a Ph.D. student has exhausted paid sick leave due to illness, they may request an unpaid leave of absence which will be granted at the sole discretion of the Program and mentor, and subject to any relevant policies of the Graduate College.

- iii. **Family Illness Leave**
PhD students may use available sick leave for care of and necessary attention to ill or injured members of the immediate family or for parental leave including birth and adoption.
- iv. **Bereavement Leave**
Ph.D. students may use available sick leave for three (3) workdays when a death occurs in the employee's immediate family.

Ph.D. programs may grant additional paid leave - such leave may be granted provided the Program and mentor determine that the Ph.D. student is able to meet the time and effort obligations reflected in the percentage of appointment over the full term of the student's appointment.

b. Unpaid Leave of Absence

A Ph.D. student may be granted an unpaid leave of absence during the term of their appointment, upon request to and at the sole discretion of the Program and mentor.

The Program and mentor shall authorize leave requests in accordance with the provisions of the Family and Medical Leave Act of 1993 for qualifying individuals.

c. Summer Registration and Tax Information

Graduate students in the Program normally do not register for summer term. There are four exceptions to this: (1) Some first-year students who may take courses during their first summer; (2) Students taking the Comprehensive Exam during the summer term; (3) Students who are defending their PhD during the summer term; and (4) Students who have a summer fellowship (e.g., from the Graduate College). Outside of these exceptions, students will not register for the summer. (This policy is broadly in effect for all of the biomedical science advanced degree programs at the University of Iowa.)

Students should be aware that a tightening of IRS regulations has led to FICA withholding for summer stipend checks for students not registered for the summer term. This can amount to an income loss of about \$300, depending on the student's particular circumstances.

For students who are on a training grant fellowship (e.g., T32), it is recommended that the W-4 is changed to withhold taxes from paychecks each month for both federal and state. This will eliminate paying estimated taxes quarterly, and/or associated penalties.

XVII. Scientific Ethics: Guidelines and Other Resources

a. Policy on Authorship of Publications

- i. To merit authorship, an individual should:
- ii. Contribute significant ideas and experimental design to the project,
- iii. Take part in the actual experimentation and data analysis,

- iv. Be able to present and defend the work at a scientific meeting. (Exceptions may be made when one author has carried out a unique, sophisticated study or analysis.)

Students should also read "Ethical Obligations of Authors" in *Accounts of Chemical Research* 18(12), pp. 356-57 (1985).

b. Scientific Misconduct

The U.S. Public Health Service has a formal policy dealing with misconduct. It is described in a special [July 19, 1985, issue of the NIH Guide to Grants and Contracts](#). At the very least we must respect this statement. It says in part:

It is the policy of the PHS to maintain high ethical standards in research and to investigate and resolve promptly and fairly all instances of alleged or apparent misconduct.

As defined by the policy, "misconduct" is: (1) Serious deviation from accepted practices in carrying out research or in reporting the results of research. This includes fabrication, falsification, or plagiarism of data. (2) Other examples include material failure to comply with Federal requirements affecting specific aspects of the conduct of research; e.g. the protection of human subjects and the welfare of laboratory animals.

Misconduct does not include errors of judgment, errors in the recording, selection, or analysis of data or differences in opinions involved in the interpretation of data.

Scientific misconduct is grounds for immediate dismissal from the Immunology Ph.D. Program.

c. Academic Misconduct

Any form of cheating or plagiarism in respect to curricular requirements is grounds for dismissal. Plagiarism is taking another's ideas, words, or creative works and presenting them as your own, or presenting them without proper attribution (giving credit to the original source).

XVIII. Sexual Harassment

The University of Iowa has clearly stated guidelines and regulations pertaining to sexual harassment. A copy of these rules is available from the Graduate College, <https://www.grad.uiowa.edu/faculty-staff/policies/sexual-harassment-policy> and the University of Iowa Operations Manual, <https://opsmanual.uiowa.edu/community-policies/sexual-harassment>.

XIV. Counseling Resources

The University of Iowa, Graduate College, and Immunology Graduate Program take mental health seriously. University Counseling Services offers a wide variety of confidential services. To make an appointment and find additional information about Counseling Services Resources on campus, visit <https://counseling.uiowa.edu/> or call 335-7294.

XX. Office of the Ombudsperson

The Office of the Ombudsperson provides conflict management and problem solving to the entire campus community. Their services are confidential, neutral, informal, and independent. Appointments are suggested and can be scheduled by phone or by email, ombudsperson@uiowa.edu. Detailed information is available on their website: <https://uiowa.edu/ombuds/>.

The Immunology PhD Program is committed to equal opportunity and diversity.

The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, creed, color, religion, national origin, age, sex, pregnancy, disability, genetic information, status as a U.S. veteran, service in the U.S. military, sexual orientation, gender identity, associational preferences, or any other classification that deprives the person of consideration as an individual. The university also affirms its commitment to providing equal opportunities and equal access to university facilities. For additional information on nondiscrimination policies, contact the Office of Equal Opportunity and Diversity by email, diversity@uiowa.edu. Additional information can be found on their website <https://diversity.uiowa.edu/eod>