



Graduate Program in Microbiology

2019-2020 Handbook

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 Microbiology either expressed or implied. The Graduate Program in Microbiology 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 Microbiology to serve as firm guidelines rather than absolute rules, and exceptions may be made on the basis of extenuating circumstances.



Graduate School

UNIVERSITY OF COLORADO DENVER | ANSCHUTZ MEDICAL CAMPUS

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INTRODUCTION

Welcome to the Graduate Program in Microbiology at the University of Colorado Anschutz Medical Campus. This handbook provides information about our Graduate Program.

The material contained within this handbook is as current as possible and describes Microbiology Graduate Program specific policies. Please be aware that our program continues to evolve and specific policies may be altered, thus, the information in this handbook may not always be current.

This handbook, which includes policies and procedures for the Graduate Program in Microbiology, 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 Graduate Program in Microbiology, the Department of Immunology & Microbiology, or the University of Colorado Denver | AMC Graduate School, either expressed or implied. The Graduate Program in Microbiology 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.CUAnschutz.edu/microbiology>.

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

Students are responsible for knowing the procedures, policies and requirements outlined in this handbook.

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

CALL THE PROGRAM OFFICE (Michele-Parsons, Microbiology Program Administrator - 303-724-0107) WITH ANY QUESTIONS.

GENERAL INFORMATION

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 log into their portal and navigate to the resources tab to locate their W4 and Direct Deposit forms. Note: Direct deposit is mandatory and students have until August 16th to complete these two forms.

Computers (Software & Equipment)

The Department of Immunology and Microbiology has invested in computers for students and other research personnel. Individual laboratories all have computers that are accessible to students. Most departmental equipment has common use computers for special purposes. Because these are common use computers, everyone is asked to keep their own data on the departmental lab server which is backed up nightly 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.

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.

Department of Immunology and Microbiology point of contact for all department level computers, printers and server support:

Mike Elmore, LAN Administrator/IT Consultant

Michael.elmore@cuanschutz.edu

Cell 303-981-5172

Please submit all support requests using a ticket at: <http://Micro-LS1.ucdenver.pvt/support/>

CU Alerts!

CU Alerts! Emergency messaging includes email, text, computer pop-up messages, and social media postings. Please visit the Emergency Management *CU Alerts!* Page www.CUAnschutz.edu/alerts and follow the instructions to register your cell phone number. Be sure to enter your cell phone number in the Employee Profile section of the portal as a "CELLULAR" device (or it will not be imported into the *CU Alerts!* System).

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 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.CUAnschutz.edu/about/departments/ITS/Pages/OIT%20Home.aspx>

Most communications from the Graduate Program in Microbiology will be via e-mail; all Microbiology Graduate Program graduate students are expected to have e-mail access, to monitor this account regularly, and to respond to emails from the Program Administrator, Program Director, and other

Program Faculty. Notifications regarding program requirements and events will be sent to all students' University of Colorado email addresses ending in @cuanschutz.edu.

ID/Access Badge: 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, 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.

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.

Lab Equipment Use

The Department of Immunology and 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.

The Department of Immunology and Microbiology point of contact for Equipment (repairs, service contracts, inventory, and ordering) is:

JC Haller, Laboratory Resource Coordinator

Jon.haller@cuanschutz.edu

Anschutz Campus RC1N P18-9122

PH: 303-724-4245 Cell: 303-594-2838 Fax: 303-724-4226

The preferred method to submit a service request for problems with equipment, computers, or facilities is through the online ticketing system. By using this system we can insure your request is tracked and properly completed.

<http://micro-ls1.ucdenver.pvt/support/>

Lab Training Classes

There are several university requirements to assure safety of all personnel who work in laboratories. The Environmental Health and Safety Division of UCD offers classes and certification in **radioisotopes, handling hazardous waste, and blood borne pathogens**. For working in microbiology laboratories, all of these classes are recommended. Each topic has an initial class with extensive handouts to read before and an annual refresher class in which you will hear about new regulations, recent problems, etc. The information on the scheduling of the classes is on the website:

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

The Animal Care and Use Program provides information about requirements for using animals in research programs. Special training in surgery, anesthesia, etc. is offered from time to time:

<http://www.CUAnschutz.edu/research/OLAR/Pages/default.aspx>

Graduate students should take these classes at the beginning of their first rotation. Radioisotopes may be taken at a later date or a non-users version may be taken depending on the laboratories in which rotations

will take place. Please notify the Graduate Program Administrator as soon as the necessary examinations have been passed so the information can be put into your folder. It is the student's responsibility to stay current with required annual refresher classes.

Students must complete the following Skillsoft classes prior to working in the lab:

- Lab Safety
- Blood Borne Pathogens
- Regulated Medical Waste Management

All new research associates, animal care workers or faculty, staff, fellows, students and affiliates who are part of an [IACUC](#) or [IBC](#) protocol that works with animals, animal waste, or animal tissues or enter the vivarium as well as those who work with the items detailed below are required to enroll in the Occupational Health Program (OHP).

- toxins/venoms
- infectious agents
- anesthetic gases
- anti-neoplastic drugs
- teratogens/carcinogens
- radioactive materials
- heavy metals
- lasers
- formaldehyde
- human blood, tissues, cells or cell lines

Enrollment consists of completing and submitting the [Initial Medical Surveillance Questionnaire](#), then scheduling an Initial Medical Surveillance appointment by calling the Occupational Health Clinic at (303) 724-9145. All prior written immunization records need to be submitted prior to the appointment or brought to the appointment. Your health information, immunization history and work-related duties will be reviewed by the OHP nurse to identify any potential hazards and review health recommendations and follow-up.

Depending on your risk category, the OHP may require you to undergo additional training, medical surveillance, or additional vaccinations and/or titers prior to initiating your duties. Upon completion of the Initial Medical Surveillance appointment, a certificate of OHP enrollment will be issued and your OHP enrollment status forwarded to either the IACUC or IBC.

All employees will need to submit an Annual Medical Surveillance Form each year to keep their enrollment current. The OHP will send out an annual reminder to each individual prior to the due date. If the Annual Medical Surveillance Form is not received by the OHP by the end of the anniversary month, steps can be taken to ensure compliance including notification of Principal Investigator (PI) or Supervisor and leading up to OHP disenrollment and/or vivarium badge access removal.

Teaching Opportunities

Students who have an interest in teaching experience should make this interest known to the Director of the Graduate Program and to their advisory committee (Pre-Comps or Thesis). It is possible to gain teaching experience by participating in the teaching labs for medical students or by facilitating paper

discussions for first year core students. Faculty will provide advice in preparation and feedback on teaching performance in order to improve teaching skills. Other teaching opportunities may be available on the Anschutz Medical Campus and within UC Denver. For students interested in other teaching opportunities, it is the responsibility of the student to obtain approval of their advisor, to conform to relevant UC Denver Graduate School policies, and to inform both the Microbiology Graduate Program Director and their Thesis Committee.

Parking & Transportation

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.

You will be provided an [RTD Eco pass](#) each year. Your RTD Eco Pass is not just for commuting to and from campus. You have unlimited rides on regular fixed route service provided by RTD and all RTD contractor-operated fixed route service, including bus and Light Rail.

2019/2020 Student Parking Permit Rates

- Students: \$40/month
- Permit parking after hours and weekends only: **No Charge. Monday -Friday 6:00pm to 6:00am or all day on Saturday and Sunday** – Access in or out of the lot will be denied outside of this time frame. Those still in the lot after 6:00am will be required to pay the hourly parking rate upon exit.
- **Rock Lot Parking: \$14/month**, The Rock Lot is a low-cost parking option for students on the Anschutz Medical Campus that is in close proximity to the campus. It is located on the west side of Victor Street north of the UPI garage.
- Reserved Parking: \$95/month
- Carpool: \$42/month
- Short Term Weekly Parking (1 to 8 weeks): \$16/week
- [Manage Your Student Parking Permit Online](#) (Please note: You must have established parking at the Parking Office before you will be able to manage your parking account online.)

Residency Status

By the end of your first year of training, students from out-of-state must petition the Office of the Registrar for in-state resident status for the purpose of tuition classification. 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. Required objective evidence of residency includes:

- Colorado Driver's license
- Colorado automobile registration & license plates
- Colorado voter registration
- Colorado state income tax records
- Ownership or Rental of residential property for at least 12 months

It is important to note that students are initially classified as "resident" or "non-resident" for tuition purposes during the Admissions process. The classification is based upon information furnished by the

student and from other relevant sources. After the student's status is determined, it remains unchanged in the absence of satisfactory evidence to the contrary. Once the student has met the requirements for establishing residency (“domicile”) as defined by Colorado law, the student may submit a Petition for In-State Tuition/Residency Classification to the Office of the Registrar. (Please see section, “Petitions and Appeals”).

The requirements for establishing residency for tuition purposes are defined by Colorado law. (See **Colorado Revised Statutes 23-7-101 et. seq.** View online at <http://www.michie.com/colorado>. As tuition classification is governed by state law and by judicial decisions that apply to all public institutions of higher education in Colorado, the University of Colorado does not have discretion to make exceptions to the rules as established by state law.

The statutes require that a qualified individual must be domiciled in Colorado twelve (12) consecutive months immediately preceding the term for which resident status is claimed.

An individual is “qualified” to begin the process of establishing domicile and the one year domicile period by virtue of adulthood and emancipation at age 22, marriage, or enrollment in a post-baccalaureate graduate or professional degree program. An unemancipated minor is qualified through the residency of his or her parents or legal guardians. (See below “Emancipation and Residency.”)

Additional information can be found here:

<http://www.CUAnschutz.edu/anschutz/studentresources/Registrar/StudentServices/Residency/Pages/Residency.aspx>

Stipend Support, Health Insurance, and Tuition

Students in the Graduate Program in Microbiology receive an annual stipend (\$31,000 for 2019-2020 academic year), individual health and dental insurance, and tuition. The Program Administrator will arrange for payment of these funds, and handle any financial problems that may arise. Late registration fees are the responsibility of the student.

First-year non-resident students are expected to take all necessary steps to attain **Colorado Residency** by the end of their first year in the Program. This makes them eligible for in-state tuition rates, a very considerable savings. The Program is only responsible for the cost of the equivalent of the in-state tuition rate after the student’s first year.

After the thesis mentor has been selected, the student's stipend, insurance, tuition, research expenses and professional travel will be paid from grants to the mentor. While receiving support from an NIH grant, you cannot receive additional funds from outside employers per NIH guidelines.

Travel to Professional Meetings

Professional scientific meetings are excellent places to learn what is new in a particular field, interact with scientists from other institutions and countries, see new equipment, and present research data. A student’s attendance at local, national, or international meetings is by mutual agreement between the student and mentor based on scientific or financial criteria. Reimbursement for meeting travel costs and expenses are provided from the mentor’s research funding (at the mentor’s discretion and only with prior approval of the mentor) or the student’s individual graduate fellowship.

Students may also apply for a Hirs award for travel to national meetings from the Graduate School. Student travel awards are provided from an endowment entitled the “C. Werner and Kitty Hirs Graduate Student Enrichment Fund” made to the University of Colorado Foundation for the use by the Graduate

School at the AMC of UC Denver. Awards will be for up to \$500 and are to be used to help defray the expenses incurred by a Ph.D. student who attends a national society's meeting and presents his/her work.

Eligibility:

1. The student must have successfully passed his/her comprehensive exam.
2. The student must be enrolled in a basic biomedical sciences Ph.D. program.
3. The student must have an abstract (first author) submitted and accepted for presentation at the meeting.
4. The student's laboratory mentor must commit to providing any additional support necessary for the student to attend the meeting.

Many national meetings also offer partial funding for selected graduate students to attend. It is the student's responsibility to investigate and apply for such external funding. Funding for attending a meeting is often coupled to having research data to present at the meeting as a poster or oral presentation with slides. Abstracts for meetings are due months in advance of the meeting. Information on various meetings and their abstract deadlines is available at the websites of the various scientific societies.

All travel funded by University funds must be pre-authorized by obtaining departmental approval. The Administrative Assistant in your Mentor's department will assist you in making all your travel plans (airfare, hotel, etc.). It is your responsibility to contact them as soon as you begin making plans for your travel and well before the meeting begins. Advance planning will avoid paying late registration fees and higher airfares.

By the end of their first year, students should apply for a University Travel Card:

<https://www.cu.edu/psc/travel>

You are required to complete the following on-line Skillssoft training before the card will be issued:

- Travel & Travel Card Training
- Fiscal Code of Ethics

For assistance with booking travel and reconciling travel expenses for all labs in the Department of Immunology & Microbiology your point of contact is:

Gwen Fredrick, Department Administrative Assistant
303-724-4224 RC1N – 9th floor North end

COURSE CURRICULUM AND REQUIRED EVENTS

Year 1 Required Events	
Microbiology & Immunology Graduate Program New Student Orientation: <i>August 13-17</i>	
Microbiology & Immunology Graduate Programs Student Retreat: <i>TBD (late October, early November)</i>	
4 Pre-Comp Advisory Committee meetings: during orientation, and end of each rotation	
Attend and participate in Infectious Disease Journal Club (IDJC)	
Wednesday Student/Post-doc RIPs and Friday Seminar Series (barring class conflicts)	
Present 15-minute summary seminar after each rotation	

Year 1 Fall Semester Course Curriculum		
Research in Microbiology	1 credit	MICB 7650-001
Research in Microbiology	1 credit	MICB 7650-002
Statistics for Basic Scientists	3 credits	BIOS 6606*
Foundations in Biomedical Sciences	6 credits	IDPT 7806**
Core Topics in Biomedical Sciences – topics A <i>Microbiology in Biomedical Research</i>	2 credits	IDPT 7810-002
Core Topics in Biomedical Sciences – topics B <i>The Microbiome in Health and Medicine, Gene Regulation and RNA Biology in Disease, Principles of Cancer Biology</i>	2 credits	IDPT 7810-009, -008, or -011

Year 1 Spring Semester Course Curriculum		
Research in Microbiology	1 credit	MICB 7650, 001
Molecular Mechanisms of Bacterial Disease	3 credits	MICB 7703
Molecular Virology and Pathogenesis	3 credits	MICB 7701

Year 1 Summer Semester Course Curriculum		
Doctoral Thesis	1 credit	MICB 8990

Year 1 Preliminary Exam	
Due dates for written portion of Preliminary Exam: ~June 3	
Last day to complete oral portion of Preliminary Exam: ~June 25	
*Dates are approximate. Time from May finals - end of June are reserved for Prelims until final dates announced.	

*BSP students take in their first year.

**MSTP students take their first year in the program.

Year 2 Required Events		
Microbiology Graduate Student Retreat		
IDJC, Attend and Present		
Attend Friday Seminar Series		
Attend and Present in Student RIP series on Wednesdays		
Committee meetings, with Pre-Comps or Comps Committee		
Comprehensive Exam written proposal due two weeks before oral exam and no later than May 1		

Year 2 Course Curriculum		
Science as a Profession, Fall	1 credit	IMMU 7607
Research in Microbiology, Fall/Spring	variable	MICB 7650-OV3
Workshop in Scientific Writing, Spring	1 credit	IMMU 7605

Year 2 Summer Semester Course Curriculum		
Doctoral Thesis	1 credit	MICB 8990-OV1

Year 3 and Beyond Required Events		
Microbiology Graduate Student Retreat		
IDJC Attend and Present		
Attend Friday Seminar Series		
Attend and Present in Student RIP series on Wednesday 9 am		
2 Thesis Committee meetings		
Ethics instruction must be undertaken at least once during each career stage, and at a frequency of no less than once every four years. After completing the full ethics course in year two, an ethics refresher course may be required, in which students are required to participate only in the discussion sessions.		

Year 3 and Beyond Course Curriculum		
Doctoral Thesis	5 credits Fall/Spring, 1 credit Summer, *5 credits if defending in Summer	MICB 8990

Thesis Preparation		
Obtain approval from Thesis Committee to write dissertation ~6 months before anticipated defense date		
Thesis due to Thesis Committee members at least 2 weeks before oral defense		

FIRST-YEAR STUDENT INFORMATION

Pre-Comps Advisory Committee

The Pre-Comps Advisory Committee will advise and oversee the academic progress of students until they begin meeting with their Thesis Committee after their comprehensive exam is completed. First-year students will meet with the Pre-Comps Advisory Committee during the beginning of the fall semester (August). At this meeting, the student and committee will review his/her academic background and goals. The committee will help the student make decisions regarding courses and rotations, and help resolve any problems that may arise until their Thesis committee is formed at the end of Year 2. The Pre-Comps Advisory Committee will also meet individually with each student 1 to 2 weeks before the end of each rotation to discuss academic progress, rotation plans, and to plan future courses. Students may call a meeting of the committee at any time by contacting the committee chair.

Microbiology Graduate Program Director & Administrator

The Director will act as an administrator for graduate student activities from matriculation through the thesis defense and is a member of the Pre-Comps Advisory committee. The Director and Program Administrator will interface with the Graduate School to ensure students are registered for appropriate courses and credits and ensure students fulfill required committee meetings as well as seminar and journal club presentations. A file will be maintained by the Program Administrator for each student that records their activities and accomplishments while in the graduate program and post-graduation.

Planning Academic Program

The Graduate School requires at least 30 semester hours in course work pre-comps (rotations and research courses taken prior to or concurrent with the completion of the comprehensive examination) and an additional 30 semester hours of thesis credits for the Ph.D. All work undertaken as a graduate student must be in compliance with the academic Code of Honor.

The sequence of courses required for the first year of the Graduate Program in Microbiology is shown in the following section.

First-year requirements:

- 10 credit hours of the BMS Core Course series (IDPT 7806, and 2 topics from IDPT 7810)
- Three laboratory rotations (MICB 7650, 11 weeks each)
- Statistics for Basic Scientist (BIOS 6606).
- MICB 7701
- MICB 7703
- Students must pass at least 19 credit hours in the first year of study in order to be eligible to take the comprehensive exam during the second semester of the second year

Second-year requirements

- IMMU 7607 (Science as a Profession), a course in scientific and research ethics, is also required, and is generally taken in the fall semester of the student's second year.
- Students must have passed at least 30 credit hours by the time they apply to take their comp exam

Depending on the student's past courses, the Pre-Comps Advisory Committee may allow alternative courses and/or provide transfer credit for some courses. A request in writing must be submitted to, and approved by, the Pre-Comps Advisory Committee and the Microbiology Graduate Program Director. Students who matriculate in BSP or other graduate programs and wish to pursue a degree in Microbiology

may submit requests to the Pre-Comps Advisory Committee to modify the requirements for courses to be taken in the first year and the committee may, in some cases, require that specific courses in Microbiology be taken during the second year. Students should be aware that they will be responsible for general knowledge in Microbiology during the Preliminary Examination.

Electives

There are many other excellent graduate courses available in the UCD-AMC Basic Science Ph.D. Graduate Programs. A list of elective courses currently approved by the Microbiology Program faculty can be found in Appendix 2. Students in the Microbiology Graduate Program may take electives during their first year with approval of the Pre-Comps Advisory Committee, or during subsequent years with the permission of their mentor. An annual listing of all graduate courses is published on-line at: <http://www.CUAnschutz.edu/studentervices/resources/registrar/students/Courses/Pages/CourseDescriptions.aspx> and semester updates are sent to students via email from the Graduate School office.

Registration for classes is completed online. It is advisable to discuss with the Graduate Program Director and the Pre-Comps Advisory Committee the courses that you plan to take each semester of the first year. If you fail to register before the deadline, you will be responsible for late fees. You need to register for one credit each summer or you will have retirement benefits withheld from your stipend. For the fall semester of the second year, you need to sign up for five credits of 7650 (pre-Comprehensive Exam research) as well as for the one credit ethics course. For the spring semester, you need to sign up for five credits of 7650. After you have passed your comprehensive exam, you need to sign up for five credits of 8990 (post-comprehensive exam credits) for each semester until you graduate. After the first year, with agreement of the Thesis mentor and committee, additional course work may be taken in the second and later years.

Grades

Reporting of grades. Grades are reported to the Registrar by the Course Director and the Graduate Program Director (for rotations).

Passing grades. All required courses (including the Core Course, laboratory rotations, and Microbiology course work) are to be met with grades of B (3.0) or better. If a student earns less than a B (3.0) in **any** of these courses, the Pre-Comps Advisory Committee and the Microbiology Graduate Program Faculty will decide, on a case-by-case basis, the appropriate measures to be taken.

Academic probation. The overall grade point average must be a B (3.0) in order for the student to be in good standing in the Graduate School. The Registrar will notify the student and the Graduate Program if and when a student is on academic probation, and Program approval/advising will be required for course registration during this time. The Pre-Comps Advisory Committee will then meet with the student to plan a strategy to remove the student from probation. This may require achieving higher grades in the later courses to balance grades of B- or lower, or taking additional courses. During probation a grade of B or better must be maintained in all courses. The student will have a maximum of two semesters at the discretion of the Microbiology Graduate Program Faculty (if enrolled as a full time student) to raise their GPA to at least 3.00. If a student remains on academic probation after two semesters, s/he will be subject to immediate dismissal upon the recommendation of the full Microbiology faculty and concurrence of the Dean of the Graduate School. If there are extenuating circumstances, however, the program director may petition the Dean for an extension of the probationary time period. Students on academic probation are not eligible to take the Preliminary Examination.

Lab Rotations

Each student is expected to do three lab rotations in laboratories of Microbiology Graduate Program faculty members during the first two academic semesters. Information about the research being done in each faculty laboratory is available on the Microbiology web page: <http://www.CUAnschutz.edu/anschutz/studentresources/Registrar/CourseListings/Pages/default.aspx>.

During orientation, first-year students will meet with the Microbiology graduate faculty and learn about their research programs.

Mentor Selection

Each student participates in three lab rotations with mentors who are doing work relevant to the student's interests. By the end of the spring semester, students are expected to have selected a laboratory for his/her dissertation research. In making this decision, it is the individual student's responsibility to discuss possible dissertation research projects and availability of research funding, stipend support, and lab space with each faculty mentor that he/she is considering. The student is encouraged to read the papers from the lab and grant applications supporting the research program, and to be familiar with the unique style of management in the lab. Then the student should approach the faculty member that is his/her first choice about making a commitment to accept the student into the lab.

Virtually all students join a lab. However, **entry into a lab is not guaranteed**. If the student is unable to make an agreement with a mentor to join a lab, the student should initiate discussions with the Pre-Comps Advisory Committee and the Program Director to discuss a possible fourth rotation. The inability to find a laboratory for your thesis research may lead to dismissal from the program.

Participation in Journal Clubs, Research Progress Seminars and Microbiology Seminars

One of the most important aspects of the graduate program and an essential tool for continuing education for all faculty and post docs is a lively program of seminars, journal clubs, and data clubs. For graduate students, these serve both as a source of state-of-the-art, new microbiology information and an opportunity to develop strong skills in speaking, which correlate well with future success. We encourage questions from all members of the audience of each of these programs during and after the talks. Vigorous participation by everyone makes these sessions very worthwhile. Notices of the seminar topics are posted online and in the entryway to RC-1 North.

Each student is expected to attend the weekly student and post-doc Research in Progress series (with exceptions for conflicts with required coursework), which are held on Wednesdays at 9 am either in Hensel Phelps East Auditorium or at National Jewish Health.

Each graduate student is expected to attend the weekly Friday Seminars, which are held at noon in Hensel Phelps East Auditorium.

In addition, each student is expected to attend the Infectious Diseases Journal Club, which is held at noon every other Thursday. Students are encouraged to participate in discipline-specific journal clubs or works in progress to be selected in consultation with their advisors.

Fellowship Applications

All graduate students are urged to apply for individual graduate student fellowships. A comprehensive source of fellowships is on the web at <http://www.grantsnet.org>. Students can apply for NSF and Howard Hughes Medical Institute fellowships soon after arriving, as these fellowships are only available to students in the early stages of training. Other fellowships available based on research interest, sex, race,

prior military experience, etc., are indicated on the website. The faculty and the Immunology and Microbiology Department Grants Specialist will be glad to help with applications.

The Microbiology Graduate Program Administrator and Director will assist in preparing portions of applications regarding training and program opportunities. Copies of the fellowship applications, as well as eventual outcomes, should be submitted to the Microbiology Graduate Administrator.

TYPICAL FIRST YEAR CURRICULUM

FALL SEMESTER

Foundations of Biomedical Sciences IDPT 7806 (6 credits)

A unified presentation of fundamental principles of biochemistry, cell biology, genetics and molecular biology. Designed for all first-year basic science graduate students.

Topics in Biomedical Sciences Block A:

Microbiology in Biomedical Research IDPT 7810-002 (2 credits)

This course is designed to introduce graduate students to the application and study of microbiology. Microbiology basics will be presented, including critical discoveries and tools from microbiology such as CRISPR/Cas and retroviral transduction and basic principles to understand bacteria and viruses. This course may serve as a primer for non-majors and will serve to prepare students for subsequent advanced courses in virology and bacteriology.

Topics in Biomedical Sciences Block B:

Microbiome in Health and Disease IDPT 7810-009 (2 credits)

The Microbiome in Health and Disease will introduce graduate students to basic concepts and techniques used to study the microbiome. This course will address mammalian physiology, immunology and disease pathogenesis within the context of the microbiome and its relationship to biomedical research. Additionally, this course will cover emerging topics and technologies related to the study of the microbiome including nervous system responses, metabolomics, the virome, the mycobiome and transkingdom interactions.

OR

Principles of Cancer Biology IDPT 7810-011 (2 credits)

Course covers the basics of Cancer Biology including the molecular and genetic basis of oncogenesis, cancer epidemiology, and cancer treatments. Course will serve as a preparation for more advanced cancer biology courses such as CANB 7600.

OR

Practical Biological Data Analysis with R/RStudio IDPT 7810-012 (2 credits)

This short course teaches you to analyze and visualize large, complex biological data sets using the R statistical programming language, RStudio, and new tools available in the “tidyverse”. We use common biological experiments to illustrate analysis strategies including studies of mRNA expression, histone post-translational modification in the context of chromatin, and cell-type characterization using single cell approaches.

Statistics for Basic Scientists BIOS 6606 (3 credits)

This course is designed to obtain a basic understanding of statistics and its applications in biological research, excluding analyses of big data (e.g., proteomics, genomics) which are covered in other courses.

Laboratory Rotation I. MICB 7650-001 (1 credit)
8/26/2019 – 11/18/2019

Laboratory Rotation II. MICB 7650-002 (1 credit)
11/19/19 – 2/21/2020

Each rotation will last approximately 11 weeks. The second rotation will begin 12 weeks into the Fall Semester and extend into the Spring Semester.

SPRING SEMESTER

Molecular Virology and Pathogenesis MICB 7701 (3 credits)

This 8-week course addresses the molecular biology of viruses and the host-virus interactions that influence pathogenic outcomes of virus infections. Topics include virus structure, virus receptors and entry into cells, genome organization and replication, viral gene expression, virus assembly, host responses to viral infection, emerging viral diseases, epidemiology, virus eradication, and virus evolution. Select medically important viruses will be covered including poliovirus, hepatitis viruses, influenza, HIV, herpesviruses, papillomaviruses and others. Course grades will be based on a mid-term and final exam, student presentations and participation in discussions.

Molecular Mechanisms of Bacterial Disease MICB 7703 (3 credits)

MICB 7703 is an 8-week lecture and primary literature discussion course. The course covers pathogenic bacteria and an in-depth discussion of several paradigms of bacterial diseases that illustrate important concepts and molecular mechanisms of bacterial pathogens and evasion of host defenses.

Electives. Students take additional approved elective courses, see appendix 2. (variable)

Laboratory Rotation III. MICB 7650-001 (1 credit)
2/22/2020 – 5/15/2020

SUMMER SEMESTER

Preliminary Examination. The preliminary examination is taken in early to mid-June. The prelim is a two-part exam. The first part is a written critical review of the literature on a specified topic. The second part is an oral exam based on the written document and will include general knowledge from the first-year coursework.

Research in Microbiology. MICB 8990 (1 credit)
Start thesis work in dissertation laboratory, July 1

PRELIMINARY EXAMINATION

Overview

At the end of the second semester of the first year, each student who is not on academic probation is required to take a Preliminary Examination by the end of June. The Graduate Program in Microbiology uses a two-part exam. The exam will include a **critical** review of a defined microbiology subject chosen by the faculty and written by the student. Following the written document, an oral exam will be administered to test knowledge of the review subject and knowledge of the student's first-year coursework including fundamental questions in virology and bacteriology. This exam is designed to provide an opportunity for students to read a body of literature, distill the findings into a coherent summary, and write in the style of a scientific review. This exercise will help prepare the student to write the introduction section of their Comprehensive Exam in the following year.

Guidelines for Exam

A subject that addresses issues that are topical in microbiology will be selected by the Prelim Exam Committee, consisting of three members of the faculty. The subject matter of the review will be a topic of special interest to the committee, and may include virology, bacteriology or both. The committee will select three to five papers which will form the basis of the review. Other papers relevant to the subject should be utilized by the student. The student will have two weeks to write 10 pages (not including figures) of a double-spaced, one-inch margin, review of the literature. It is recommended that students include a summary figure that encapsulates the review material. A future directions section should be included in which the student proposes possible avenues of future research based on the body of work described in the review. The student should also keep in mind that the exam is a critical review and thus, the student should attempt to make assessments of the relevant importance of findings to the big picture and not just restate findings and interpretations from the primary literature.

A meeting of the students taking the exam and the Chair of the Preliminary Examination Committee will be held prior to the exam to discuss the requirements for the written and oral portions of the exam and to answer questions. Preliminary exam topics are typically announced at the end of the Spring semester in mid-May, followed by a two-week writing period.

After the written portion is submitted to the Preliminary Exam Committee, the student will have at least one week to prepare for the oral portion of the exam, which will occur in early to mid-June. Students should be prepared to answer questions based on the specific exam subject including but not limited to the papers used to write the review. The student should also be keenly aware of techniques used to establish the facts described in their review. Faculty will also ask questions that assess the student's knowledge of basic concepts of microbiology, molecular biology, and cell biology. Thus, students are advised to review first year coursework especially from microbiology courses. Students are also advised to form a study group to review course material.

Grading Exam

The written and the oral portions of the Preliminary Exam will be graded as pass, pass with conditions, or fail. Both written and the oral portions must receive a pass or pass with conditions grade. If a student does not pass both sections of the exam the Microbiology Graduate Program Faculty will decide whether to administer a second exam or disenroll the student. After the student passes the Preliminary Examination, the student begins research in their thesis laboratory.

COMPREHENSIVE EXAMINATION

Eligibility and Dates

Eligible students (2nd year students who have passed preliminary examinations and are in good academic standing) will write and orally defend an **NIH F31-style research fellowship proposal** (<https://www.niaid.nih.gov/grants-contracts/calix-sample-f31-application-and-summary-statement>).

The Comprehensive Exam Committee will consist of five Microbiology Program Faculty members. Each year, the Comps Core Committee will consist of the Program Director and one other Microbiology faculty member who will serve on all comprehensive exam committees that year, and who will serve as Chairs of the Comp Committees. The remaining three members of the Comprehensive Exam Committee should be Microbiology Program faculty members, and are selected by the student in consultation with their thesis mentor and the Program Director. The thesis mentor cannot serve on the Comprehensive Exam committee, (but will be a member of the Thesis Committee). Students should plan to spend no more than four weeks out of the laboratory for researching, discussing, and writing the proposal. The written portion of the exam must be turned in to the Comprehensive Exam Committee two weeks prior to the oral exam date and the oral exam must be completed between January 1st and May 15th. The date of the oral examination should be scheduled by the student before April 1st.

Paperwork to Schedule the Exam

The forms to schedule this exam are in a packet on the Graduate School website at <http://www.CUAnschutz.edu/academics/colleges/Graduate-School/Pages/default.aspx> and then click on Resources for Current Students, Faculty and Staff, download both the ***Exam Request*** and the ***Application for Candidacy forms***. These materials should be downloaded the term prior to your anticipated examination date. Your Application for Admission to Candidacy (see above) is due to your Program Administrator at least three weeks prior to your expected examination date.

1. Download and complete the "Application for Admission to Candidacy".
2. Complete the "Exam Request" form.
3. Sign the application and obtain the signature of your program mentor on the "Application for Admission to Candidacy" and of your Program Director on both the "Application for Admission to Candidacy" and the "Request for Scheduling Exam" form. Electronic signatures preferred.
4. Submit both forms to the Graduate Program Administrator at least three weeks prior to the exam.
5. The Graduate School will prepare and distribute the "Notice of Examination" to you, the academic program, and your committee members.
6. Your program will receive not only the "Notice" but all necessary forms to complete the examination. Contact your program advisor regarding the makeup of the Examination Committee as well as the format the exam will take.

YOU MUST BE REGISTERED FOR THE TERM IN WHICH THE COMPREHENSIVE EXAMINATION IS TAKEN. If your examination occurs between terms, you will be required to register for the subsequent term.

Written Proposal

The research proposal should be about your intended thesis research that has been developed through interactions with your mentor in the months preceding the comprehensive exam. You should propose 2-3 years of work. It is important that you craft a solid hypothesis and 2-3 specific aims that test your hypothesis. You will also need to demonstrate a significant depth and breadth of knowledge of the

relevant background to the problem you propose to study. **The hypothesis, rationale, strategy, and experimental design in the written proposal should be the work of the student.** You may consult with: your thesis mentor, the members of your comps committee, fellow graduate students, post-docs, other faculty, and the published literature. When you discuss your proposed research with others, you must inform them that you are discussing your comprehensive exam and indicate to them that your interactions are for the purpose of developing your ideas or discussing how certain experiments might work or be interpreted. However, faculty and other advisors should not edit the student's written proposal for style or content.

Format guidelines: Your research proposal should contain no more than 6 pages single-spaced (excluding references), plus a separate page for Specific Aims. Margins are to be no less than 0.5 inches and the font should be Arial with no smaller than 11 pt. Use of figures and schematics is strongly encouraged. Proposals that fail to abide by format guidelines will be returned.

Organization of the Written Proposal

Abstract/specific aims. *One separate page.* Write an abstract that succinctly describes your project. It should briefly introduce the problem and summarize the overall objectives and methods to be used. It should serve as a concise and accurate description of the work when separated from the proposal

Research plan. *6 pages.* The research plan is divided into the following sections: *Significance; Innovation; Approach.*

Significance:

Briefly describe the background leading to the present proposal, critically evaluate existing knowledge, and specifically identify the gaps the project is intended to fill. State concisely the significance- importance and health relevance of the research described in the proposal by relating the specific aims to the broad, long-term objectives.

In other words:

- 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.

Innovation:

Point out inventive/original aspects of your proposed research, these may be conceptual or technical advances to the field.

Clearly state a hypothesis and summarize how the proposal will test that hypothesis. Most top-notch NIH grant applications are driven by well-focused and testable hypotheses. Generally, applications should ask questions that prove or disprove a hypothesis rather than search for a problem or simply collect information. Think of your hypothesis as the foundation of your application -- the conceptual underpinning on which the entire structure rests. Your experimental results will prove or disprove your hypothesis. Don't confuse your hypothesis with methods. Methods describe how you will perform your experiments. **Keep Your Hypothesis Focused.** Choose an important, testable, focused hypothesis that increases understanding of biologic processes, diseases, treatments, or preventions and is based on previous research. Hypotheses should naturally provoke questions. Answering these questions then becomes the goal of each of your specific aims.

Preliminary studies:

Describe the preliminary studies or data relevant to the proposal. This information can encompass published literature from your laboratory, as well as data you have generated since you have been in the laboratory. Figures and Tables should be annotated with citations that indicate who is credited with generating the data, especially when it is someone other than yourself. Figures and Tables are to be embedded within the document, not submitted as a separate section, and are included as part of the 6 page limit. Figures should be legible and should include a figure legend.

Approach:

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Describe the rationale for the proposed experiments and include sufficient detail for how the experimentation is to be completed. Include how the data will be collected, analyzed, and interpreted. Schematics, tables, and timelines can be very effective ways to present complex experiments and working models.
- Discuss potential outcomes, problems and alternative strategies. Make sure that your proposed experiments generate interpretable results allowing you to answer the question you propose. When you have that answer, discuss what you will do next.

References. The written proposal should be well referenced. Proposals may use any standard citation style, but you must include the names of all authors (in the same sequence as the publication), article and journal title, book title, volume number, page numbers, and year of publication. References are not included in the page limitations.

Oral Examination

It is the responsibility of the student to schedule the oral defense. Examinations will take the form of an oral defense of the research proposal by the Comprehensive Exam committee. Your mentor will not participate in the examination, although he or she may attend. Plan to present a 10 to 15-minute overview of your proposal as a PowerPoint presentation. Summarize relevant background and preliminary data. Present your hypothesis and specific aims. Broadly review your experimental plan. You will be questioned about anything specifically and generally related to the proposal. It is wise for the student to review broadly before the examination. Students are advised to take one or more practice oral exams from other students and/or post-docs. Exams typically take 2-3 hours.

Outcomes

Pass

You must receive the affirmative votes of a majority of the members of the committee in order to pass. Student continues to doctoral candidacy.

Pass with revisions/conditions

Revisions to the written proposal may be required by the examination committee. A pass with revisions will require the student to address the comments of the review committee and resubmit the requested revisions **as outlined** at the end of the oral examination. The comps revisions will be reviewed by the committee and a Pass/Fail determination will be made. Other requirements, such as additional coursework or directed reading, may also be made by the committee. The terms for completion of these requirements will be determined by the committee at the end of the oral examination. In such cases, the committee, via the chair, will provide written instructions regarding the conditions that must be met by

the student to receive a passing grade. You will be considered to have "passed" when these conditions are met to the satisfaction of the committee. Failure to meet the conditions in the time specified will result in failure of the examination.

Fail

In the event that you fail the examination, you are subject to immediate dismissal from the Graduate School. At your program's discretion, you may be allowed to retake the examination once. The retake will be in a form designated by the committee and must be completed within six months. Failure of the second exam will result in automatic dismissal.

THESIS COMMITTEE AND DISSERTATION

Thesis Committee

This is a committee of five (four faculty members plus the mentor) that will be formed during the second year. The mentor and student recommend appropriate members and chair of the committee to the Graduate Program Director. The committee must include at least one, but not more than two, faculty members outside the Microbiology Graduate Program Faculty. Any outside members should have expertise in the area of the student's research.

The Thesis Committee must be constituted by the end of the second year and an initial meeting must be conducted within 6 months of the completion of the comprehensive exam. The student is responsible for scheduling a meeting of the committee (to include the entire committee or a majority of the committee members) every six months, or more often if necessary, to review the student's plans and progress and make suggestions to facilitate the research. The committee also will mediate conflicts that may arise between the student and mentor. Individual committee members are available for consultation at any time.

At least 48 hours before each meeting, the student should submit to each member of the committee a written summary of the progress since the last meeting and plans for the next six months or more. If the student is scheduled to give a research-in-progress seminar, it may be convenient to schedule the committee meeting immediately after the presentation to avoid repetition.

After each committee meeting, the student and committee chair should promptly write minutes of the meeting. The student and the committee chair should reach agreement on the document, after which each committee member, the student, the Graduate Program Director, and the Graduate School (submitted online) are provided a copy of the final report.

The Thesis Committee will help the student and mentor decide when enough original research and submission of high-quality manuscripts describing the research have been done to allow the student to write the dissertation. The Thesis Committee will not agree to a thesis defense date until at least one first-author primary research article has been submitted to a peer-reviewed journal. One submitted paper is a minimum requirement and not considered the norm for fulfilling sufficient research to earn a PhD.

In the last six months of the student's time at UCD, the student must comply with all the regulations of the Graduate School regarding writing and submission of the thesis and the graduation procedures and ceremonies. The Thesis Committee will read the dissertation and be responsible for the final examination in defense of the dissertation. Students must allow at least 14 days after submitting the dissertation to the thesis committee before the date of the thesis defense.

Dissertation

The dissertation is written by the student according to UCD guidelines and based on the student's original research. The mentor will provide primary guidance on the scientific writing, and the student may also consult with other faculty, in particular the Chairman of the Student's Thesis Committee. The Assistant Dean of the Graduate School offers lectures throughout the year describing the required format of the dissertation. It is advised that you attend this lecture. Examples of previous successful dissertations are available in the Immunology and Microbiology Department. The student and mentor are responsible for providing high quality illustrations for the dissertation and making copies of the final dissertation for the Thesis Committee.

The student must provide the completed dissertation to the thesis committee at least two weeks prior to the public oral presentation of the student's dissertation research. The written dissertation is expected to be in final form. The student is primarily responsible for the form of the dissertation. Detailed instructions can be found under Student Services/Academic Resources/PhD resources at <http://www.CUAnschutz.edu/academics/colleges/Graduate-School/Pages/default.aspx>. The student's mentor should carefully read and edit the dissertation prior to submission to the thesis committee. If the written document is found to be poor by the thesis committee, the oral presentation and defense of the thesis may be delayed.

The student is responsible for scheduling the date and location of the public oral presentation of the dissertation research to the UCD community. On the scheduled date, the student will present a public seminar on the dissertation research, followed by questions from the audience. The student will then immediately take an oral Final Examination in Defense of the Dissertation administered by the Student's Thesis Committee. The Committee may suggest changes needed for the dissertation to be acceptable as well as examining the student on the content of the research. Each member of the Examination Committee must sign approval or disapprove of the dissertation and the Oral Defense for submission to the Graduate School. A simple majority vote of the committee determines the outcome of the deliberations.

Once the dissertation defense is passed and all the requirements for completion of the dissertation have been accomplished and approved, the student should provide a bound copy of the final version of the dissertation with figures to the UCD library, the Immunology and Microbiology Department, and the mentor. The specific requirements for the written document are available from the Graduate School. A copy of the dissertation abstract must be submitted for microfilming.

The student is now eligible to receive the PhD degree. This degree can be awarded at the Spring UCD graduation, or in August or December without a ceremony as described in the UCD Student Handbook. Consult the Graduate School office for current rules regarding when requirements must be met and complete in order to participate in graduation ceremonies.

Changing Advisors or Dismissal from Thesis Lab

While it is always the goal that a student who chooses a thesis advisor is able to complete the PhD thesis with this advisor, this relationship does not always work out. While the Microbiology Program does not have the authority to dictate whether or not a student continues in a particular thesis lab, the Program does suggest certain guidelines in the interest of fairness to both student and mentor. Still, in the end, it is at the discretion of both the student and advisor as to whether a student continues in the chosen thesis lab.

Guidelines:

- 1) If a student is having trouble in the lab, such as in the form of conflicts with the mentor or lack of mentoring, then the student should consult with the Microbiology Graduate Program Director and/or the Chair of their Thesis Committee. This action should be taken as soon as problems arise. A written summary of the meeting and issue should be documented.
- 2) If a mentor is unhappy with the performance, lab citizenship, work ethic or intellectual engagement of a student (or any other problem), then the mentor should meet with the student expressing these concerns. Consultation with the Graduate Program Director and/or the Chair of

the student's thesis committee is also recommended. A written summary of the meeting and issue should be documented.

- 3) In either of the cases above, the advisor and the student should then work out a plan of remediation. This plan should be in writing, and it is advised that the plan be forwarded to the Microbiology Graduate Program Director and the Chair of the student's Thesis Committee. Regular meetings between the student and advisor should be held, and satisfactory or unsatisfactory improvements documented (copied to the Director and committee Chair).
- 4) Should a conflict reach the point where either the student or mentor decides that mentor-student relationship should end, then the student has several choices. The student can find another mentor within the Program, transfer to another lab in a different graduate program, choose to leave the Program with a Master's degree (subject to the rules of the Graduate School and approval by the Thesis Committee), or choose to leave the Program.

The UC Denver Ombuds office is also available to students and mentors to help resolve conflicts and misunderstandings. They are experts in problem resolution and are completely confidential. Please refer to their website to find out more about their offerings <http://www.CUAnschutz.edu/about/departments/OmbudsOffice/Pages/OmbudsOffice.aspx>

Program Transfer: For students matriculating directly into Basic Science Programs, there is an expectation that you will remain in that Program. You have matriculated into that Program by virtue of having applied and being accepted. Thus, there is a substantial bilateral commitment. Transferring from a Program, at any point, is actively discouraged. If there are issues with an individual mentor or a perceived lack of research laboratory options, it is expected that solutions will first be explored within the Program. Program transfer will only be approved under exceptional circumstances, and then only after successful completion of the preliminary exam at the end of the first year.

TRAINING TIME LIMIT

Doctoral students are expected to pass the comprehensive examination and advance to candidacy within two years and are required to complete all degree requirements within **seven** years of matriculation. Students are strongly encouraged to finish their degree requirements in less than seven years. During this time, students are required to maintain satisfactory academic performance and to demonstrate appropriate progress toward accomplishing the goals of their thesis projects, as evaluated by their mentor and Thesis Committee as requirements for remaining in the Microbiology Graduate Program. Students who fail to complete the degree in the seven-year period are subject to termination from the Graduate Program in Microbiology upon recommendation of the Thesis Committee and Steering Committee. For a student to continue beyond the seven-year limit, the Graduate Program Director must petition the Microbiology Program Faculty and include 1) reasons why the student should be allowed to continue in the program and 2) the amount of additional time that will be needed for completion of the degree, which cannot exceed one additional year.

CAREER INFORMATION

The graduates of this program have gone into academic positions with teaching and research, biotechnology companies, and government agencies. It is important for us to keep in contact with our graduates both to provide help if needed and to help us in preparing applications for training grants which require information on careers of program graduates.

Up-to-date information on job opportunities at the postdoctoral level and career positions is posted on a bulletin board in the Immunology and Microbiology Department as well as on our career center website at www.ucdenvercareercenter.org/index.html. In addition, job placement services are available from professional societies such as ASM, ASV, ASCB, etc. Program faculty are of great help in finding postdoctoral positions. The Graduate School sponsors Career Days for graduate students and postdoctoral fellows to learn about possible career options.

The Microbiology Graduate Program makes every effort to allow the graduate students and postdoctoral fellows to interact with faculty guests who present Microbiology Seminars. Often, they are invited to lunch with the guest speaker after the seminar. In such meetings, the students and postdocs are the hosts for the event, providing any requested information about the graduate programs here. In addition, they should ask questions of the speaker about his/her own field of research, career path, and present institution. To learn more about career opportunities outside of academics, you may attend seminars offered by the Alternatives in Science Club as well as many networking events offered through the Colorado BioScience Association (CBSA). Membership to CBSA is paid through the University, so most events are covered.

Career Development Opportunities

The Graduate School at the University of Colorado Anschutz Medical Campus offers a variety of career development workshops, seminars, and training programs. These opportunities are coordinated by the Career Development Office (CDO) and trainings focus on the non-research-based skills that are essential for any successful scientific career: communication, leadership and management, and professionalism. These workshops and seminars are offered many times throughout the year and range from short one-hour lunch sessions to multi-day sessions. More information about the workshops, additional career development resources, and a schedule of events can be found on the CDO website: www.CUAnschutz.edu/career-development.

GRADUATE STUDENT ACTIVITIES

Student Senate and Council

The Microbiology Graduate Program is allowed to elect representatives for Student Senate. Senate oversees and votes on University-wide student issues. Also, all graduate students are welcome to attend monthly Graduate Student Council (GSC) meetings. GSC acts on issues of importance to graduate students. Any student may submit issues to Senate or GSC for consideration.

<http://www.CUAnschutz.edu/life/services/studentlife/StudentGovernment/senate/Pages/form.aspx>

Microbiology Student Governance

The Microbiology Program also has its own Student Council which elects a faculty liaison/President to represent the Microbiology student body to the faculty, an Admissions and Recruitment Committee member to assist in selecting new student candidates, a Graduate Student Retreat Committee Chair to organize the upcoming year's retreat, a student representative to the Enrichment Activities and Funds committee, and a journal club coordinator for the Infectious Disease Journal Club (IDJC).

Annual University Student Research Forum & Poster Session

Each year a Student Research Forum is held to highlight the research contributions of graduate students and medical students. Students from all programs present posters on their research. Faculty judge the posters and presentations and financial awards are made. Food is provided and there is a large and enthusiastic audience of faculty and students. Cash prizes are provided to students with the posters considered the most outstanding by faculty reviewers.

<http://www.CUAnschutz.edu/academics/colleges/medicalschoo/education/community/StudentResearchforum/Pages/default.aspx>

Graduate Student Retreat

Every autumn, all of the students and post-docs are invited to take part in the Immunology and Microbiology student and post-doc retreat. The retreat is held at a mountain location within driving distance, attendees are able to present either a poster or a small seminar if they wish, and awards are presented to best presentations. The retreat is a time not only to share scientific ideas and practice presentation skills, but also to enjoy the company of fellow department members while hiking through colorful trails or enjoying a few hours in the local town.

Recruitment of New Students for the Graduate Program in Microbiology

Applications for admission will begin to arrive September 1st. The deadline for applications is December 1st. The Admissions Committee, composed of faculty and a student representative, will review written applications and recommend approximately 10 students to be interviewed. Candidates will be invited to interview with faculty and graduate students.

Students in the Microbiology Program are expected to help host the applicants at meals or social events, interview them as requested, present posters on their own research, and provide tours of the campus. Students with insight into applicant's qualifications are requested to submit comments to the Admissions Committee. Students in the Microbiology Graduate Program will play an important role in welcoming new graduate students, orienting them to UCD, and mentoring them during the first year of the graduate program.

Other Activities

Social activities are available both campus wide, including welcome weekend and Fun In-The-Sun (FITS) on Fridays during the summer, and other graduate program and departmental functions.

GRADUATE PROGRAM TRAINING FACULTY

David J. Barton, Professor

Department of Immunology and Microbiology
Ph.D., 1989, University of Toledo, Toledo Ohio
Research Interest: *Picornaviruses and hepatitis C virus: viral replication and innate antiviral immunity*
303-724-4215, david.barton@CUAnschutz.edu
Accepting Students: YES

J. David Beckham, Associate Professor

Department of Medicine, Division of Infectious Diseases,
MD, 2001, Baylor College of Medicine, Houston, Texas
Research Interest: *Molecular Pathogenesis of neuroinvasive viral infections*
303-724-4927, david.beckham@CUAnschutz.edu
Accepting Students: YES

Leslie Berg, Professor and Chair

Department of Immunology and Microbiology
Ph.D., 1986, University of California, Berkeley, CA
Research Interest: *specializes in understanding how T cells develop and help fight infection*
303-724-2214 Leslie.Berg@CUAnschutz.edu
303-724-8665 Sandy Duran, Assistant to the Chair
Accepting Students: YES

John C. Cambier, Distinguished Professor

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@CUAnschutz.edu
Accepting Students: NO

Thomas B. Campbell, Professor

Division of Infectious Diseases, MICB
M.D., 1985, Southwestern Medical School, Dallas, Texas
Research Interest: *Treatment and prevention of HIV infection and HIV-related complications*
303-724-4929, thomas.campbell@CUAnschutz.edu
Accepting Students: unknown

Randall J. Cohrs, Research Professor

Department of Neurology
Ph.D., 1986, Southern Illinois University, Carbondale, Illinois
Research Interest: *The Molecular Biology of Herpesvirus sylvilagus*
303-724-4325, randall.cohrs@CUAnschutz.edu
Accepting Students: NO

Adela Cota-Gomez, Associate Professor

The Division of Pulmonary Sciences and Critical Care Medicine
Ph.D., 1999, University of Colorado Health Sciences Center
Research Interest: *Mechanisms by which the HIV Tat protein modulates oxidative stress and inflammation.*
303-724-6085, adela.cota-gomez@CUAnschutz.edu
Accepting Students: YES

Richard E. Davis, Professor

Biochemistry and Molecular Genetics
Co-Director, RNA Bioscience Initiative
Ph.D., 1982, The University of Massachusetts, Amherst
Research Interest: *Programmed DNA elimination and novel RNA functions*
303-724-3226, richard.davis@CUAnschutz.edu
Accepting Students: NO

Kelly S. Doran, Professor

Department of Immunology and Microbiology
Ph.D., 1998, University of California, San Diego
Research Interest: *Host - pathogen interactions in the central nervous system (CNS) and the female reproductive during infection and colonization.*
kelly.doran@CUAnschutz.edu
Accepting Students: YES

Breck Duerkop, Assistant Professor

Department of Immunology and Microbiology
Ph.D., 2009, University of Washington
Research Interest: *Viral/bacterial metagenomics of complex host-associated microbial environments*
breck.duerkop@CUAnschutz.edu
Accepting Students: YES

Sonia C. Flores, Professor

Division of Pulmonary Sciences & Critical Care Medicine
Ph.D., 1988, University of South Alabama, Mobile
Research Interest: *Mechanisms of HIV-1 Tat and Nef-dependent vascular endothelial cell phenotypic changes; T. whipplei lung pathogenesis.*
303-724-6084, sonia.flores@CUAnschutz.edu
Accepting Students: NO

Daniel N. Frank, Associate Professor

Division of Infectious Disease
Ph.D., 1993, University of California, San Francisco
Research Interest: *The study of the human microbiome in health and a variety of diseases.*
303-724-5536, daniel.frank@CUAnschutz.edu
Accepting Students: maybe

J. Kirk Harris, Associate Professor

Division of Pediatrics Pulmonary Medicine
Ph.D., 2005, University of California, Berkeley
Research Interest: *Respiratory microbiota and model system microbiota*
720-777-4943, johnathan.harris@CUAnschutz.edu
Accepting Students: NO

Jay Hesselberth, Associate Professor

Biochemistry and Molecular Genetics
Ph.D., 2003, University of Texas, Austin
Research Interest: *genomics of DNA and RNA repair*
303-724-5384, jay.hesselberth@CUAnschutz.edu
Accepting Students: YES

Alexander R. Horswill, Professor

Immunology and Microbiology
Ph.D., 2001, University of Wisconsin-Madison
Research Interest: *Bacterial pathogenesis including quorum-sensing signal production, biofilm development mechanisms, virulence factor function in host-pathogen.*
303-724-4224, alexander.horswill@CUAnschutz.edu
Accepting Students: YES

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@CUAnschutz.edu
Accepting Students: YES

Mark Johnston, Professor

Department of Biochemistry and Molecular Genetics
Ph.D., 1980 University of California-Berkeley
Research Interest: *Nutrient sensing and signaling, yeast genetics, functional genomics.*
303-724-3203, <http://mark.johnston@CUAnschutz.edu>
Accepting Students: unknown

Marijke Keestra-Gounder, Assistant Professor

Department of Immunology and Microbiology
Ph.D., 2008, Utrecht University (The Netherlands), Department of Infectious Diseases and Immunology
Research Interest: *The major focus of my research program is to elucidate 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@CUAnschutz.edu
Accepting Students: YES

Jeffrey S. Kieft, Professor

Department of Biochemistry & Molecular Genetics
Ph.D., 1997, University of California, Berkeley
Research Interest: *Discovery, structure, and function of RNA, RNA-protein, and RNA-ribosome complexes important for infection by viruses.*
303-724-3257, jeffrey.kieft@CUAnschutz.edu
Accepting Students: YES

Kristine A. Kuhn, Assistant Professor

Division of Rheumatology / Barbara Davis Center for Diabetes
Ph.D., 2005, 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@CUAnschutz.edu
Accepting Students: YES

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@CUAnschutz.edu
Accepting Students: YES

Catherine Lozupone, Assistant Professor

Division of Biomedical Informatics and Personalized Medicine
Ph.D. 2007, University of Colorado, Boulder
Research Interest: *Microbiology of the human gut and impacts on health. The development of bioinformatics techniques for analysis of marker gene and genomic sequence data.*
303-724-7942, catherine.lozupone@CUAnschutz.edu
Accepting Students: YES

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@CUAnschutz.edu
Accepting Students: YES

Maria Nagel, Associate Professor

Department of Neurology
M.D., 2002, University of Illinois, Urbana –Champaign
Research Interest: *Clinical and basic research aspects of stroke caused by varicella zoster virus (VZV).*
303-724-4319, maria.nagel@CUAnschutz.edu
Accepting Students: maybe

Brent E. Palmer, Associate Professor

Division of Allergy and Clinical Immunology
Director, ACI/ID and ClinImmune Labs Clinical and Research Flow Cytometry Facility
Technical Director of the Center for AIDS Research Immunology Core
Ph.D., 1999, Colorado State University
Research Interest: *Delineating the effects of HIV infection on T cell function.*
303-724-7203, brent.palmer@CUAnschutz.edu
Accepting Students: unknown

Vanessa Phelan, Assistant Professor

Department of Pharmaceutical Sciences
Skaggs School of Pharmacy & Pharmaceutical Sciences
Ph.D., 2011, Vanderbilt University
Research Interest: *The Interactive Metabolome of Polymicrobial Biofilms.*
303-724-3291, vanessa.phelan@CUAnschutz.edu
Accepting Students: unknown

Eric M. Poeschla, Professor

Tim Gill Professor of Medicine, Chief of Infectious Diseases
M.D., 1985, Yale University School of Medicine
Research Interest: *Molecular virology and pathogenesis of RNA viruses including HIV-1, positive strand RNA viruses, innate immunity to viruses, including viral nucleic acid sensing. Viral vectors, site-specific gene targeting.*
303-724-8770, eric.poeschla@CUAnschutz.edu
Accepting Students: YES

Stefan Pukatzki, Professor

Department of Immunology and Microbiology
Ph.D., 1999, Columbia University of College of Physicians and Surgeons
Research Interest: *The molecular mechanisms of microbial pathogens. Understanding the molecular mechanisms that allow bacterial pathogens to cause disease.*
303-724-9033, stefan.pukatzki@CUAnschutz.edu
Accepting Students: NO

Rosemary Rochford, Professor

Department of Immunology and Microbiology
Research Interest: *Human herpesvirus infections and immune responses. Malaria immunology and drug development.*
303-724-9960, rosemary.rochford@CUAnschutz.edu
Accepting Students: YES

Mario L. Santiago, Associate Professor

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 (Friend retrovirus, SIV and HIV).*
303-724-4946, mario.santiago@CUAnschutz.edu
Accepting Students: YES

Michael J. Schurr, Associate Professor

Department of Immunology and Microbiology
Ph.D., 1992, University of North Texas, Denton, Texas
Research Interest: *Transcriptional regulation and molecular biology of bacterial virulence factors.*
303-724-4221, michael.schurr@CUAnschutz.edu
Accepting Students: maybe

Kenneth L. Tyler, Professor and Chair

Department of Neurology
M.D., 1978, Johns Hopkins School of Medicine
Research Interest: *Pathogenesis of viral infections of the Central Nervous System (West Nile, Japanese encephalitis, Zika, Enteroviruses, Reoviruses)*
303-724-4327, ken.tyler@CUAnschutz.edu
Accepting Students: YES

Linda F. van Dyk, 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@CUAnschutz.edu
Accepting Students: YES

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@CUAnschutz.edu
Accepting Students: YES

Martin I. Voskuil, Associate Professor

Department of Immunology and Microbiology
Ph.D., 1998, University of Wisconsin, Madison
Research Interest: *Mycobacterium tuberculosis and Burkholderia pseudomallei mechanisms of latency and drug tolerance.*
303-724-4219, martin.voskuil@CUAnschutz.edu
Accepting Students: YES

GRADUATE PROGRAM STAFF

Tem Morrison, Ph.D., Program Director
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Michele Parsons, Program Administrator
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Miranda Mcdevitt, Program Coordinator
 RC1S-9112 Miranda.Mcdevitt@CUAnschutz.edu O: 303-724-3350

GRADUATE PROGRAM COMMITTEES

<i>Microbiology Graduate Program Director</i>	Tem Morrison
<i>Program Steering Committee</i>	Leslie Berg John Cambier Kelly Doran Marijke Kestra-Gounder Tem Morrison Michele Parsons Mike Schurr Hadrian Sparks – Student Rep Andres Vazquez-Torres Linda van Dyk Martin Voskuil
<i>Admissions and Recruitment Committee</i>	Kelly Doran, <i>Chair</i> Dave Beckham Breck Duerkop Alex Horswill Tem Morrison Marty Voskuil Ari Simenauer (Admissions) Norhan Alhajjar (Recruitment)
<i>Enrichment Activities and Funds Committee</i>	Michele Parsons Ashley Knox
<i>Pre-Comps Advisory Committee</i>	Linda van Dyk, <i>Chair</i> Tem Morrison Mike Schurr
<i>Prelim Committee</i>	Mike Schurr, <i>Chair</i>
<i>Comps Core Committee</i>	Dave Barton Tem Morrison

STUDENT LEADERSHIP AND REPRESENTATIVES

President and Steering Committee Representative	Hadrian Sparks	
Admissions Committee	Ari Simenauer	
Student Recruitment Coordinator	Norhan Alhajjar	
B-Rip (Student Data Group) / Chalk Talks	Rachel Neve	
Enrichment Funds	Ashley Knox	
Immunology Student Organization	Monica Graham	
Infectious Disease Journal Club (IDJC)	Joshua Frost	
Student Communications Coordinator	Ashley Knox	
Student Retreat Coordinator *	Monica Graham	
Student Social Coordinator (includes Welcome BBQ*)	Jonathan Mendez	
Student Invited Speaker Coordinator	Zoe O'Donoghue (18-20) Frank Santoriello (18-20) Morgan Brown (19-21) Cydney Johnson (19-21)	
Graduate Student Mentors & Mentees	<i>Mentor</i> Hadrian Sparks Rachel Neve Haider Manzer Brendan Monogue Haider Manzer TBD TBD	<i>Mentee</i> Anna Burnet Emma Culbertson Klara Keim Cormac Lucas Laurie Lyon Krista Mills Frances Li (MSTP)

*Joint event with the Graduate Program in Immunology

COURSE DIRECTORS

Microbiology in Biomedical Research (IDTP 7810)	Mike Schurr
Microbiome in Health and Medicine (IDTP 7810)	Breck Duerkop
Molecular Virology and Pathogenesis (MICB 7701)	Linda van Dyk Mario Santiago
Molecular Mechanisms of Bacterial Disease (MICB 7703)	Martin Voskuil Alex Horswill
Student RIP Coordinators	Jing Wang Jordan Jacobelli Michele Parsons/Miranda Mcdevitt

GRADUATE PROGRAM STUDENTS

Name	All Accounts @CUAnschutz.edu	Matriculation Year	Lab
Christopher Covey	Christopher.Covey	2013	Voskuil
Ricardo Villarreal	Ricardo.Villarreal	2013 (MSTP) T	Doran
Abigail Armstrong	Abigail.Armstrong	2014	Lozupone
Katie Arnolds	Kathleen.Arnolds	2014	Lozupone
Jennifer Berger	Jennifer.Berger	2014	Van Dyk
Sarah Born	Sarah.Born	2014	Voskuil
Zoe O'Donoghue	Zoe.Odonoghue	2014 (BSP)	Kieft
Gabi Samayoa-Reyes	Gabriela.SamayoaReyes	2015	Poeschla
Ari Simenauer	Ari.Simenauer	2015	Cota-Gomez
Ashley Knox	Ashely.Knox	2016 (BSP)	Van Dyk
Casey Martin	Casey.G.Martin	2016	Lozupone
Rachel Neve	Rachel.Neve	2016	Phelan
Frank Santoriello	Francis.Santoriello	2016	Pukatzki
Hadrian Sparks	Hadrian.Sparks	2016	Beckham
Sarah Stonedahl	Sarah.Stonedahl	2016 (BSP)	Tyler
Norhan Alhajjar	Norhan.alhajjar	2017	Doran
Morgan Brown	Morgan.M.Brown	2017 (BSP)	Horswill
Joshua Frost	Joshua.Frost	2017 (BSP)	Tyler
Monica Graham	Monica.Graham	2017	Beckham
Cydney Johnson	Cydney.Johnson	2017 (BSP)	Duerkop
Jonathan Mendez	Jonathan.Mendez	2017	Keestra-Gounder
Brendan Monogue	Brendan.Monogue	2017	Beckham
Matthew Szucs	Matthew.Szucs	2017	Kieft
Hailey Kinsland	Hailey.Kinsland	2018	Phelan
Haider Manzer	Haider.Manzer	2018	Doran
Frances Li	Frances.Li	2018 (MSTP)	Morrison
Anna Burnet	Anna.Burnet	2019	<i>Rotating</i>
Emma Culbertson	Emma.Culbertson	2019	<i>Rotating</i>
Klara Keim	Klara.Keim	2019	<i>Rotating</i>
Cormac Lucas	Cormac.Lucas	2019	<i>Rotating</i>
Laurie Lyon	Laurie.Lyon	2019	<i>Rotating</i>

T = Transferred into program

ACADEMIC CALENDAR
 Graduate School
 Basic Sciences Programs
 Pharmaceutical and Sciences and Toxicology Programs



Academic Calendar - Fall 2019

This calendar:

- applies to the Basic Sciences Programs and the Pharmaceutical Sciences and Toxicology Programs on the Anschutz Medical Campus.
- only includes deadlines pertaining to coursework or those managed through UCDAccess.

For deadlines pertaining to graduation, please see the Graduation Deadlines document on the Graduate School website.

For policies, procedures and deadlines related to the tuition waiver benefit, please visit the Employee Services website.

Month	Day	Deadline	Notes
June	3	First day to submit a new non-degree application or continuing non-degree course permission form.	Taking a class requires active non-degree student status. Continuing non-degree students must submit a signed course permission form to enroll every semester.
	17	First day to apply for Fall graduation in UCDAccess.	If you intend to graduate in Fall 2019, you must complete this online application. If you do not, you will not be eligible to receive your degree until Spring 2020.
July	1	Course enrollment for Fall begins in UCDAccess	
August	19	Last day to submit a new non-degree application or a continuing non-degree course permission form.	See June 3 for more info.
	26	First day of Fall full semester classes.	
		First day of Research Rotation #1	Applies to first year PhD students only.
September	3	Labor Day Holiday	No classes. Campus closed.
	6	Last day to add/drop courses in UCDAccess. * Courses dropped after this date will appear on your transcript with a grade of "W." * Students will be charged all tuition and fees for any course dropped after this date. * Students will be charged a \$60 late fee to add courses after this date.	After this date: • use the small Add/Drop Form to modify credits or add classes if already enrolled in at least one (1) credit. • students who have not registered in any classes must use the Registrar's Registration Form and get the Assistant Dean's signature. • use the Registrar's Course Withdrawal form to withdraw from (drop) a class.
	9	Last day to petition for resident (in-state) student/tuition status. Last day to apply for graduation in UCDAccess.	Funded PhD students who do not establish residency by second year may have to pay the tuition difference. If you intend to graduate in Fall 2019, you must complete this online application. If you do not, you will not be eligible to receive your degree until Spring 2020.
November	15	Last day of Research Rotation #1	
	18	First day of Research Rotation #2	Applies to first year PhD students only. Holiday breaks: Nov. 28-29 & Dec. 18-Jan. 1, 2020
	28-29	Thanksgiving Holiday	No classes. Campus closed.
December	15-18	Final Examination Week	
	18	End of semester	Fall 2018 degrees will be awarded effective this date.
	18	Final grades due (noon)	

Spring 2020	January 21	Classes begin	
	February 17	President's Day Holiday	No classes. Campus closed.
	March 16-21	Spring Break	No classes. Campus open.
	May 15	End of semester	
	May 22	Commencement & Convocation	
Summer 2020	June 1	Classes begin	
	July 4	Independence Day Holiday	No classes. Campus closed.
	August 14	End of semester	

Academic Calendar - Spring 2020

This calendar:

- applies to the Basic Sciences Programs and the Pharmaceutical Sciences and Toxicology Programs on the Anschutz Medical Campus
- only includes deadlines pertaining to coursework or those managed through UCDAccess.

For deadlines pertaining to graduation, please see the Graduation Deadlines document on the Graduate School website.

For policies, procedures and deadlines related to the tuition waiver benefit, please visit the Employee Services website.

Month	Day	Deadline	Notes
October	28	Course enrollment for Spring begins in UCDAccess. First day to submit a new non-degree application or continuing non-degree course permission form .	Taking a class requires active non-degree student status. Continuing non-degree students must submit a signed course permission form to enroll every semester.
	November	4	First day to apply for Spring 2020 graduation via UCDAccess.
January	14	Last day to submit a new non-degree application or a continuing non-degree course permission form .	See October 28 for more info.
	21	First day of Spring full semester classes.	
	31	Last day to add/drop courses in UCDAccess. * Courses dropped after this date will appear on your transcript with a grade of "W." * Students will be charged all tuition and fees for any course dropped after this date. * Students will be charged a \$60 late fee to add courses after this date. Last day to petition for resident (in-state) student/tuition status.	After this date: • use the small Add/Drop Form to modify credits or add classes if already enrolled in at least one (1) credit. • students who have not registered in any classes must use the Registrar's Registration Form and get the Assistant Dean's signature. • use the Registrar's Course Withdrawal form to withdraw from (drop) a class.
February	4	Last day to apply for graduation in UCDAccess.	If you intend to graduate in Spring 2020, you must complete this online application. If you do not, you will not be eligible to receive your degree until Summer 2019.
	17	Presidents' Day Holiday	No classes. Campus closed.
	21	Last day of Research Rotation #2	
	24	First day of Research Rotation #3	Applies to first year PhD students only. Spring Break: March 16-20, 2020
March	16-20	Spring Break	No classes. Campus open.
May	11-15	Final Examination Week	
	15	End of semester Last day of Research Rotation #3	
	20	Final grades due (noon)	
	22	Commencement & Graduate School Convocation	Spring 2020 degrees will be awarded effective this date.

Summer 2020	June 1	Classes begin	
	July 4	Independence Day Holiday	No classes. Campus closed.
	August 14	Last day of semester	
Fall 2020	August 24	Classes begin	
	September 7	Labor Day Holiday	No classes. Campus closed.
	November 26-27	Thanksgiving Holiday	Campus closed.
	December 11	Last day of semester	

This calendar:

- applies to the Basic Sciences Programs and the Pharmaceutical Sciences and Toxicology Programs on the Anschutz Medical Campus.
- only includes deadlines pertaining to coursework or those managed through UCDAccess.

For deadlines pertaining to graduation, please see the Graduation Deadlines document on the Graduate School website.

For policies, procedures and deadlines related to the tuition waiver benefit, please visit the Employee Services website.

Month	Day	Deadline	Notes
February	3	First day to apply for Summer 2020 graduation via UCDAccess.	If you intend to graduate in Summer 2020, you must complete this online application. If you do not, you will not be eligible to receive your degree until Fall 2020.
March	23	Course enrollment for Summer begins in UCDAccess. First day to submit a new non-degree application or continuing non-degree course permission form.	Taking a class requires active non-degree student status. Continuing non-degree students must submit a signed course permission form to enroll every semester.
May	26	Last day to submit a new non-degree application or continuing non-degree course permission form.	See March 23 for more info.
June	1	First day of Summer semester classes. * First day faculty/staff may register with a tuition waiver.	Note that faculty/staff must be matriculated in a degree-granting program or as non-degree seeking students in order to register. Non-degree status requires an application with separate, earlier deadlines. You may not be able to register at this time if you have not yet applied to the university for student status.
	5	Last day to add/drop courses via UCDAccess. * Courses dropped after this date will appear on your transcript with a grade of "W." * Students will be charged all tuition and fees for any course dropped after this date. * Students will be charged a \$60 late fee to add courses after this date. Last day to petition for resident student status. Must be completed by 3 pm.	After this date, students may use the small Add/Drop Form if they have already registered. After this date, students who have not yet registered for any classes must use the paper Registration Form. Graduate students who fail to petition for resident status after their first year may be responsible for the tuition difference.
	8	Last day to apply for graduation in UCDAccess.	If you intend to graduate in Summer 2020, you must complete this online application. If you do not, you will not be eligible to receive your degree until Fall 2020.
		Last day for late course additions/modifications.	After this date, you may not be able to add courses.
July	4	Independence Day Holiday	No classes: campus closed.
August	10-14	Final Examination Week	
	14	End of semester Summer 2020 degree award date	Your degree will be awarded effective this date.
	19	Final grades due (noon)	

Fall 2020	Aug. 24	Classes begin	
	Sept. 7	Labor Day Holiday	No classes. Campus closed.
	Nov. 26-27	Thanksgiving Holiday	Campus closed.
	Dec. 11	Last day of semester	
Spring 2021	Jan. 21	Classes begin	
	Feb. 17	Presidents' Day Holiday	No classes. Campus closed.
	March 16-20	Spring Break	No classes. Campus open.
	May 15	Last day of semester	
	May 22	Commencement & Convocation	

CONTACT INFORMATION

Graduate School

David Engelke, Ph.D., Dean
 Lauren Field, Executive Assistant to the Dean 303-724-2911
Inge Wefes, Ph.D., Associate Dean
Shawna Cox, PhD., Assistant Dean, Student Admissions and Support 303-724-2915
Teresa Bauer-Sogi, Program Manager, Admissions and Student Progress 303-724-2915

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Graduate School
Mail Stop C296
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Aurora, CO 80045
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Immunology & Microbiology Department

303-724-4224
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Leslie Berg, Ph.D., Department Chair
 Sandra Duran, Executive Assistant to Dr. Cambier 303-724-8664
Laurel Lenz, Ph.D., Director of the Graduate Program in Immunology 303-724-8676
Lee Reinhardt, Ph.D., Associate Director of the Graduate Program in Immunology 303-270-2717
Tom Shallow, Director of Finance and Administration 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
JC Haller, Laboratory Resources Coordinator 303-724-4245
Mike Elmore, IT Systems Administrator 303-724-9033

Microbiology Program

303-724-0107

Tem Morrison, PhD., Director of the Graduate Program in Microbiology 303-724-4283
Michele Parsons, Program Administrator (Immunology & Microbiology programs) 303-724-0107
Miranda McDevitt, Program Coordinator (multiple PhD & Masters programs) 303-724-3350

University of Colorado Anschutz Medical Campus
Graduate Program in Microbiology
Mail Stop 8333
12800 East 19th Avenue
Aurora, CO 80045

APPENDIX 1

Requirements for BSP Students joining Microbiology

Mentor Discussion

A Biomedical Sciences Program (BSP) student who completes a rotation in the lab of a Microbiology Graduate Program faculty member and wishes to work in that lab will discuss options with the faculty member. If the faculty member would like to have the student join the lab, then the student and faculty member will discuss which graduate program that the faculty member is associated with (e.g., Microbiology, Molecular Biology, etc.) would be most suitable for the student. One important factor is the formal course requirements.

Program Approval

If the faculty member and student decide that the student would ideally get his/her degree from the Microbiology Graduate Program, they must request approval by the Microbiology Graduate Program faculty. A majority vote of the Microbiology Steering Committee will decide whether or not to accept the student into the Program.

Time of Transfer

Students normally transfer from the BSP program into other programs on July 1.

Coursework

In order to take the Comprehensive Examination, all students in the Microbiology Graduate Program are required to have taken and passed with a grade of B or better at least 30 academic credits. This must include the core courses (8.5 credits), Science as a Profession (Ethics) (1 credits), 3 laboratory rotations (1 credit each) and at least 7.5 additional credit hours of approved elective courses. Microbiology students are required to take MICB 7701, MICB 7703 and MICB 7621, and BSP students that wish to join the Graduate Program in Microbiology are encouraged to take as many of these courses as possible. The remaining credits may consist of research credits. Acceptable courses to fulfill the Microbiology elective requirements are listed in Appendix 2.

The BSP program allows BSP students to select from a wide range of electives offered by the Graduate School to satisfy their course requirements and preparation for the preliminary examination. BSP students who select the Graduate Program in Microbiology would typically do so at the end of the second semester of their first year, but they must decide which electives to take before the second semester or classes would need to be taken in their second year.

Preliminary and Comprehensive Exams follow Microbiology Program guidelines.

APPENDIX 2

Courses and Electives for Microbiology Graduate Program Students

Course		Credits	Semester
MICB 7703	Molecular Mechanisms of Bacterial Disease	3	Spring
MICB 7701	Molecular Virology and Pathogenesis	3	Spring
BIOS 6606	Statistics for the Basic Sciences	3	Fall
BMGN 7640	Scientific Programming	2	Spring
BMST 7350	Proteins	3	Spring
BMST 7354	Structural Analysis of Biomolecules 1	2	Spring
CANB 7600	Cancer Biology	3	Spring
CANB 7620	Histophysiology	3	Spring
CPBS 7606	Statistics for the Basic Sciences	3	Fall/Spring
CPBS 7711	Bioinformatics I	4	Fall
CSDV 7605	Stem Cells and Development	4	Spring
HMGP 7600	Survey of Human Genetics	3	Spring
HMGP 7620	Genomics	2	Spring
IDPT 7646	Tissue Biology and Disease Mechanisms	3	Fall
IMMU 7602	Special Topics in Tumor Immunology	1	Spring
IMMU 7607	Science as a Profession (Ethics)	1	Fall
IMMU 7630	Overview of Immunology	2	Fall
IMMU 7662	Immunology	6	Spring
MOLB 7616	Topics in Molecular and Cellular Biology	1	Spring
MOLB 7800	Advanced Topics in Molecular Biology	1-4	Spring
NRSC 7600	Cellular and Molecular Neurobiology	3	Fall
PHCL 7605	Ethics in Research	1	Fall
PHCL 7606	Receptors and Cell Signaling	3	Spring

In order to be designated as a full time student, graduate students must be registered for 5 graduate credit hours in the fall and spring semesters, or 3 graduate credit hours in the summer semester. A doctoral student who is enrolled in one thesis credit hour (8990) in any semester is also considered full time.

APPENDIX 3

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.

APPENDIX 4

RESOURCES FOR NEW GRADUATE STUDENTS

Anschutz Medical Campus

Animal Facility/Safety Training

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

Bookstore (303-724-2665)

Located in Education 2 South, first floor. 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.

<https://cuanschutz.bncollege.com/webapp/wcs/stores/servlet/BNCBHomePage?storeId=87741&catalogId=10001&langId=-1>

Bursar's Office (303-724-8032)

Located in Education 2 North, room 3120A

<http://www.CUAnschutz.edu/student-services/resources/CostsAndFinancing/billing/Pages/StudentBilling.aspx>

Campus Health Center at CU Anschutz (303-724-6242)

12348 East Montview Boulevard, Aurora, CO 80045

Services:

- Behavioral and Counseling Services
- Flu Shots
- Physical and General Services

<http://www.CUAnschutz.edu/academics/colleges/nursing/clinical-practice-community/PatientServices/CHC/Pages/default.aspx>

Campus Shuttle

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

CARE Team (303-352-3579)

The Campus Assessment, Response & Evaluation (CARE) Team was created to address the health and safety needs of students as well as the campus community. The purpose of the team is to assess whether individuals pose a risk to themselves or others and to intervene when necessary, and more generally, to identify and provide assistance to those in need. The team takes a preventative approach to risk assessment by offering resources, referrals, and support to both the concerning individual and those impacted by their behavior.

<http://www.CUAnschutz.edu/life/services/care/Pages/default.aspx>

CeDAR (720-848-3000)

Center for Dependency, Addiction and Rehabilitation is the University of Colorado Hospital's premier addiction treatment center. Check the events schedule for on-campus recovery meetings.

<https://www.cedarcolorado.org/>

Disability Resources and Services (303-315-3510)

The University of Colorado Denver is an educational institution that welcomes and supports a diverse student body. The Disability Resources and Services Office is the designated office that maintains disability-related records, determines eligibility for academic accommodations, determines reasonable accommodations and develops plans for the provision of such accommodations for students attending the university.

<http://www.CUAnschutz.edu/student-services/resources/disability-resources-services/Pages/disability-resources-services.aspx>

Diversity and Inclusion, Office of (303-724-8003)

The Office of Diversity and Inclusion (ODI) provides leadership to enhance diversity university-wide and to foster a culture of inclusion

<http://www.CUAnschutz.edu/about/departments/odi/Pages/default.aspx>

Ethics Hotline (1-800-677-5590)

CU EthicsLine provides a way to anonymously report concerns involving fiscal misconduct, violations of state or federal law, serious or recurring violations of university policy, or gross waste of university funds or property. The reporting service is provided by EthicsPoint, an independent company that provides similar services for hundreds of companies and universities. Options for 24/7 reporting are via a toll-free phone number (1.800.677.5590) or online (www.Ethicspoint.com).

Environmental Health & Safety, Department of (303-724-0345)

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

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

Equity, Office of (303-315-2567)

Staff can assist with reports of discrimination, harassment, or sexual misconduct. They can also take ADA accommodation requests, and/or reports of accessibility issues.

<http://equity.CUAnschutz.edu/>

Financial Aid (303-724-8039)

<http://www.CUAnschutz.edu/student-services/resources/CostsAndFinancing/Pages/CostsFinancing.aspx>

Family Educational Rights and Privacy Act (FERPA) guidelines

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

Graduate School (303-724-2915)

<http://www.CUAnschutz.edu/academics/colleges/Graduate-School/Pages/default.aspx>

ID/Access Badging Office (303-724-0399)

<http://www.CUAnschutz.edu/anschutz/about/location/Police/ElectronicSecurity/SecurityBadgingOffice/Pages/SecurityBadgingOffice.aspx>

Information Technology, Office of, OIT (303-724-4357)

<https://www1.CUAnschutz.edu/offices/office-of-information-technology>

IT equipment, server, local software in Department of Immunology & Microbiology only

Please submit all support requests using a ticket at:

<http://Micro-LS1.ucdenver.pvt/support/>

LGBTQ Student Resource Center (303-556-6333)

LGBTQ Student Resource Center is a tri-institutional office on the Auraria Campus serving the students, faculty and staff of Metropolitan State College of Denver, Community College of Denver and University of Colorado at Denver and Health Sciences Center. We are available to students as a resource for exploring issues of sexual orientation and gender identity.

<http://www.CUAnschutz.edu/life/services/glbts/services/Pages/default.aspx>

Library Services (303-724-2152)

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

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

Ombuds Office (303-724-2950)

The Ombuds Office is a **safe**, confidential, and **nonbiased** resource that members of the University of Colorado-Denver can approach to discuss, voice, and clarify any university-related concerns. We are a neutral third-party resource that is available to hear individual complaints and help sort out and **identify options** for resolving those concerns.

The Ombuds Office is well-trained in listening, facilitating, recommending, mediating, and coaching. Each individual on our team is a member of the International Ombudsman Association and are **Certified Organizational Ombudsman Practitioners**.

We even offer [trainings and seminars](#) for groups and departments to help learn communication skills, conflict management, and effective team building.

<http://www.CUAnschutz.edu/about/departments/OmbudsOffice/Pages/OmbudsOffice.aspx>

Parking & Transportation (303-724-0049)

<http://www.CUAnschutz.edu/about/departments/FacilitiesManagement/ParkingMaps/Parking/Pages/Parking.aspx>

Police, Anschutz Medical Campus (303-724-4444) Emergencies 911

- [Fingerprinting](#)
- [Online Bike Registration](#)
- [Classes and Training](#)
- [Escort](#)
- [Expressive Activities Policy](#)
- [Motorist Assist](#)
- [Lost and Found](#)
- [Request a Police Report](#)
- [Door Opening](#)
- [Emergency Notifications](#)

Registrar, Office of (303-315-2600)

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

Registering for classes, downloading course books and ordering transcripts

Research Core Facilities

<http://www.CUAnschutz.edu/academics/colleges/medicalschoo/department/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

Student Health, Office of (303-724-7674)

The Student Health Insurance (SHI) Plan at the Anschutz Medical Campus is designed to provide students with health care coverage, offering a PPO accident and sickness health plan. Located in Education 2 North P28-3207

Student Services

- American Indian Student Services
- Asian American Student Services
- Black Student Services
- Counseling Services
- Office of Campus Student Services
- Student Conduct and Community Standards, Office of
- Veteran Student Services
- Writing Center

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

Student Housing (303-352-3751)

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

Student Mental Health (303-724-4716) Afterhours emergencies (720-848-0000)

Fitzsimons Bldg, Level 2 SMHservice@ucdenver.edu (appt. requests only)

We provide comprehensive and confidential mental health services for all students enrolled in the schools located at the Anschutz Medical Campus (Medical, Dental, Nursing, Pharmacy, Public Health, Physician Assistant, Physical Therapy, graduate school, etc.). Initial appointments are scheduled relatively quickly, often within the same week. Options for ongoing care include receiving treatment from the AMC Student Mental Health clinicians, the UCH Outpatient Psychiatry Clinic, and a community network of providers, depending on insurance coverage. <http://www.CUAnschutz.edu/academics/colleges/medicalschoo/department/psychiatry/PatientCare/StudentMentalHealth/Pages/Student-Mental-Health-Service.aspx>

Student Portal

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

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

Student Senate (303-315-8254)

Located in Office Annex Building 1C35

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

City/County/State

Arapahoe County Clerk and Recorder

CO car registration

<http://www.co.arapahoe.co.us/Departments/CR/index.asp>

Aurora, City of

<https://www.auroragov.org/>

Colorado Department of Transportation

Road conditions, travel warnings, etc.

<http://www.cotrip.org/home.htm>

Colorado Secretary of State

<http://www.sos.state.co.us/>

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>

RTD

www.rtd-denver.com

Voter registration

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

Local Entertainment & Events

303 Magazine.com

<https://303magazine.com/>

5280

<https://www.5280.com/>

Westword magazine

Good source for live music and other events happening in the city

<http://www.westword.com/>



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 Anschutz Medical Campus
 School of Medicine

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August 13, 2019

TO: Microbiology Graduate Program 2019-2020 incoming students
 RE: Receipt of Student Handbook and Colorado Residency Requirements

_____ This is to confirm that I have received the Microbiology 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, 2019 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.

 Print Name

 Signature Date