



IMMUNOLOGY GRADUATE PROGRAM HANDBOOK

UNIVERSITY OF COLORADO AMC
NATIONAL JEWISH HEALTH

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This handbook, which includes parts of the UCD-AMC Graduate School Rules, does not constitute a contract with the University of Colorado Denver, Anschutz Medical Campus Graduate School, or the Graduate Program in Immunology either expressed or implied. The Graduate Program in Immunology reserves the right at any time to change, delete, or add to any of the provisions at its sole discretion. Furthermore, the provisions of this document are designed by the Graduate Program in Immunology to serve as firm guidelines rather than absolute rules, and exceptions may be made on the basis of extenuating circumstances.

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INTRODUCTION

Welcome to the Graduate Program in Immunology at the University of Colorado Anschutz Medical Campus. This handbook provides information about the Immunology Graduate Program and is designed to complement the University of Colorado Denver | Anschutz Medical Campus Graduate School Student Handbook. Please refer to your Graduate School Handbook for specific Graduate School policies and procedures.

The material contained within this handbook is as current as possible and describes Immunology Program specific policies and procedures that **supersede** those in the Graduate School Student Handbook. Please be aware that our program continues to evolve and specific policies may be altered, thus, this material may not always be current.

This handbook, which includes policies and procedures for the Immunology Graduate Program, is provided to serve as firm guidelines rather than absolute rules, and exceptions may be made on the basis of an extenuating circumstance. Thus, the handbook does not constitute a contract with the Immunology Graduate Program, the Department of Immunology & Microbiology, or the University of Colorado Denver | AMC Graduate School, either expressed or implied. The Immunology Graduate Program reserves the right at any time to change, delete, or add to any of the provisions at its discretion. Any exceptions to the departmental policies contained herein require approval by the Director of the Graduate Program. Additional information can be found at the departmental website: <http://www.ucdenver.edu/immunology>.

The Graduate Student Handbook by the University of Colorado Denver | Anschutz Medical Campus Graduate School can be found at www.ucdenver.edu/academics/colleges/Graduate-School/Pages/default.aspx.

The Graduate School Course Book by the University of Colorado Anschutz Medical Campus can be found at <http://www.ucdenver.edu/anschutz/studentresources/Registrar/CourseListings/Pages/default.aspx>.

Students are responsible for knowing the procedures, policies and requirements outlined in all these publications.

CALL THE PROGRAM OFFICE (Caro Henauw, Immunology Program Administrator - 303-724-3350) WITH ANY QUESTIONS.

GENERAL INFORMATION

Graduate School Orientation

Before the first day of class, a student should attend the University of Colorado Anschutz Medical Campus Graduate School Orientation. This orientation is mandatory and will provide you with valuable information regarding student insurance, research ethics and animal facility training.

In-state Residency Status

New students from out of state must immediately upon arrival in Colorado obtain documentation to support the petition for In-state Residency. This is a very important priority for first year students. After the first full year, funding will be available (assuming satisfactory academic progress) only if the student qualifies as an in-state resident or is a foreign national. The documents that must be obtained include local checking account, driver's license or State ID, and voter's registration, as well as proof of Colorado domicile. Further information will be provided during the Program Orientation and Graduate School Orientation and is also available at the Graduate School website.

Checking Account

It is important to establish a checking account as soon as possible. The University issues all pay checks, including student stipends, as automatic direct deposits. Students should be sure they have a void check or savings account deposit slip available when filling out payroll forms. Students are also required to produce a Social Security card for payroll purposes.

UCD Identification Card and After Hours Access

Everyone on campus must carry a UCD picture ID at all times. This ID serves many purposes including enabling students to access the library, obtain parking, gain access to the laboratory sections of the Department, after-hours entry into RC-1, after-hours access to the elevators, and to attend special University functions. Please notify the Department Administrator immediately if your UCD ID is lost so it can be canceled and replaced.

E-mail Access and IT Services

Graduate students will have an account in the electronic mail/internet access system by contacting the University of Colorado IT Services- 4-HELP (4357). You will need to know both your nine-digit Student Identification Number and your four-digit Personal Identification Number (PIN) to obtain an account in the system. If you do not know your PIN, you may obtain it at the UCD-AMC Registrar's Office by going there in person with a picture ID. Note that these are university accounts and cannot be used for political lobbying, downloading music files, etc. University IT Services is also available to assist you with your IT/Helpdesk needs. Please refer to the following website for more information regarding their services and protocol-

<http://www.ucdenver.edu/about/departments/ITS/Pages/OIT%20Home.aspx>

<https://www.nationaljewish.org/professionals/research/support/library/Overview>

Most communications from the Immunology Graduate Program will be via e-mail; all Immunology Graduate Program graduate students are expected to have e-mail access. Notifications regarding program requirements and events will be sent to all students' University of Colorado email addresses ending in @ucdenver.edu.

Keys

The Department Administrator will issue keys for office doors. Entrance to animal and BSL-3 facilities requires modification of your ID card. There is a substantial charge for lost keys.

Use of Laboratory Equipment

The Department of Immunology & Microbiology has made a sizeable investment in state-of-the-art equipment to support its research programs. Expert users for each piece of equipment are designated to teach new users how to get the most benefit from the equipment and how to properly use it. All users must observe equipment guidelines and sign up in the logbooks. This keeps the equipment available for everyone. Access to equipment will be restricted for anyone who abuses the equipment.

Computers

The Department of Immunology & Microbiology has invested in computers for the students and other research personnel. Individual laboratories all have computers that are accessible to students. The computer graphics room has common use computers for special purposes. Because these are common use computers, everyone is asked to keep their own data on flash drives and not on the hard drives. It is especially important to prevent virus problems and to maintain free space on the hard drive that no extra programs may be installed on these common use computers.

Computer Programs

The Department Administrator can help students set up remote access accounts for their home computers. In addition, UCD has site licenses for several programs such as Microsoft Office, and virus protection programs that can be downloaded onto student computers without charge. This will allow compatibility between computers at work and at home. All computers connected to the UCD network are required to run approved, up-to-date virus protection software.

Immunology & Microbiology Library

The Immunology and Microbiology Department Library contains books and journals that are provided by various faculty members. Journals and books may be removed from the library for photocopying only, and should be promptly replaced. Requests for new books should be directed to the Graduate Program Director.

In addition, many faculty members have other books as well as current issues of journals in their labs or offices. The Health Sciences Library purchases many online journal subscriptions that can be easily accessed on campus via <http://hslibrary.ucdenver.edu>.

Parking

Many parking options are available to students at the Anschutz Medical Campus and your first stop will be the Parking Office in Building 500 if you are interested in any parking on campus. You can learn more about student parking on the parking office's website, but for convenience, we've summarized some key options here as well.

Standard student parking is \$38 per month (accurate as of July 2017) and gains you access to any gated lot 24/7.

- If you primarily take alternative forms of transportation to campus (walk, bike, transit, etc.), consider adding the "Evenings and Weekends" option to your badge. This option allows you

to park for free in any gated lot from 6 pm to 6 am on weekdays and 6 pm on Friday to 6 am on Monday (24 hours) through the weekend. This option can be combined with the “Rock Lot” pass as well. You will have to pay a one-time activation fee of \$10 to have this feature added to your badge.

- If you only drive to campus occasionally, you may find the public lots to be an affordable option. Parking is \$1 per hour or \$5 for the day (ending at 6 am the next day). Some of these lots are very close to education and laboratory buildings, which can be convenient.

At NJH student parking is free within designated NJH parking lots but require an NJH ID badge for entry. Additionally, NJH provides free parking passes for NJH faculty, staff and students with official business at AMC. Passes can be obtained from the Department of Biomedical Research administrative staff in Goodman K521 and after signing out.

PROGRAM REQUIREMENTS AND CURRICULUM

Coursework and Registration

Registering for Classes

<http://www.ucdenver.edu/anschutz/studentresources/Registrar/RegisterForClasses/Pages/default.aspx>

First year students. A rotation lab must be chosen before registering for classes. New students are encouraged to discuss potential rotation labs with the Director or Associate Director of the program.

Second year students. Prior to registering for Fall semester the Preliminary Examination must be passed, a thesis laboratory chosen and continuation approved by the Graduate Program Steering Committee. Prior to registering for Summer semester a Thesis Advisory Committee meeting must be held and the Comprehensive Exam passed.

Third year students and beyond. Students must be current with Thesis Advisory Committee meetings prior to registering each semester. (Thesis Committee meetings for students in the 3rd year and beyond must be held **every six months** unless another time frame is specified by their Committee Chair.)

Courses

The Program Curriculum and Graduation requirements are 30 semester credit hours of coursework and 30 semester credit hours of thesis credits. All required course work should be completed before the end of the second year. Changes in the overall structure of the program may occur. This summary reflects the current requirements.

To register, please click on the link below using your university credentials and navigate to the registration page. <https://portal.prod.cu.edu/UCDAccessFedAuthLogin.html> The UCDAccess provides How To instructions inside the Portal.

For questions, please contact: <http://www.ucdenver.edu/about-us/contact/Pages/default.aspx>

Required Courses

Year 1			
COURSE	CREDITS	SEMESTER	TITLE
IDPT 7806	6	FALL	Foundations in Biomedical Sciences
IDPT 7810	2	FALL	Core Topics in Biomedical Sciences – Topics A
IDPT 7810	2	FALL	Core Topics in Biomedical Sciences – Topics B
IMMU 7650 (001)	1	FALL	Research in Immunology (lab rotation)
IMMU 7650 (002)	1	FALL	Research in Immunology (lab rotation)
IMMU 7650 (001)	1	SPRING	Research in Immunology (lab rotation)
IMMU 7662	6	SPRING	Immunology
IMMU 8990	1	SUMMER	Doctoral Thesis

Year 2			
COURSE	CREDITS	SEMESTER	TITLE
IMMU 7607	1	FALL	Science as a Profession (including ethics)
IMMU 7602	1	FALL	Special Topics in Tumor Immunology
BIOS 6606	3	FALL	Statistics for the Basic Sciences
IMMU ??? (TBD)	1	SPRING	Scientific Writing Workshop
IMMU 7603	1	SPRING	Special Topics in Clinical Immunology
IMMU 7604	1	SPRING	Special Topics in Signal Transduction
IMMU 7650 (oV3)	3	FALL/SPRING	Research in Immunology (lab evaluation)
IMMU 8990	1 (or 5 if defending)	SUMMER	Doctoral thesis

Elective Courses

The courses in this group may change from year to year. Students completing the required courses will have accumulated the necessary 30 semester hours of course work and will not need to complete additional course work. However, the following list of electives are available but must be approved by the thesis advisor and should be approved by the written permission of the Graduate Program Steering Committee.

COURSE	CREDITS	SEMESTER	TITLE
STBB 7631	1.5	FALL	Molecular Structure A (NMR)
STBB 7632	1.5	FALL	Molecular Structure B (X-ray crystallography)
IDPT 7200	2	SPRING	Scientific Writing for Biomedical Ph.D. Students
IDPT 7646	3	FALL	Tissue Biology and Disease Mechanisms
MICB 7701	3	SPRING	Molecular Virology and Pathogenesis
MICB 7703	2	SPRING	Molecular Mechanisms of Bacterial Disease
NRSC 7600	3	FALL	Cellular and Molecular Neurobiology
NRSC 7615	3	SPRING	Developmental Neurobiology
PHCL 7606	3	SPRING	Receptors and Cell Signaling
PHCL 7611/CPBS 7711	4	SPRING	Bioinformatics I
PHSC 7530	2	SPRING	Cancer: Experimental and Medical Aspects

Doctoral Thesis Credits

Year 3 and beyond			
COURSE	CREDITS	SEMESTER	TITLE
IMMU 8990	5	FALL/SPRING	Doctoral thesis
IMMU 8990	1	SUMMER	Doctoral thesis

All students must be continually registered for 5 thesis credits upon completion of the Comprehensive exam except during the summer semester when students should register for 1 credit hour of IMMU 8990. Continuous registration is considered to be Fall and Spring semesters each academic year, beginning with the Summer semester. Non-registration for two consecutive semesters is not allowed.

****Students transferring to Immunology from the Biomedical Sciences (BSP) or Medical Scientist Training (MSTP) programs may have different credit/course requirements. Applications for transfer will be evaluated based on thesis lab availability, transcripts, and performance on the preliminary exam and in rotation labs. It is important to understand that transfer from either program into the Immunology program depends on an Immunology faculty member agreeing to accept the student into her/his lab for their thesis work.**

****Students may request to transfer credit of previous graduate work into the Program, upon satisfactory completion of at least one semester in Graduate School at the UC AMC as a regular degree student. Grades in the courses requested for transfer must be no lower than B. Please contact the Department Office for additional requirements/policies. The Graduate Program Committee will not consider transfer of credit for the required core Immunology sequence.**

Laboratory Rotations

Students must complete three rotations in different Immunology faculty laboratories within the first year (Fall through Summer). Each rotation is typically 1 credit hour and your work in this rotation is evaluated and graded. To arrange a rotation, each student should discuss potential projects first with the prospective advisor(s) and the student and advisor should come to a mutual decision.

Students must inform Caro Hanauw (Program Administrator) of the lab in which rotations will be conducted at the beginning of each semester as part of the registration process.

Because these rotations are the primary means for each student to become acquainted with the range of techniques, scientific interests, administrative styles, and personalities of each lab, the selection of a rotation lab each semester should be a systematic process. Another major goal of the rotation is to enable a student to select their thesis lab. Therefore, a student may only perform rotations with faculty who have appointments in the UC AMC Graduate School[†]. Rotations with faculty who are not members of the Immunology Graduate Program must be approved by the program director. ***Students are strongly encouraged to seek the advice of the Program Director (Raul Torres) or Associate Director (Ross Kedl) and other faculty members when considering potential laboratory rotations.***

The other purpose of the rotation is so that faculty can assess and gauge the student's ability, engagement and enthusiasm for research. Thus, these rotations provide information to the faculty and enabling them to determine whether they would accept the student into their laboratory for thesis work. NOTE: IT IS THE STUDENT'S RESPONSIBILITY TO PERFORM WELL DURING THESE ROTATIONS SO THAT THEY CAN NOT ONLY IDENTIFY LABORATORIES THAT THEY ARE INTERESTED IN, BUT ALSO IMPRESS FACULTY SUFFICIENTLY SO THAT THE FACULTY MEMBER IS WILLING TO SERVE AS THEIR MENTOR. ***IT IS THE STUDENT'S RESPONSIBILITY TO FIND A THESIS LAB AND FACULTY ADVISOR.*** At the completion of each rotation, each student is expected to present a short talk in

their respective lab meeting, summarizing the experimental problem addressed, the techniques used to approach it, and data obtained during the rotation. The rotation advisor must complete an online evaluation of the student's performance after the rotation and should discuss the evaluation with the student. The evaluation will be saved online as part of the student's academic record.

† For a current list of faculty with Graduate School appointments please visit:
www.ucdenver.edu/academics/colleges/Graduate-School/current/Pages/amc-faculty.aspx

Preliminary Exams

At the end of the first year of coursework, students take a preliminary exam that has two components that cover the material in the IDPT Core course and Immunology (IMMU 7662) course.

Core Preliminary Exam

The Immunology Program Steering Committee administers the Core course prelim exam as well as the immunology prelim exam. The core course prelim will be a one day take home exam, provided at 9 AM and required back by 4 PM on the day of examination. The content and format of the exam is subject to change year to year, but will focus on examining the student on the concepts and information learned during the first semester of the interdepartmental core course.

Immunology Preliminary Exam

An immunology preliminary exam is also taken at the end of the first year in the program. The purpose of this exam is to test a broad understanding of immunology and immunological concepts derived primarily from the graduate immunology course, IMMU 7662.

1. Students must complete all of the required first year courses prior to taking the preliminary exam.
2. The Immunology preliminary exam will be given early-mid June and will consist of approximately 40 short-answer (~2-3 sentence) questions on topics in basic immunology covered by the Immunology graduate course. A 4-hour exam is anticipated, but the time limit will be left to the discretion of the preliminary exam committee.
3. Late exams will be granted only in cases of dire emergency! Students will be informed of the test date approximately two months in advance, to minimize conflicts.
4. The questions will be selected by members of the Graduate Program Steering committee. The test questions will be written by Immunology faculty members and each question writer will be asked to provide the answers to his/her own questions. Tests will be graded by members of the Graduate Program Steering committee and grading will be blinded with respect to the test taker.
5. The exam will be given in a classroom, and will be overseen by a test administrator, who will remain in the room while the students complete their exams.
6. The exam will be closed-book and closed-notes.
7. The test administrator will distribute the completed exams, collate them when graded, and calculate overall scores. Exam results should be available within about 2 weeks following the exam.

8. Students failing the preliminary exam are subject to dismissal but will typically be asked to take a second special exam, by the end of August.
9. Students are expected to prepare for the exam by reviewing course notes, textbooks, and course-assigned reading. No reading lists or outlines will be prepared as studying guidelines. In general, all areas of basic immunology could be included, even if some of these were covered only cursorily in the graduate immunology course.

Application to Candidacy

Completing the required courses for the program does not automatically admit a student to candidacy for the degree. Each student must complete the *Application for Admission to Candidacy* form (available to download from the Graduate School website under Student Resources). This application for candidacy must be completed, reviewed and signed by the Program Director (Raul Torres) and approved by the Graduate School **prior to scheduling of the Comprehensive Examination**. This application requires a clear listing of the courses completed and that fulfill the requirement for 30 graded credit hours (see below).

Once the Graduate School approves candidacy, the student will be sent notification by mail at the address the student lists on the *Application*. If the completed form is received in the departmental office 3 weeks prior to the exam, the staff will make sure that it is properly reviewed, signed and submitted to the graduate school. To apply for candidacy, students must have completed, or be currently registered to complete, 30 semester hours of course work. For Immunology Program students, this means that an application to candidacy can only be submitted *after* registering for the Spring semester Special Topics courses (IMMU 7603, 7604). Again, **a student should have completed (or have registered for) all required courses prior to admission to candidacy.**

Please refer to the Graduate School Handbook for specific details for application to candidacy or click on the link provided here. <http://www.ucdenver.edu/academics/colleges/Graduate-School/student-services/academic-resources/Pages/PhDEdDResources.aspx>

Comprehensive Exams

General Information

Purpose

- A formal exam of the student by the program to ensure that there are no concerns that would preclude the student from formal admission to candidacy for a Ph.D. at the University of Colorado. After successful completion of the comprehensive exam, the student focuses on the laboratory component of their thesis research.
- A "teaching exercise" that exposes the student to the process of writing an "NIH-style" proposal.

Other Information

As this is a formal UC exam the student must be registered for the semester in which they take the exam.

The student must complete necessary paperwork through the Graduate School a MINIMUM of 2 WEEKS before the exam.

<http://www.ucdenver.edu/academics/colleges/Graduate-School/student-services/academic-resources/Pages/PhDEdDResources.aspx>

The exam committee for each student will be established by the Associate Director (Ross Kedl) of the Immunology Graduate Program. The composition of each committee will be assembled by the Associate Graduate Program Director for Immunology (Ross Kedl, Ph.D.) and approved by the program steering committee. This committee will include a chair (Ross Kedl, Ph.D.) and four additional Immunology Graduate Program faculty that hold current appointments in the UC AMC Graduate School. The composition of the committees will be derived from a limited pool of participants such that any given exam committee will share at least 3 members with at least 4 other exam committees. In addition, at least one member of the student's thesis advisory committee will be a member of their examining committee and with the intent that this faculty can relay the outcome, strengths and weaknesses of the student to the thesis advisory committee. Furthermore, all examinations will be given in the same 2 week period in mid-May of the student's second year. The composition of the committees and the unified time frame for examination are implemented in order to provide continuity and equity for the students throughout the examination process. The thesis advisor cannot serve as a member of the exam committee although is strongly encouraged and expected to attend the exam as a strict observer.

Timeline for Completion

1. The subject of the comprehensive exam will be a grant proposal (R21 format <http://grants.nih.gov/grants/guide/pa-files/PA-10-069.html>) written by the student on the topic of their thesis.
2. By the first week of January of the students second year, a comprehensive exam committee chair will be assigned for each student. The student is to restrict their communication about the writing of their proposal to their committee chair and are not to engage the assistance or input of their advisor or lab members in the writing of the proposal.
3. By February, the student will be assigned the remaining members of their exam committee.
4. The student should meet as soon as possible with the Comprehensive exam chairperson to decide upon a timetable for submission of the first draft (and subsequent drafts) to the chairperson. This should be done in a timely fashion so that the chair has adequate time to provide feedback on the multiple drafts such that the completed proposal can be submitted on time.
5. The completed proposals must be submitted 2 weeks before the first scheduled exam date. This will usually be by the 1st of May. Failure to submit the proposal in a timely fashion may result in a fail.
6. The formal defense of the proposal will occur before the end of May.
7. Students must email the finished exam to the Graduate Program Director and the Graduate Program administrator before 5 PM on the day of the submission deadline.

Proposals

Comprehensive Exam Topic

The comprehensive oral examination will be centered on the student's thesis research and it is anticipated that this will facilitate using the comprehensive exam as a basis for applying for external funding. One of the potential complications of this format is that any student's thesis work is a complex compilation of the student's mentor's, and even thesis committee's ideas and hypotheses. These factors complicate the evaluation of the originality of the proposal and to what degree the proposed research plan is the result of the student's ideas or those of their advisor/committee. The steering committee has acknowledged this as a hazard of the chosen format and, while no strict policing of this will be performed, all students are encouraged to work as independently as possible on both the formulation and the writing of the thesis (comps) proposal.

Preparation of the Proposal

1. The student will work with their chairperson in preparing the written portion of the comprehensive exam. The chairperson will offer suggestions about the structure of the proposal, the material covered in the Background and Significance, the feasibility and design of experiments, etc. The chair may also offer input as to the grammar and sentence construction should they feel so inclined.
2. The general format is that prescribed for an NIH R21 application. Students may read proposals from previous students however they should be aware that they must follow the format prescribed by the program for the current year.
3. Students may get advice on techniques from others, but besides the chairperson no one should read the proposal without the recommendation and approval of the chairperson.
4. Any issues that arise should be discussed and resolved with the chairperson.

Format and Structure

1. The particular format and page guidelines may change from year to year. As of 2016, the format mandates that the written document is a MAXIMUM 7 pages (single spaced, 11 pt, Arial font, 0.5 inch margins), one page for Specific Aims and 6 for the remainder. The reference list is excluded from this page calculation.
2. The written document should include a one page Specific Aims page followed by 6 pages of "**Research Strategy**" that include the following 3 sections: 1. Significance, 2. Innovation, 3. Approach. More detailed information about the expected content of each of these sections can be found in the "PHS 398" instructions for grant applications to the National Institutes of Health. A pdf of these instructions can be found at the NIH website (<http://grants.nih.gov/grants/funding/phs398/phs398.html>).
3. Appearance and legibility are very important. Incorporation of figures is also very useful.
4. The Specific Aims section should include a testable hypothesis, based on experimental evidence. The specific aims are the approaches that you will adopt to address the general hypothesis. An Aim is not necessarily a single experiment, but is often a series of experiments designed to accomplish one goal. Similar to R21 applications, comprehensive exam proposals typically present experiments in 2 specific aims that can be accomplished in 2 years.

5. In the "**Significance**" section you should answer the question of why this research is important. This is a very important component of the proposal as you are trying to convince the reader that they would want to know the answer to your experiments (for example they would actually want to read the paper(s) when this work is published). The PHS 398 instructions include:
 - Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
 - Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
 - Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.
6. The "**Innovation**" section should describe why specifically your proposed experiments are important for the question being addressed. The PHS 398 instructions include:
 - Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
 - Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s).
 - Explain any refinements, improvements, or new applications of theoretical.
7. **Approach.** It is recommended that you write out the experiments you propose for each specific aim one-by-one, and for each aim, include a section that covers the following:

Rationale. Why is this a logical experiment to do? Why is the approach that you have selected the best way of approaching the experiment? This may also include a discussion of your interpretations of conflicting data in the literature, or could include very specific data not given in the background section.

Experimental Design - define exactly what experiments you would do. You may include methods here or list them after. The experimental details should be very clear: for example how many mice will you inject and at what age? Male and female? If not, why? What will you inject? When will you sacrifice the mice and analyze them? What will you assay for? Describing methods with which most investigators in the field would be expected to be familiar with is not necessary or desirable, but the specifics should be addressed. For instance, if you're doing a Southern blot, what is your probe? What restriction enzymes will you use? How will you interpret your results? Or, if you're doing flow cytometry, what antibodies will you use? How will they be labeled?, etc. If appropriate you should define what statistical analysis you would perform on the data?

It is extremely important that the proposed experiments be realistic and feasible. Many experimental ideas are great in theory, but once the experimental details are described potential limitations become evident.

Interpretations and Limitations. What will the data look like if your hypothesis is correct? How would interpret alternate outcomes? How would you interpret partial phenotypes (e.g. results that are 50% of wildtype levels). What things might be expected to go wrong? Have

you made any assumptions that could turn out to be pitfalls? What will you do if this happens? Can any of this be avoided? Note - in the past, some students have designed specific aims that were mutually dependent, e.g. Aim 2 could not be undertaken if Aim 1 did not turn out as expected. This should not be! Mutually dependent experiments within an aim are okay, but you must point out that this is the case, and discuss alternatives if the outcome is not what you expect it to be.

Examination

1. The Associate Program Director will schedule the date, time and the room for the exam, and inform the student. It is the student's responsibility to complete the paperwork with the graduate school, and to arrange any audio-visual equipment.
2. All members of the committee must be present for the examination. One member, but not the chairperson or the student, may participate by interactive video. Although the mentor is not required to be present, the program encourages the mentor to attend so that they may gain insight into the "strengths and weaknesses" of their student. Only the exam committee, the student and the mentor(s) are allowed to attend any part of this exam. Any exception to this must be approved by ALL members of the committee.
3. The chairperson will bring the student's file to the exam. The format of the exam is the following:
 - The student and the mentor (if present) are asked to leave the room and the chairperson will present to the committee a synopsis of the student's credentials (i.e., their undergraduate record, interviews, rotation evaluations, performance in the core class and the Immunology courses, preliminary exams etc.). If any member of the committee has any concerns about the student's academic performance they should be raised at this time. Similarly, the committee may discuss issues with the written document at this time. This discussion is typically brief (5 minutes or less). If the committee considers it appropriate, the mentor may be invited back into the room without the student for further discussion and/or consultation.
 - After such issues are discussed, the student is invited back to the room and gives a brief presentation outlining the thesis proposal. THIS SHOULD BE A MAXIMUM OF 12 MINUTES. Suggestions for this presentation could include: 1-2 slides of background, 1 slide of significance followed by (perhaps) 4 slides for each experimental Aim that outlines the rationale for the Aim, experimental approach, possible data obtained (e.g., in a Table with + or - for expected results) and limitations of the approach.
 - Each member of the committee will then ask the student questions about the presented material. The questions should primarily focus on the proposal (rationale, significance, experimental design and interpretation of data), however the student should also be prepared to answer questions relating to background material.
 - After each member of the committee has asked any questions that they may have (together with the student's presentation, the whole exam typically lasts 2–2.5 hours), the student and the mentor are asked to leave the room and to remain outside the exam room while the committee discusses the student's performance. If the committee considers it useful they may ask the mentor to return to offer additional insight about the student.

- After the committee reaches its decision about the outcome of the exam (Pass, Fail or Pass with conditions) the student and mentor are invited back into the room and advised of this decision. The examination form is signed by the committee and returned to the Graduate School Office. If a student passes the examination with conditions, those conditions must be stated on the examination form and satisfied within two months (60 days). The committee chair is responsible for monitoring the conditions and reporting their outcome to the Graduate School. Failure to satisfy these conditions will result in failure of the examination.
4. A failed examination is discussed by the Immunology Program Steering Committee and is based on the oral defense of the student's proposal and a written summary of the exam by the chair. Thus, the outcome of this meeting will be determined on a case-by-case basis. A student who fails the examination is subject to immediate dismissal from the Graduate School upon the recommendation of the program and concurrence of the Dean. However, at the discretion of the Immunology Program Steering Committee and the recommendation of the comprehensive exam committee, a student who fails the examination may retake it once. The retake will be in the form designated by the Immunology Program Steering Committee and must be completed within three months. The original examination form noting the failure is signed by the committee and returned to the Graduate School office. New examination forms will be generated when the examination is rescheduled. Students will be required to meet registration requirements and be registered during the term in which the repeated exam is taken.
 5. The committee is encouraged to provide written feedback to the student regarding the written proposal, the presentation and their performance in answering questions. This can be done by email communications coordinated by the chairperson. If this is done, a copy should be sent to the program administrator for inclusion into the student's file.

Thesis

Students must register for thesis credits in the semester following successful completion of the Comprehensive Exam. The student must continue to register for IMMU 8990 (from 1-5 credits) in Fall and Spring semesters each year. For the Summer term, register for 1 credit hour unless you are defending in the Summer semester and then should register for 5 credits regardless of the number of qualifying thesis credits you have accumulated. Registration forms for students other than those in the first year must be signed by Dr. Raul Torres, Program Director. The departmental office will process all forms submitted one week prior to the due date, including obtaining the proper signatures. If your registration form is not received one week prior to the due date, you will be responsible for any late charges incurred and any impact on financial aid. In addition, failure to comply with the registration requirement could result in having to retake the comprehensive exam.

Advisors

Students should select a thesis advisor by the end of the Spring semester of the first year. Thesis advisors are selected by mutual consent of the student and the faculty member. In general, no laboratory should admit more than one thesis student in a given academic year. Exceptions may be granted by the Graduate Program Director.

A student's placement in a thesis lab must be approved by the Program Director. Once a student and faculty member have reached an agreement on a thesis lab, the faculty member should send his/her *curriculum vitae*, including funding information and faculty appointment status, with a short cover letter to the Graduate Program Administrator. The Department office will inform both the student and advisor when the placement is accepted.

Committees

After successful completion of the Core and Immunology Preliminary examinations, the student should choose a thesis advisory committee, in consultation with his/her advisor. This committee composition requires approval of the Immunology Program Steering committee.

1. The thesis advisory committee is composed minimally of a committee chair and four other faculty members, all holding current appointments as faculty in the UCD Graduate School. Furthermore, the majority of this committee (i.e., at least 3) must be comprised of Immunology Program faculty and if the committee has 6 members, then 4 must be Immunology Program faculty.
2. All Committee members must have Graduate Faculty status. If a faculty member does not have Graduate Faculty status, please ask him/her to contact the Program Director for approval. It takes several months for the Graduate School to approve a faculty member for Graduate Faculty status. Should a member not be approved at the time of your defense, your defense could be voided.
3. The student's thesis advisor may not be a voting member of the thesis committee.
4. A list of Immunology Graduate Program training faculty and their primary academic appointments is available for reference on the Graduate School website:
<http://www.ucdenver.edu/academics/colleges/Graduate-School/current/Pages/faculty.aspx>
5. The student must provide the program administrator (Caro Henauw) with the names of his/her Thesis Committee members and have their first committee meeting at least one month prior to scheduled Comprehensive exam in May (see above).

The minimum time between your first committee meeting and your defense is two years.

THESIS ADVISORY COMMITTEE FORMAT AND RESPONSIBILITIES OF THESIS ADVISOR, COMMITTEE CHAIR, COMMITTEE MEMBERS AND STUDENT

Evaluation of Student Progress

Student's progress in the program will be determined by evaluation of:

1. Research productivity
2. Development of ability to independently conceptualize, design, carry out, analyze and present his/her experiments
3. Ability to discuss his/her research area and answer questions about the research and its context
4. Knowledge of the relevant literature

5. The quality of RIP presentation
6. Progress towards creating his/her paper(s)
7. Progress towards a complete body of work that will constitute his/her thesis

If the student's progress is considered unsatisfactory, the committee should issue a warning to the student in which the deficiencies are clearly identified and a time period should be set within which it is expected that the student will correct the deficiencies. A copy of the warning is filed in the student's official program file by the program administrator. At the end of the warning period, the committee and student will meet to assess progress. If on re-evaluation, progress is found to remain unsatisfactory, the committee will draft a recommendation to be reviewed by the steering committee. The Immunology Program Director will inform the student and committee members of the steering committee's decision in writing.

Thesis Advisory Committee Meeting Format

The thesis committee meeting is meant to provide the student, advisor and the Immunology graduate program with an evaluation of student progress and to provide support and recommendations to the student and advisor on the thesis project. This should be carried out in a scientifically critical and rigorous but collaborative manner. Meetings are not intended to be examinations. Ideally, meetings should be a scientific discourse between the student and the thesis advisory committee. The thesis advisor is not expected to participate unless invited or to clarify or to redirect discussion.

During the thesis committee meeting the student is expected to provide experimental findings obtained since the last committee meeting as well as future direction of the project with experiments expected to be accomplished by the next committee meeting. Depending on the student's need and direction the data presented may be preliminary or from other sources (i.e., not from the student, per se). This venue is also meant to provide students an opportunity to hone their scientific communication skills in describing their experiments and interpreting their findings to other scientists.

1. Prior to the **first committee meeting** the student should provide each committee member with a Specific Aims page that provides a specific hypothesis and question that is being addressed with specific aims. Prior to **subsequent committee meetings** the student should provide the thesis committee chair and committee members with a brief summary that includes the following components:
 - a. Overall thesis research goals and hypotheses that incorporate any changes to those goals resulting from previous committee meetings.
 - b. Previous concerns/recommendations of previous thesis committee meeting.
 - c. Accomplishments since last meeting discussing how you have addressed previous recommendations and, if you did not, then why not (i.e., not enough time, took different direction, etc.). Include any new methods/techniques you may have learned, any literature sources or collaborators that were significant.
 - d. How did your results affected your original hypothesis or goals? (confirm, deny, modify).
 - e. Based on the data/results described in (c), state briefly your next steps in elucidating the hypotheses.
2. Each committee meeting should begin with a short discussion with the student in the absence of the mentor, and with the mentor in the absence of the student. In these

discussions both advisor and student are encouraged to provide a candid assessment of the mentorship and how the dissertation project is progressing and whether any issues have surfaced that the committee needs to be aware of.

3. The thesis committee meeting should begin with a slide prepared by the student that discusses career goals and list of activities accomplished in the previous year that relate to these goals. This also serves as an official Individual Development Plan (IDP) discussion for the student and advisor.
4. The student should then present his/her recent research findings to the committee, discuss how these findings impact the thesis work and the future experiments to be performed before the next committee meeting
 - a. It is important the student understands that they should ultimately control these meetings (increasingly so after each meeting). This is best accomplished by having, and presenting, a clear understanding of where he/she is in their thesis project, where the committee (and specific committee members) can be of particular help (direction, technique, approach, etc.) and what are the next goals.
 - b. The student should be aware that any data or experiments that are presented can very easily generate discussion by the committee members that ultimately can take up considerable time. Thus, the presentation of background information and experiments that are not going to be pursued or are not relevant to the thesis direction should be carefully considered.
 - c. The thesis committee chair is responsible for ensuring that the discussions stay pertinent to the thesis topic and that respect is maintained towards both student and faculty.
5. Each committee meeting should end with a discussion amongst committee members (in the absence of student and advisor) on the student's project and progress. The goal of this discussion is to reach a consensus sentiment by the committee on these topics that should be included in the Thesis Committee Report.
6. The Committee chair should then relay the consensus sentiment to both student and thesis advisor immediately following the meeting.
7. *Finally, the student (and faculty committee members) should be cognizant of the dual nature of the responsibilities of faculty committee members: to nurture and promote scientific progress and development during regular committee meetings and, ultimately, the same faculty members are required to rigorously examine the student on their thesis topic and general immunology concepts during the thesis defense.*

Thesis Advisory Committee Chair responsibility

The Thesis Committee Chair has responsibilities above and beyond that of committee members. Thus, **before agreeing to accept the chair, faculty should ensure they have adequate time to give to the student and their thesis project.** Thesis Committee Chair must be a core-training faculty from the Immunology Graduate Program with a Regular appointment in the UC Graduate School faculty.

These responsibilities include:

1. Presides over the meeting of the Thesis Committee, student and advisor. This includes ensuring the discussion stays on topic and that there is mutual professional respect between adult students and faculty.
2. Attends the student's Comprehensive exam (or get a good understanding of how the student did in the exam) to get an understanding of the strengths and weaknesses of the student and project.

3. Complete the online Thesis Committee Report* after each committee meeting, summarizing the discussion and the recommendations of the committee. This report must indicate if progress is satisfactory or unsatisfactory and should be determined after the meeting and as agreed upon by committee members in the absence of the student and advisor. The online report should then be submitted “in collaboration mode” for input from the other committee members, followed by formal submission when this is achieved.
4. Attends the student’s RIP and complete the online evaluation of the presentation*. Note, it is recommended for the RIP evaluation that the committee chair bring paper evaluations to the RIP and distribute them to attending committee members and collect them after the RIP. The comments from all committee members should then be summarized and entered online without the use of “collaboration mode”.
5. Be accessible to the student to discuss issues arising related to the thesis project.
6. Meets at least every 6 months individually with student (in the absence of advisor) to assess lab environment, mentoring, progress (excluding data and actual experiments).
7. Serves as a liaison between the student and thesis advisor and thesis committee should matters of disagreement surface.
8. Preside over the Thesis Defense.

*<http://predocprogress.ucdenver.edu/>

(Online Thesis committee report and RIP evaluation forms are attached below)

Thesis Advisory Committee Member responsibility

A student’s thesis committee serves several important functions in the student’s thesis work and is deserving of appropriate effort and energy by each member. Thus, it is recommended that faculty limit thesis committee membership to 12 committees. Thesis committee members must hold Regular or Special Faculty appointments in the UC Graduate Faculty. By assuming committee membership, you must agree to:

1. Attend an approximate 2-hour thesis committee meeting every six months throughout the student’s thesis work.
2. Provide the student with guidance concerning the research and help redirect the research into productive avenues.
3. Evaluate the student’s progress and ensure that the project is of interest, novel, focused and feasible. The outcome of this work must lead not only to his/her thesis but also to a peer-reviewed publication and the committee must keep this in mind.
4. Attend the student’s mandated Research-in-Progress (RIP) presentations and relay evaluation to the Thesis Committee Chair.
5. Promote the student’s development into a rigorous independent investigator.
6. Provide the student and the mentor with an opportunity to express privately any concerns about the research environment or the progress of the research (see below).
7. Attend student’s thesis defense as a faculty examiner.

Thesis Advisor responsibility

Agreeing to supervise and direct a graduate student and their thesis project carries considerable responsibility that comes with obligations to the student, Immunology graduate program and Graduate School. Thesis advisors must hold a Regular faculty appointment in the UC Graduate School.

The thesis advisor responsibilities include:

1. Provide guidance in the selection of an appropriate thesis research project that addresses an

important biological (immunological) question. Furthermore, you are responsible for directing the student in this research by nurturing independent and critical research and with the clear goal of publishing a manuscript(s) that advances the field.

2. You agree to meet with your student regularly to discuss experimental results, interpretation and direction.
3. Attend the student's Comprehensive exam in May of the first year in the lab. The thesis advisor's attendance is not mandatory but is strongly encouraged to identify the strengths and weaknesses of the student.
4. Together with the student compose the student's thesis advisory thesis committee and identify an appropriate thesis chair.
5. Ensure the student schedules a thesis committee meeting at least every 6 months as required by the Immunology Graduate Program and attend each of these meetings.
6. Attend each of your student's Research-In-Progress presentations.
7. Strongly encouraging your student to attend all departmental and graduate program seminars, RIPs and journal clubs.
8. Reading and approving the student's thesis prior to distributing to the committee members.
9. Provide financial support for the student's stipend and research throughout the thesis work.
10. Coach and encourage your student through the writing and publication process.

Graduate Student responsibility

1. Student is responsible for arranging and scheduling the meeting with the thesis advisory committee **every 6 months** unless both advisor and thesis committee chair have agreed otherwise. This includes arranging a meeting place, contacting committee members.
2. Student is responsible for informing Caro Henauw (Program Administrator) of the date and time of the scheduled meeting.
3. Prior to the first committee meeting a Specific Aims page should be provided to all committee members. For all subsequent committee meetings, the student should submit a formal write-up of the previous committee meeting to all committee members and as outlined below*; it is the chair's responsibility to read this prior to the meeting.
4. After each committee meeting the student should provide the thesis committee chair with a copy of his/her presentation.
5. Student is expected to notify the thesis committee members sufficiently in advance of scheduled RIP presentations so that they can schedule attendance.
6. Student is responsible for meeting with their thesis chair every 6 months (in the absence of advisor) to discuss lab environment, mentoring, progress, etc. Discussion of data and experiments, while fine, is not the goal of this meeting.
7. **Students must be current with thesis committee meetings and reports to register for classes. Any financial consequence of not registering (including tuition payment) will be the student's responsibility.** (Any exceptions to this, or any other program policy, require approval by the Graduate Program Steering Committee.)

***Student thesis committee write-up to be completed prior to committee meetings**

1. State your overall thesis research goals and hypotheses. Incorporate any changes to those goals resulting from previous committee meetings.
2. What were previous concerns/recommendations of previous thesis committee meeting?
3. What have you accomplished since then? Discuss how you have addressed previous recommendations, if you did not then why not (ie, not time, took different direction, etc). Include any new methods/techniques you may have learned, any literature sources or

collaborators that were significant.

4. How did your results affected your original hypothesis or goals? (confirm, deny, modify).
5. Based on the data/results described in (3), state briefly your next steps in elucidating the hypotheses.

Online **Thesis committee report** form and **RIP evaluation** form to be completed by thesis committee chair: *<http://predocprogress.ucdenver.edu/>

Writing and Defending

The Graduate School requires a specific format to be followed when writing the dissertation and that is provided in a style and policy manual for writing theses and dissertations. You may obtain one of these manuals from the Department or Graduate School Office. In addition, the Graduate School conducts semi-annual seminars on thesis preparation; you are strongly encouraged to attend one of these sessions.

Your thesis must be approved by your (thesis advisor and) Committee Chair *before* you schedule a defense date. The manuscript must be publication-quality, i.e., in final form except for printing on quality paper; words must be spelled correctly, figures and tables must be labeled correctly, the manuscript must be readable, Graduate School format must be followed, the Table of Contents must be completed, Bibliography included and appropriately annotated, etc. Examples of what is unacceptable include cut and pasted graphs, more than 10 typos, and incomplete references.

As in the Comprehensive Exam Guidelines, the student is responsible for coordinating and scheduling the defense, including preparation and posting of seminar notices. (The office staff can assist you by printing a standard notice, but you must supply the details.)

Arrangements for the thesis defense must be made in the Graduate School Office at least two weeks prior to the scheduled defense. The defense must be given not later than three weeks prior to the date on which the degree is to be conferred. You must be registered for 5 credits of IMMU 8990 at the time of the defense.

Graduation

30 semester hours of graded course work including 8 credit hours of rotations.

30 semester hours of thesis credits.

A "pass" grade for the preliminary and comprehensive examinations.

Completed and approved thesis.

FINANCES

All incoming Graduate Students are offered a financial aid package from the Department that includes an annual stipend of \$30,000 (approved for Academic Year 2017-2018), tuition costs, and payment of individual Student Health insurance and activity fees. Please note that this support covers the period July 1, through June 30, and is dependent upon satisfactory academic progress as defined in the Graduate School and Program policies.

One of the unique aspects of the Immunology Graduate Program at the University of Colorado is that it encompasses the facilities of three outstanding institutions: The School of Medicine, the Barbara Davis Center for Childhood Diabetes and National Jewish Health. However, the geographical diversity also presents unique administrative logistics of which students must be aware. Students are funded from a variety of sources of funds awarded to each institution: NIH Training Grants, Cancer Research Institute Training grant, Howard Hughes Graduate Education Fund, NIH Research Funds, and industrial fellowships, to name just a few. Each source (Federal or Non-Federal, Institutional or Individual) has its own set of guidelines when awarding funds to an institution and, each institution has administrative policies to which it must adhere for the dissemination of those funds. The source of funds and the awarded institution dictate the policies for payment. It is advised that students become familiar with the sources of their support and the guidelines that apply. The Program will make every effort to ensure that students are supported throughout their program. However, students are encouraged to apply for the many alternative sources of individual funding. Check with the Department Office for eligibility requirements and guidelines.

Fees

A \$200 incoming student deposit is required from all graduate students that is refunded after graduation or withdrawal.

Students are now charged \$65 for a background check prior to matriculation and that is paid directly to the Graduate School. An approval form is sent with the acceptance material and should be returned with a check for the background check.

A \$200 refundable matriculation fee is assessed for any student new to the University of Colorado at the time of initial registration. This fee is refunded by way of tuition remission in the first fall and spring semester in the program.

Stipend and Tuition

Stipends

Incoming student stipends are paid monthly on the last working day of the month. The payment schedule of students in subsequent years is dependent upon the source of support funds.

Tuition

Tuition is paid by the Graduate School for first year students and by the student's thesis advisor in subsequent years. Tuition payment is subject to the following limitations:

- **Tuition will be paid only at in-state tuition rates after the first year. Any additional tuition will be the responsibility of the student. Thus, it is imperative that out-of-state students establish in-state residency within the first year as to avoid paying the difference in out-of-state versus in-state tuition (See In-state Residency Status section).** This is not the case for foreign students who do not qualify for in-state residency. For such students, the thesis advisor will be responsible for tuition payments.
- Tuition bills may be obtained through the UCDAccess Portal. When you register, please let the Graduate Program Administrator know. Registration notice will go out from the Registrar. Please make every effort to register before the Add/Drop published deadline. (The student is responsible for any late fees incurred.)
- **Neither the Department nor the Program will pay tuition for retroactive registration (administrative registration done after the completion of a quarter).**

Health Insurance

Student Health insurance is part of the financial package offered to incoming Graduate Students. The Health Insurance invoice is included with your tuition invoice. Information on Student Health Insurance is available at the Health Services Office, 2 - West in the University Hospital (303-315-0800). All medical services are granted through University Hospital. Specifics will be covered regarding insurance during the Graduate School's orientation meeting.

Insurance Waiver

If you are covered by another source of insurance through a spouse/partner, you may request a Waiver of Insurance at the Health Service Office.

Dependent Options

If you have dependents that you wish to include on your Health Insurance, contact the Health Services Office for enrollment information. The student is responsible for any extra charge for each dependent.

All students are required to have an initial health screening. It is best to sign up for this as soon as possible at the Student Health Services. Further information will be provided at the Graduate School Orientation or speak with Jill Collins. <http://www.ucdenver.edu/life/services/student-health/insurance/Pages/default.aspx> (Jill Collins) 303 724 7674.

Travel

A limited amount of funds are designated to assist first year students to attend a meeting or conference. These funds can be used to assist with the costs of accommodations, meals, travel, and registration expenses. Please contact the Graduate School for information about applying for the Hirs Travel Award. Use of these funds must be requested in writing and approved by the Dean. Funding for travel is more likely to be approved if the student has submitted an abstract that has been accepted. Upon approval, the Program Administrator will assist you with your travel arrangements and completing all University required forms.

The University requires pre-authorization prior to all student travel. Please contact the Program or Department Administrator for assistance.

Travel Advances may be issued to cover authorized travel expenses. Travel advances may be issued at a minimum of \$50.00 and a maximum of \$400.

It is important that you retain all pertinent receipts of expenditures. Original itemized receipts showing what was purchased and paid for will be required for reimbursement.

Upon return from your trip, it is important that you report your travel expenses and return any unused portion of your travel advance. The Program Administrator will assist you with preparing the required forms.

VACATION AND LEAVE

GRADUATE SCHOOL POLICY FOR VACATION AND LEAVE FOR PHD CANDIDATES

Graduate School is a privilege; working in the biomedical research/academic field, whether as a graduate student, a postdoctoral fellow, or an independent investigator, is a time-honored and challenging profession that requires a high level of commitment and responsibility. Students who receive full-support stipends from UCD Ph.D. programs are required to pursue their training on a full-time basis, devoting each day of the normal work week, plus any additional time required by their research projects and academic courses. Additionally, for a student to maintain full-time student status, the Graduate School has established the following guidelines for vacation and leave time. These represent the leave to which a graduate student is entitled; however, research demands and commitment to graduate studies often result in students using less than the allotted leave. Individual graduate programs might not have a formalized system for accounting for vacation and sick leave; if so, vacation and leave monitoring falls under the honor system and is the responsibility of the student.

Vacation and Holidays

Graduate students shall receive all University holidays and no more than 14 calendar days (counting all days Monday through Sunday) of vacation per annum, with no year-to-year accrual. Students shall continue to receive stipends during vacations and holidays. In the graduate school at UCD, the times between academic terms and the summers are considered active parts of the training period and are not necessarily free times. However, students taking courses are expected to attend all classes and take all exams as scheduled. They should not take vacations when classes or exams are scheduled. For advanced students, vacation time should be arranged with the dissertation advisor.

Sick Leave and Other Leave

Graduate students may continue to receive stipends for up to 15 calendar days (counting all days Monday through Sunday) of sick leave per annum, with no year-to-year accrual. Under exceptional circumstances, additional sick days may be granted following a written request and approval by the student's program director. Sick leave may be used for the *medical* conditions related to pregnancy and childbirth.

Parental Leave – Graduate students may also receive stipends for up to 30 calendar days (counting all days Monday through Sunday) of parental leave per annum for the adoption or the birth of a child. Either parent is eligible for parental leave. Parental leave must be approved by the student's program director. Sick leave may not be used to supplement parental leave, except as noted above.

Unpaid Leave – Individuals requiring more than 15 calendar days of sick leave or more than 30 calendar days of parental leave, must seek approval from their program for an unpaid leave of absence. Approval for a leave of absence must be requested in advance by the student and approved by the program. The leave period and conditions must be documented, both at the time of leave and at the time of re-entry into the program. A copy of this agreement must be submitted to the Graduate School.

Leave of Absence – Leaves of absence are arranged with and approved by Program Directors. The Graduate School should be informed by the student. A leave of absence may be approved for a maximum of one year. Students who fail to register or submit a Statement of Academic Intent after an absence of one academic year will be withdrawn and required to reapply for admission to the

Graduate School through their program and be considered with all other applicants. A leave of absence does not automatically extend the time limit set forth for graduation. **Doctoral students who have passed their Comprehensive Examination are required to be registered continually for the Fall and Spring semesters. Failure to do so will result in the student being required to retake the Comprehensive Examination or reapply to the Graduate School.** An official leave of absence may modify this registration requirement during the leave period.

Termination – Upon graduation or termination a graduate student forfeits all unused annual and sick leave; payment may not be made from grant funds (training grants or research grants) for leave not taken.

GRADUATE PROGRAM FACULTY

Rafeul Alam, Professor

National Jewish Health – Division of Allergy and Clinical Immunology
Chief, Division of Allergy and Clinical Immunology
Veda H. and Chauncey H. Ritter Chair in Immunology
M.D., Ph.D., Lodz Medical College (Poland)
Research Interest: *Signal transduction mechanism of eosinophils and T cells, and signaling mechanism of asthma*
rafeul.alam@ucdenver.edu

Scott Alper, Assistant Professor

Department of Immunology and Microbiology
National Jewish Health – Department of Biomedical Research
Ph.D., 1996, Harvard College
Research Interest: *Genetic control of TLR signaling pathways*
303-270-2659, scott.alper@ucdenver.edu or alpers@njhealth.org

Willi Born, Professor

National Jewish Health – Department of Biomedical Research
Ph.D., 1982, Albert Ludwigs Universitaet, Freiburg, Germany
Research Interest: *The biology of lymphocytes expressing gamma/delta T cell receptors (gamma/delta T cells)*
303-398-1087, bornw@njhealth.org

John C. Cambier, Distinguished Professor and Chair

Department of Immunology and Microbiology
Ph.D., 1975, University of Iowa
Research Interest: *BCR Antigen Receptor Structure and signaling, MHC Class II signaling, Inhibitory “Checkpoint” Receptor Signaling Molecular basis of B cell anergy, Description of STING/MPYS, a transducer of innate immune signals*
303-724-8663, john.cambier@ucdenver.edu
303-724-8665 Sandy Duran, Assistant to the Chair

Eric Campbell, Assistant Professor

Division of Gastroenterology
Ph.D., 2005, University College Dublin, Ireland
Research Interest: *My laboratory is interested in crosstalk between the colonic epithelium, microbiota and innate immune system during homeostasis and inflammation. Current projects in my group focus on epithelial coordination of monocyte trafficking and polarity and epithelial metabolism modulating microbial niches*
303-724-7248, eric.campbell@ucdenver.edu

Eric Clambey, Assistant Professor

Department of Anesthesiology

Ph.D., 2002, Washington University

Research Interest: *My research focuses on the dynamic interface between the immune system, inflammation and tissue repair. In particular, my lab studies how T cells, pivotal cells of the immune system, influence the balance between health and disease at mucosal surfaces, including the lung and gastrointestinal tract. These studies focus on diverse contexts, ranging from anti-viral to anti-tumor immunity, with an emphasis on immunomodulatory approaches to limit infection and malignancy*

393-724-7783, eric.clambey@ucdenver.edu

J. John Cohen, Professor

Department of Immunology and Microbiology

Barbara Davis Center for Diabetes

Ph.D., McGill University

303-724-3998, john.cohen@ucdenver.edu

Sean P. Colgan, Levine-Kern Professor of Medicine and Immunology

Director of Mucosal Inflammation Program

Vice Chair for Research, Department of Medicine

Division of Gastroenterology

Ph.D., 1991, Colorado State University

Research Interest: *Role of leukocytes, epithelium and hypoxia in inflammatory bowel disease*

303-724-1858, sean.colgan@ucdenver.edu

Dai, Shaodong, Associate Professor

National Jewish Health – Department of Biomedical Research

Ph.D., 1998, Uppsala Biomedical Center, (Sweden)

Research Interest: *Understanding the mechanisms of the metal containing ligands for alpha/beta TCRs from metal reactive human T cells*

303- 398-1504, dais@njhealth.org

Howard W. Davidson, Associate Professor of Pediatric Endocrinology

Barbara Davis Center for Diabetes

Ph.D., 1988, University of Cambridge

Research Interest: *T and B cell responses to type 1 diabetes autoantigens in human and mouse*

303-724-6852, howard.davidson@ucdenver.edu

James DeGregori, Professor

Department of Biochemistry and Molecular Genetics

Ph.D., 1993, Massachusetts Institute of Technology

Research Interest: *Pathways and mechanisms that contribute to leukemia initiation and maintenance*

303-724-3230, james.degregori@ucdenver.edu

Kelly Doran, Professor

Department of Immunology and Microbiology
Ph.D., 1998, University of California San Diego
Research Interest: *Studying host - pathogen interactions in the central nervous system (CNS) and the female reproductive during infection and colonization*
303-724-4224, kelly.doran@ucdenver.edu

Gregory P. Downey, Professor of Medicine

National Jewish Health - Division of Pulmonary, Critical Care and Sleep Medicine
M.D., 1980, University of Manitoba
Research Interest: *Acute Lung Injury and Repair, Epithelial Injury, Fibrosis, Chronic respiratory infections, asthma*
303-398-1436, gregory.downey@ucdenver.edu or downeyg@njhealth.org

Stephen Dreskin, Professor

Division of Allergy , Asthma and Clinical Immunology
M.D., Ph.D., 1977, Emory University
Research Interest: *asthma, rhinitis, urticaria, severe food allergy, angioedema and immunodeficiency*
303-724-7190, stephen.dreskin@ucdenver.edu

Christopher Evans, Associate Professor

Department of Pulmonary Sciences and Critical Care Medicine
Ph.D., 2001, Johns Hopkins University
Research Interest: *Mucins in innate defense: determination of their immunomodulatory roles through direct activation of leukocyte glycan receptors*
303-724-6573, christopher.evans@ucdenver.edu

Andrew Fontenot, Professor of Medicine

Head, Division of Allergy, Asthma and Clinical Immunology
M.D., 1990, Louisiana State University Medical College
Research Interest: *Allergic lung disease; The role of T cells in the development of lung disease. In particular, the laboratory is interested in determining the mechanism by which CD4 T cells recognize the beryllium antigen in the context of HLA-DP2*
303-724-7192, andrew.fontenot@ucdenver.edu

Brian Freed, Professor

Division of Allergy, Asthma and Clinical Immunology
Ph.D., 1990, Albany Medical College
Research Interest: *Immunogenetics*
303-724-0535, brian.freed@ucdenver.edu

Rachel S. Friedman, Assistant Professor

Department of Immunology and Microbiology
National Jewish Health – Department of Biomedical Research
Ph.D., 2007, University of California, San Francisco
Research Interest: *Cell trafficking in type 1 diabetes; Immunotherapeutics development*
303-270-2558, rachel.s.friedman@ucdenver.edu

Mayumi Fujita, Professor of Medicine

Dermatology Clinic

M.D., 1983, Kyoto University (Japan)

Ph.D., 1992, Kyoto University (Japan)

Research Interest: *Melanoma biology, melanoma immunology, skin immunology and disease biomarkers*

303-724-4045, mayumi.fujita@ucdenver.edu

Laurent Gapin, Professor

Department of Immunology and Microbiology

Ph.D., 1997, Pasteur Institute (France)

Research Interest: *Mechanisms of iNKT cell development and antigen recognition*

303-270-2071, laurent.gapin@ucdenver.edu or gapinl@njhealth.org

Ronald G. Gill, Professor of Surgery

Scientific Director - CCTCARE

Department of Surgery

Ph.D., 1976, University of California, Los Angeles

Research Interest: *Transplantation of pancreatic cells as a treatment for insulin-dependent diabetes*

303-724-5321, ronald.gill@ucdenver.edu

James R. Hagman, Professor

National Jewish Health – Department of Biomedical Research

Ph.D., 1989, University of Washington

Research Interest: *Regulation of B cell development, epigenetics and cancer*

303-398-1398, james.hagman@ucdenver.edu or hagmanj@njhealth.org

Kathryn Haskins, Professor

Department of Immunology and Microbiology

Barbara Davis Center for Diabetes

Ph.D., 1981, University of Kansas

Research Interest: *Immunoregulation in autoimmune diabetes; pancreatic beta-cell autoantigens*

303-724-2093, katie.haskins@ucdenver.edu

Peter Henson, Distinguished Professor

National Jewish Health – Division of Cell Biology

Ph.D., 1967, Cambridge University

BVM & S, 1963, Edinburgh University

Research Interest: *Innate immunity, inflammation and apoptotic cell recognition*

303-398-1325, peter.henson@ucdenver.edu or hensonp@njhealth.org

V. Michael Holers, Professor of Medicine

Head, Division of Rheumatology
M.D., 1978, Washington University School of Medicine
Research Interest: *Complement-mediated tissue injury; preclinical autoimmune disease pathogenesis*
303-315-7592, michael.holers@ucdenver.edu
303-724-7610, Carissa Figal, Administrator

Elena Hsieh, Assistant Professor of Medicine

Department of Immunology and Microbiology
Department of Pediatrics, Division of Allergy and Immunology
Children's Hospital Colorado
Research Interest: *Mechanistic and translational questions in human immunology using high-dimensional single-cell mass cytometry and ex-vivo cellular manipulation*
303-724-9650, elena.hsieh@ucdenver.edu

Hua Huang, Professor of Medicine

National Jewish Health – Department of Biomedical Research
Ph.D., 1993, University of Wisconsin-Madison
M.D., 1984, Sun Yat-Sen University School of Medicine, Guangzhou (P.R. China)
Research Interest: *Cytokine signaling; T-helper-cell differentiation; allergic inflammation; asthma*
303-398-1281, hua.huang@ucdenver.edu or huangh@njhealth.org

Jordan Jacobelli, Assistant Professor

National Jewish Health -Department of Biomedical Research
Ph.D., 2002, University of Rome
Research Interest: *Lymphocyte trafficking and cell-cell interactions in health and disease*
303-398-1954, jordan.jacobelli@ucdenver.edu or jacobellij@njhealth.org

Claudia V. Jakubzick, Assistant Professor

National Jewish Health – Department of Pediatrics
Ph.D., 2003, University of Michigan
Research Interest: *Dendritic cell differentiation and function*
303-724-4215, jakubzickc@njhealth.org

Edward N. Janoff, Professor

Division of Infectious Diseases, Mucosal and Vaccine Research Colorado Program (MAVRC)
M.D., 1981, University of Arizona
Research Interest: *Mucosal immunity; HIV transmission and vaccine; pneumococcal infections and vaccine; B cell regulation*
303-724-4936, edward.janoff@ucdenver.edu

John Kappler, Distinguished Professor

National Jewish Health – Department of Biomedical Research

Ph.D., 1970, Brandeis University

Research Interest: *Structure and function of the T-cell receptor and its ligands in autoimmunity, cancer and hypersensitivity*

303-39-1322, john.2.kappler@ucdenver.edu or kapplerj@njhealth.org

Ross Kedl, Professor & Associate Director, Graduate Program in Immunology

Department of Immunology and Microbiology

Ph.D., 1997, University of Minnesota

Research Interest: *Intersection between innate and adaptive signals which lead to potent cellular immunity; exploration of how these signals might be manipulated for vaccine development and design*

303-270-2061, ross.kedl@ucdenver.edu

Marijke Kestra-Gounder, Assistant Professor

Department of Immunology and Microbiology

Ph.D., 2008, Utrecht University (The Netherlands)

Research Interest: *Elucidating pathways of innate immunity that can distinguish harmless microbes from pathogens, thereby enabling the host to mount responses that are commensurate with the threat*

303-724-8668, marijke.keestra-gounder@ucdenver.edu

Elizabeth J. Kovacs, Professor

Division of Gastroenterology, Tumor and Endocrine Surgery

Department of Surgery

Ph.D., 1984, University of Vermont

Research Interest: *Overall focus: The effects of advanced age, alcohol intoxication, and radiation exposure on inflammatory responses after injury or infection*

303-724-8243 elizabeth.kovacs@ucdenver.edu

Kristine A. Kuhn, Assistant Professor of Medicine

Division of Rheumatology / Barbara Davis Center for Diabetes

Ph.D., 2005, University of Colorado Health Sciences Center

M.D., 2007, University of Colorado Health Sciences Center

Research Interest: *Microbiome and mucosal immunity in the development of autoimmune diseases*

303-724-8258, kristine.kuhn@ucdenver.edu

Laurel L. Lenz, Professor

Department of Immunology and Microbiology

Ph.D., 1998, University of Washington, Seattle

Research Interest: *Molecular mechanisms of bacterial pathogenesis, host-bacteria interactions, host-directed therapeutics, innate immunity, interferons, Listeria monocytogenes*

303-724-8676, laurel.lenz@ucdenver.edu

Philippa “Pippa” Marrack, Distinguished Professor,

Ida & Cecil Green Professor

Chairman, Department of Biomedical Research at National Jewish

Ph.D., 1970, Cambridge University (United Kingdom)

Research Interest: *T cell development; T-cell responses and death*

303-398-1322, philippa.marrack@ucdenver.edu or marrackp@njhealth.org

Thomas E. “Tem” Morrison, Associate Professor & Director, Graduate Program in Microbiology

Department of Immunology and Microbiology

Ph.D., 2004, University of North Carolina-Chapel Hill

Research Interest: *Immunological mechanisms that influence the clearance or persistence of arboviruses and protozoan parasites; molecular mechanisms by which pathogens counteract host innate and adaptive immune responses*

303-724-4283, thomas.morrison@ucdenver.edu

Maki Nakayama, Assistant Professor

Department of Immunology and Microbiology

Department of Pediatrics

Barbara Davis Center for Diabetes

M.D., 1994, Ph.D., 2002, Kobe University (Japan)

Research Interest: *To understand the mechanism how anti-beta cell autoimmunity is initiated, my laboratory focuses on the tri-molecular complex consisting of antigen, major histocompatibility complex (MHC), and T cell receptor (TCR), which could be a key component for the development of type 1 diabetes*

303-724-4076, Maki.Nakayama@ucdenver.edu

Rebecca O’Brien, Professor

National Jewish Health – Department of Biomedical Research

Ph.D., 1986, University of Washington, Seattle

Research Interest: *Specificity and function of gamma delta T lymphocytes*

303-398-1158, rebecca.obrien@ucdenver.edu or obrienr@njhealth.org

Brian P. O’Connor, Assistant Professor

Scientific Director Genomics

National Jewish Health – Division of Cell Biology

Ph.D., 2003, Dartmouth College

Research Interest: *Epigenetics, immune system, diet and asthma*

303-270-2754, occonnorB@njhealth.org

Roberta Pelanda, Professor

Department of Immunology and Microbiology

Ph.D., 1992, University of Milan (Italy)

Research Interest: *Molecular mechanisms of B cell development and selection and the development of autoimmunity*

303-720-8666, roberta.pelanda@ucdenver.edu

Terence “Terry” Potter, Professor

Associate Vice Chancellor, Office of Academic Planning
Office of the Provost, Academic and Student Affairs
Ph.D., 1980, University of Melbourne (Australia)
Research Interest: *Immunogenetics*
303-315-5830, terence.potter@ucdenver.edu

Stefan Pukatzki, Professor of Immunology

Department of Immunology and Microbiology
Ph.D., 1999, Columbia University
Research Interest: *interaction between microbial pathogens and their hosts*
303-724-4224, stefan.pukatzki@ucdenver.edu

Lee Reinhardt, Professor

National Jewish Health – Department of Biomedical Research
Ph.D., 1990, Albany Medical College
Research Interest: *Immunogenetics*
303-270-2717, ReinhardtL@NJHealth.org

Nichole Reisdorph, Associate Professor

Director, Skaggs School of Pharmacy Mass Spectrometry Facility
Department of Pharmaceutical Sciences
Ph.D., 2002, University of South Dakota
Research Interest: *Proteomics, metabolomics and disease*
303-724-9234, nichole.reisdorph@ucdenver.edu or reisdorphn@njhealth.org

David W.H. Riches, Professor

National Jewish Health – Head, Division of Cell Biology
Ph.D., 1979, University of Birmingham (United Kingdom)
Research Interest: *Basic mechanisms involved in the development lung inflammation and fibrosis*
303-398-1188, david.riches@ucdenver.edu or richesd@njc.org

Rosemary Rochford, Professor

Department of Immunology and Microbiology
Ph.D., 1989, University of California, Irvine
Research Interest: *Co-infections with and immune responses to human gammaherpesviruses and P. falciparum malaria*
303-724-9960, rosemary.rochford@ucdenver.edu

Hugo R. Rosen, Waterman Professor of Medicine

Head, Division of Gastroenterology & Hepatology
Waterman Endowed Chair in Liver Research
M.D., 1989, University of Miami, FL
Research Interest: *innate and adaptive immunity in HCV infection*
303-724-1855, hugo.rosen@ucdenver.edu

Mario L. Santiago, Associate Professor of Medicine,

Division of Infectious Diseases, Department of Medicine
Ph.D., 2003, University of Alabama at Birmingham
Research Interest: *Innate host restriction and adaptive immunity against pathogenic retroviruses*
303-724-4946, mario.santiago@ucdenver.edu

David Schwartz, Professor of Medicine- Pulmonary Sciences & Critical Care

Chair, Department of Medicine
National Jewish Health – Director, Center for Genes, Environment, & Health
M.D., 1979, University of California, San Diego
Research Interest: *Effects of microbiome on the innate immune system*
303-724-1783, mailto:david.schwartz@ucdenver.edu or schwartzd@njhealth.org

Jill Slansky, Professor

Department of Immunology and Microbiology
Ph.D., 1995, University of Wisconsin
Research Interest: *Immune response to cancer*
303-724-8665, jill.slansky@ucdenver.edu

Beth Tamburini, Assistant Research Professor

Department of Immunology and Microbiology
Ph.D., 2006, University of Colorado Health Sciences Center
Research Interest: *Understand the mechanisms behind antigen transfer from non-hematopoietic to hematopoietic cells in order to enhance protective immunity*
303-724-8848, beth.tamburini@ucdenver.edu

Joshua Thurman, Professor of Medicine

Department of Renal Diseases and Hypertension
M.D., 1997, University of Chicago Division of the Biological Sciences The Pritzker School of Medicine
Research Interest: *The role of the complement system in inflammatory injury*
303-724-7584, mailto:joshua.thurman@ucdenver.edu

Raul Torres, Professor, & Director, Graduate Program in Immunology

Department of Immunology and Microbiology
Ph.D., 1992, University of Washington
Research Interest: *B cell development and antibody response, regulation of tumor immunity by lysophospholipids*
303-724-8669, raul.torres@ucdenver.edu

Kenneth Tyler, Professor

Department of Neurology

M.D., 1978, Johns Hopkins University School of Medicine

Research Interest: *Our laboratory studies mechanisms of virus-induced CNS injury and the nature of CNS-specific host-innate immune responses using reoviruses, flaviviruses (West Nile, Japanese Encephalitis, Zika) in a variety of experimental systems including primary cell culture, ex vivo brain and spinal cord slices and mice*

303-724-4329, ken.tyler@ucdenver.edu

Linda F. van Dyk, Associate Professor & Vice Chair

Department of Immunology and Microbiology

Ph.D., 1994, University of Texas Southwestern, Dallas, Texas

Research Interest: *Genetic and molecular approaches to infection and pathogenesis by lymphotropic herpesviruses*

303-724-4207, linda.vandyk@ucdenver.edu

Andrés Vázquez-Torres, Professor

Department of Immunology and Microbiology

DVM, 1988, University of Cordoba, Spain

Ph.D., 1996, University of Wisconsin, Madison

Research Interest: *Molecular and redox determinants in the pathogenesis of intracellular bacteria*

303-724-4218, andres.vazquez-torres@ucdenver.edu

Michael Verneris, Professor of Medicine

Director of Bone Marrow Transplantation and Cellular Therapy

The Barton Family Endowed Chair of Bone Marrow Transplant

MD, 1992, Dartmouth Medical School

Research Interest: *Developing cellular therapy to reduce leukemia recurrence by enhancing immune recovery and by more effectively treating sites of leukemia (with a newly developed method of bone marrow irradiation)*

720-777-1234, michael.verneris@ucdenver.edu

David H. Wagner, Jr., Associate Professor of Medicine

Division of Pulmonary Sciences and Critical Care

Chief Scientific Officer and Head, Immunology Section

Ph.D., 1994, East Tennessee State University

Research Interest: *Role of CD40 in Autoimmune Inflammation*

303-724-4787, david.wagner@ucdenver.edu

Jing H. Wang, Assistant Professor

Department of Immunology and Microbiology

M.D., 1996, Beijing Medical University (Beijing, P.R. China)

Ph.D., 2004, University of Chicago

Research Interest: *Immune Evasion of Cancers, Genomic instability in B cells, Regulation of Secondary Antibody Gene Diversification*

303-724-8673, jing.wang@ucdenver.edu

Cara Wilson, Professor of Medicine – Infectious Disease

Division of Infectious Diseases
M.D., 1988, University of Virginia
Research Interest: *Cell-mediated responses to HIV*
303-724-4922, cara.wilson@ucdenver.edu

Lawrence Wysocki, Professor

National Jewish Health – Department of Biomedical Research
Ph.D., 1981, Harvard University
Research Interest: *Somatic mutagenesis in immunity and autoimmunity*
303-398-1385, lawrence.wysocki@ucdenver.edu or wysockil@njhealth.org

Gongyi Zhang, Associate Professor

Department of Immunology and Microbiology
National Jewish Health-Department of Biomedical Research (Professor)
Ph.D., 1993, Institute of Biophysics, Academic Sinica
Research Interest: *Structural and functional studies of proteins, epigenetics*
303-398-1715, zhangg@njhealth.org

GRADUATE PROGRAM STAFF

Raul Torres, Ph.D., Program Director
 Ross Kedl, Ph.D., Associate Program Director
 Caro Henauw, M.S., Program Administrator

303-724-8669
 303-724-8671
 303-724-3350

GRADUATE PROGRAM STUDENTS

	Name	Matriculation Year	Lab/PI/Mentor
1	Delgado, Christine (BSP)	2009	Lenz
2	Tuttle, Kathryn	2010	Gapin
3	Cross, Eric (MSTP)	2011	Kedl
4	Cheney, Elizabeth	2012	Kedl
5	Haist, Kelsey (BSP)	2012	Morrison
6	Krovi, Sai (Harsha)	2012	Gapin
7	Mathew, Divij (BSP)	2012	Torres
8	Mitchell, Angela	2012	Rosen
9	Niemeyer, Brian (BSP)	2012	van Dyk
10	Sandor, Adam	2012	Friedman
11	Franks, Sarah (Elizabeth, Liz)	2013	Cambier
12	Greaves, Sarah (BSP)	2013	Pelanda
13	Higa, Kelly (MSTP)	2013	DeGregori
14	Jones, Sean (MSTP)	2013	Santiago
15	Kibbie, Jon (MSTP)	2013	Wilson
16	Larson, Sandy (BSP)	2013	Henson
17	McGettigan, Brett (MSTP)	2013	Rosen
18	Thompson, Scott	2013	Jacobelli
19	Agazio, Amanda	2014	Torres
20	Crisler, William (Cris)	2014	Lenz
21	Jamison, Braxton	2014	Haskins
22	Wemlinger, Scott	2014	Cambier
23	Smith, Nicholas (transfer)	2015	Rochford
24	Boe, Devin (MSTP/transfer)	2015	Kovacs
25	Bortell, Nikki (BSP)	2015	Lenz
26	Crute, Bergren (BSP)	2015	Cambier
27	Fernandez, Zoila (Isabel) (MSTP)	2015	Kedl
28	Kilgore, Augustus	2015	Kedl
29	Lucas, Erin	2015	Tamburini
30	Hulsebus, Holly	2016	Kovacs
31	Mills, Taylor	2016	Pietras

32	<i>Villar, Rina</i>	2016	Beckham
33	<i>Whitesell, Jennifer</i>	2016	Friedman
34	<i>Woolaver, Rachel</i>	2016	Wang
35	<i>Chung, Jeffrey (BSP)</i>	2016	Jacobelli
36	<i>Hay, Zachary</i>	2017	rotating
37	<i>Lefferts, Adam</i>	2017	rotating
38	<i>Schoenbach, Mary</i>	2017	rotating
39	<i>Waldman, Monique</i>	2017	rotating
40	<i>Willett, Benjamin</i>	2017	rotating

GRADUATE STUDENT ACTIVITIES

Journal Club

Journal club is a weekly seminar on current literature presented by students. Once a month a faculty member hosts a “Pillars in Immunology” journal club that centers on a classic immunology paper. First year students will be asked to sign up to present an article sometime following the first semester. The Immunology Graduate Student Board (IGSB) seminar coordinator will contact students about presenting. Journal clubs are an important aspect of graduate training and all students (entering through senior) are strongly encouraged and expected to attend each week.

Seminars

Numerous scientific seminars are conducted throughout the year. All students are expected to attend the Department of Immunology & Microbiology seminars, held at AMC on Fridays at 1:30-2:30 pm in the Hensel Phelps East auditorium. A schedule is available on the Department website.

In addition, there are a number of regular weekly forums that are available for students to attend including other departmental and graduate program seminars at AMC and NJH as well as a weekly Lung Cell Biology Research Forum and Pulmonary Research in Progress that students are welcome to attend.

Research-in-Progress

A major component of our Immunology training program is the weekly Research-in-Progress (RIP) presentations in which graduate students and postdoctoral fellows give a 30 minute presentation of their current work. Currently this RIP forum is held every Tuesday September-June with two individuals speaking for 30 minutes. These RIP presentations are presented for half the year at the AMC and half the year at NJH. The Immunology Program considers this an extremely important venue for our students and thus all program students 2nd year and beyond are expected to attend.

GRADUATE STUDENT RESOURCES

AMC Campus & NJH

Student Services

<http://www.ucdenver.edu/life/services/Pages/index.aspx>

Student Housing

<http://www.ucdenver.edu/life/services/housing/Pages/default.aspx>

Student Portal

<https://portal.prod.cu.edu/UCDAccessFedAuthLogin.html>

Where you'll update/access your contact information, grades, financial information, employment information- pay, W2's, W-4's, employee ID #, various payroll forms (direct deposit), etc.
login is email username & password

Student Senate

<http://www.ucdenver.edu/anschutz/studentresources/student-assistance/organizations/senate/Pages/StudentSenate.aspx>

Office of the Registrar

<http://www.ucdenver.edu/anschutz/studentresources/Registrar/Pages/Registrar.aspx>

Registering for classes, downloading course books and ordering transcripts

Bookstore

The UCD Bookstore is located on the first floor of the Education 2 South building on the Anschutz Medical Campus in Aurora, phone: 303-724-2665. Special bookstore charge accounts are attainable; students should request information at the front registers. The bookstore accepts VISA, MasterCard, American Express, and personal checks with appropriate identification. Bookstore hours are extended during the first week of each quarter.

Library Services

<http://hslibrary.ucdenver.edu/>

UCD Anschutz Medical Campus Health Sciences Library (Information 303-724-2152).

The Health Sciences Library is located on the Anschutz Medical Campus. A library card may be obtained after following the instructions at: <https://hslibrary.ucdenver.edu/library-account-app>.

Hours change seasonally. Bibliographical searches available include Medline, CINAHL, Cancerlit, Health, AIDsline, and PsychInfo. Classes are also available free of charge.

Small study rooms are available within the AMC library. Please see more information regarding use and reservation at: <http://hslibrary.ucdenver.edu/policies/meeting-room>

National Jewish Tucker Medical Library

The NJH library is located on the first floor of the Goodman building on the NJH campus.

Campus Shuttle

<http://www.ucdenver.edu/about/departments/FacilitiesManagement/ParkingMaps/Pages/ShuttleService.aspx>

Family Educational Rights and Privacy Act (FERPA) guidelines

<http://www2.ed.gov/policy/gen/guid/fpco/faq.html>

Training/facilities Websites

Environmental Health & Safety

<http://www.ucdenver.edu/research/EHS/Pages/EHS.aspx>

N-95 Respirator Training/Fit-Testing (for those needing to go into the BSL-3)

Radiation Safety Training

Animal Facility/Safety Training

<http://www.ucdenver.edu/academics/research/AboutUs/animal/Pages/Training.aspx>

Research Core Facilities

<http://www.ucdenver.edu/academics/colleges/medicalschooll/departments/ImmunologyMicrobiology/resources/ResearchResources/Pages/Core%20Facilities.aspx>

Advanced Light Microscopy Core

Animal Model Core

Biostatistics & Bioinformatics Core

Biophysics Core

DNA Sequencing & DNA Analysis Core

Electron Microscopy Core

Flow Cytometry Core

Genomics & Microarray Core

High-Throughput Sequencing Core (HTSC)

Histopathology Core

Mass Spectrometry Core

Nuclear Magnetic Resonance (NMR) Core

Peptide & Protein Chemistry Core

City/County/State

Denver County & City

<http://www.denvergov.org/>

Denver Convention & Visitor Bureau

<http://www.denver.org/>

Department of Revenue – DMV

Emissions testing is required for registering vehicle in Denver/Arapahoe counties

<https://www.colorado.gov/dmv>

Colorado Secretary of State
<http://www.sos.state.co.us/>

Voter registration
<https://www.sos.state.co.us/voter-classic/pages/pub/olvr/verifyNewVoter.xhtml>

Arapahoe County
<http://www.co.arapahoe.co.us/>

County Clerk and Recorder
CO car registration
<http://www.co.arapahoe.co.us/Departments/CR/index.asp>

CO Department of Transportation
Road conditions, travel warnings, etc.
<http://www.cotrip.org/home.htm>

RTD
www.rtd-denver.com

Local Entertainment & Events

Westword magazine
Good source for live music and other events happening in the city
<http://www.westword.com/>

ACADEMIC CALENDAR
 Basic Sciences Programs
 Pharmaceutical and Sciences and Toxicology Programs
 Anschutz Medical Campus

Fall Semester 2017	
June 19	First day to apply for December/Fall 2017 graduation via UCDAccess
August 1	Registration begins for Fall 2017 via UCDAccess
August 28	First day of Fall semester classes First day of Research Rotation #1
September 4	Labor Day Holiday (no classes, campus closed)
September 8	Last day to add/drop courses via UCDAccess Last day to petition for resident student status
September 11	Last day to apply for December/Fall 2017 graduation in UCDAccess
Two weeks prior to exam, no later than November 3	Last day to submit <i>Request for Examination</i> to the GS Last day to submit your <i>Biosketch</i> to the GS
November 6	First day to apply for May/Spring 2018 graduation via UCDAccess
On or before November 17	Schedule your traditional format review meeting
November 17	Last day to defend Thesis Last day of Research Rotation #1
November 20	First day of Research Rotation #2
November 23-24	Thanksgiving Holiday (no classes, campus closed)
November 27	Registration begins for Spring 2018 via UCDAccess
No later than December 1	Last day to submit <i>Statement of Approval Form</i> to the GS Last day to submit final Thesis to ProQuest
December 11-15	Final Examination week
December 15	End of Fall term Fall 2017 degree award date
December 20	Final grades due (noon)

Spring Semester 2018	
November 6	First day to apply for May/Spring 2018 graduation via UCDAccess
November 27	Registration begins for Spring 2018 via UCDAccess
January 22	First day of Spring term classes
February 2	Last day to add/drop courses via UCDAccess Last day to petition for resident student status
February 5	Last day to apply for May/Spring 2018 graduation in UCDAccess
February 5	First day to apply for August/Summer 2018 graduation via UCDAccess
February 19	Presidents' Day Holiday (no classes, campus closed)
February 23	Last day of Research Rotation #2
February 26	First day of Research Rotation #3
March 19-23	Spring Break (no classes, campus closed)
Two weeks prior to exam, no later than April 6	Last day to submit <i>Request for Examination</i> to the GS Last day to submit your <i>Biosketch</i> to the GS
On or before April 20	Schedule your traditional format review meeting
April 20	Last day to defend Thesis
No later than May 4	Last day to submit <i>Statement of Approval Form</i> to the GS Last day to submit final Thesis to ProQuest
May 7	Registration begins for Summer 2018 via UCDAccess
May 14-18	Final Examination week
May 18	End of Spring term Spring 2018 degree award date
May 23	Final grades due (noon)
May 25	Commencement & Graduate School Convocation

Summer Semester 2018	
February 5	First day to apply for August/Summer 2018 graduation via UCDAccess
May 7	Registration begins for Summer 2018 via UCDAccess
June 4	First day of Summer term classes
June 8	Last day to add/drop courses via UCDAccess Last day to petition for resident student status
June 11	Last day to apply for August/Summer graduation in UCDAccess
TBD	First day to apply for December/Fall 2018 graduation via UCDAccess
July 4	Independence Holiday (no classes, campus closed)
Two weeks prior to exam, no later than July 6	Last day to submit <i>Request for Examination</i> to the GS Last day to submit your <i>Biosketch</i> to the GS
On or before July 20	Schedule your traditional format review meeting
July 20	Last day to defend Thesis
TBD	Registration begins for Fall 2018 via UCDAccess
No later than August 3	Last day to submit <i>Statement of Approval Form</i> to the GS Last day to submit final Thesis to ProQuest
August 13-17	Final Examination week
August 17	End of Summer term Summer 2018 degree award date
August 22	Final grades due (noon)

CONTACT INFORMATION

Graduate School

David Engelke, Ph.D., Dean

Inge Wefes, Ph.D., Associate Dean

Shawna McMahon, PhD., Assistant Dean, Student Admissions and Support

303-724-2915

Teresa Bauer-Sogi, Administrative Assistant/Main Phone Line for Information

303-724-2915

University of Colorado Anschutz Medical Campus

Graduate School

Mail Stop C296

Academic Office 1, L15-1503

12631 E. 17th Avenue

Aurora, CO 80045

Email: graduate.school@ucdenver.edu

Immunology & Microbiology Department

John Cambier, Ph.D., Department Chair

Raul Torres, Ph.D., Director of the Graduate Program in Immunology

303-724-8669

Ross Kedl, Ph.D., Associate Director of the Graduate Program in Immunology

303-724-8671

Tem Morrison, PhD., Director of the Graduate Program in Microbiology

303-724-4283

Tom Shallow, Director of Finance and Administration

303-724-8664

Sandra Duran, Executive Assistant to Dr. Cambier

303-724-8664

Andrea Edwards, Department Accounting and Human Resource liaison

303-724-4431

Gwen Frederick, Department Receptionist and lab supplies purchaser

303-724-4224

Mike Elmore, Department IT

303-724-9033

University of Colorado Anschutz Medical Campus

Department of Immunology and Microbiology

Graduate Program in Immunology

Mail Stop 8333

12800 East 19th Avenue, Room 8114

Aurora, CO 80045

303-724-4206 (office) and 303-724-4226 (fax)

Other important numbers

AMC Registrar's Office (Ingrid Eschholz)	303-724-8051	Emergency	
Bookstore	303-724-2665	Campus Police	303-724-4444
Bursar's Office	303-724-8032	Fire	303-724-4444
Classroom Scheduling	303-724-8114	Emergency	911
Audio-Visual Assistance	303-724-8129	Non-emergency	303-724-4444
Diversity Office	303-724-8003		
E-mail Coordinator	303-724-HELP		
IT Services	(4357)		
Police Escort to Car	303-724-4444		
Financial Aid	303-556-2886		
Health Services/Insurance (Jill Collins)	303-724-7674		
ID Cards	303-724-0399		
Health Sciences Library	303-724-2152		
Ombuds Office	303-724-2950		
Parking Office	303-724-0049		
Student Assistance Office	303-724-7684		
Student Mental Health Services/Counseling	303-724-4953		
Emergency Dept.	303-848-9111		
Information Systems	303-724-4357		
Env. Health & Safety	303-724-0345		
CARE Team (Campus Assessment, Response & Evaluation)	303-352-3579		
Residency Tuition	303-724-8054		
Classification Officer	1-800-677-5590		
Ethics Line			



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August 14, 2017

TO: Immunology Graduate Program– 2017-18 incoming students

RE: Receipt of Student Handbook and Colorado Residency Requirements

This is to confirm that I have received the Immunology Program Student Handbook and have reviewed it with the Program Administrator.

The Colorado Residency Requirements have been explained to me and I have instigated the appropriate actions to comply. I understand that non-compliance on my part by July 1, 2018 obligates me to pay the difference between non-resident tuition and resident tuition.

I acknowledge that I have reviewed and understand the graduate student vacation/sick leave policy.

Name

Signature/Date