Microbiology & Molecular Genetics Graduate Student Handbook

https://medschool.uci.edu/research/basic-science-departments/microbiology-molecular-genetics/about

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Introduction

This brief handbook is designed for graduate students who have elected to carry out their Ph.D. thesis research in the Department of Microbiology and Molecular Genetics. We hope it will provide you with practical information that will make your research and academic endeavors both productive and enjoyable. Our Department has a long-standing tradition of "personalizing" its graduate program and designing activities that will enhance your research experience here at UCI in a way that will have a long-term, positive impact on your scientific career.

The coursework offerings for students in their second year and beyond include the Thursday morning seminar series (M&MG 201 A-B-C), tutorial (M&MG 280 A-B-C), and other seminar/special topics courses. These offerings provide unique and challenging opportunities for all graduate students to give oral presentations on their own research results, as well as on selected literature topics. Such opportunities allow students to develop seminar presentation skills that are both highly polished and professional. These skills, along with the development of your research acumen and analytical abilities, will be an invaluable part of your repertoire of scientific talents.

In addition to your individual development, the Department also tries to provide a collegial environment that encourages camaraderie and scientific/social interactions among students, faculty, postdocs, and staff. We hope that the "user-friendly" environment in the Department will allow you the freedom to develop your creative skills as a research scientist and will enable you to engage in highly productive, innovative research projects to set you off in the right direction for your scientific careers.

For those of you just joining the Department, we wish you a warm welcome and a rewarding scientific experience with us!

Klemens J. Hertel
Professor and Chair

Bert Semler
Distinguished Professor and Graduate Student Advisor

General Information

Upon your arrival, please come into the office with someone from your lab and introduce yourself. You will need to sign out for keys to the outside door and to the lab in which you are working. A mailbox with your name on it will be assigned to you.

Your lab key opens the Department office door to allow you to use the conference room after closing hours and on weekends. You may also use the copy machine. However, we hold each individual responsible for making sure the lights are off and the office doors are closed and locked before leaving. The staff computers, desks, and equipment in the individual cubicles are not to be disturbed.

If you are using the copy machine, please use a laboratory code.

Please feel free to ask anyone of the office staff to show you how to use the equipment. The office staff are:

Lesley Dowd, Chief Administrative Officer	ldowd@uci.edu	ext. 4-7930
Kimberly Smith-Lyons, Fiscal Officer	smithkl@uci.edu	ext. 4-2908
Shanti Iyer, Graduate Student Coordinator	shantii@uci.edu	ext. 4-2583
Christine Shortt, Personnel Coordinator	cshortt@hs.uci.edu	ext. 4-3206
Arnold Oritz, Purchasing Coordinator	anpurchasing@uci.edu	ext. 4-4536
Ron Pulido, Basic Science IT Support	ronp@hs.uci.edu	ext. 4-5331
Matthew Kim, Academic HR Analyst	matthyk4@hs.uci.edu	

The basic rules are to respect the equipment and facilities of each lab and the office, not to use other labs' equipment/computers without asking permission from the faculty members, not to borrow anything without asking, and to clean and lock up after oneself. If there is a facility problem such as a flood, it should be reported to the trouble service (ext. 4-5444). The police emergency number (911) can also be dialed for assistance.

Parking and Transportation Services provides an escort service from 6:00 a.m. to 1:00 a.m. from one place to another on campus (UCI Campus Safety Escort). After 1:00 a.m., the phone transfers to the police station and the police will then provide the escort service. The number is 949-824-7233 (SAFE). The escort service should be used if you are leaving your lab late at night (https://www.police.uci.edu/how-do-i/safety-escort.php).

Course Requirements and Enrollment/Registration

Each quarter you will receive a schedule of classes. As you know, you can register through Web Reg. Enrolling in enough classes/units before the deadline is a **MUST** each quarter. You must sign up for MMG 200, 201, and 203 every quarter (minimum of 12 units). If you do not register in time you:

- will have to pay late fees,
- will not meet the IRS FICA exemption and be subject to having the 7.5% DCP and 1.45% Medicare deducted from your paycheck,
- must use the Add card procedure for late registration and fill out a late registration form justifying why you are registering late.

All students need to take the appropriate actions to ensure they are residents of the state of California by the second year. Nonresident students who need to become California residents for tuition/fee purposes must have their status changed at the Registrar's Office **PRIOR** to the fee payment deadline for the fall quarter.

Documentation of residence will be required. Please call the Registrar's Office at extension ext. 4-6124 for details.

When your address or phone number changes, please notify both the Registrar's Office and the Department CAO (Lesley Dowd) in the Microbiology & Molecular Genetics Office.

Stipends and Health Insurance

You will continue to receive a monthly stipend and your fees will be paid. You should already be aware of your health benefits, but if you have any questions, please see Lesley Dowd (ext. 4-7930) in the main office.

Emergency loans are available through Financial Aid. The phone number for Financial Aid is ext. 4-6261. The maximum amount for a short period of time without interest is $100.00.

Seminars and Graduate Student Duties

Students in the second year may be required to be teaching assistants (usually up to three courses total, which will be determined by BioSci departments). We believe this to be valuable both for the experience this offers in teaching and in exchange for a portion of the graduate stipend. Students whose primary language is not English must take and pass the Test of Spoken English (TSE) or the TOEP after at least one attempt at the TSE exam.

Exceptions to this requirement will not be granted. A minimum score of 50 is required to be a teaching assistant. The TSE is given six times during the year at TOEFL test centers. See Shanti Iyer if this applies to you. Once you've been appointed a teaching assistantship, you should enroll in the 399 series. This will give you credit for your teaching.

The Department of Microbiology and Molecular Genetics holds two seminar series, the Thursday Morning Series "MMG 201," which is given by our graduate students and postdocs, and the

Wednesday afternoon bi-weekly seminar given by speakers from outside the UCI. Attendance at both seminar series is mandatory. The instructor for the Thursday morning seminar course (currently Prof. Emiliana Borrelli) must be notified if a student will miss an upcoming seminar due to teaching conflicts, travel, or illness. Student responsibilities also include making coffee for the Thursday morning seminar and arranging the food and drinks for the Wednesday seminar reception. The Graduate Student Representatives are responsible for assigning the dates and times for these duties. The Graduate Student Representatives are appointed by the Department Chairman and Graduate Advisor annually, and as a token of appreciation by the Department, receive a small compensation to be used for research-related activities of his/her choice. For seminars other than "MMG 201," the faculty member who is hosting the speaker assigns a student host from the lab. The student host will organize a group of three or four graduate students or postdocs and the speaker to go to lunch. Larger numbers should obtain prior approval. Alternatively, the graduate student host can organize a lunch meeting with the speaker and a larger number of Department graduate students and postdocs in the MMG conference room. Reimbursement for any lunch-associated expenses will be available from the Department graduate student coordinator (Shanti Iyer), but receipts must be returned.

End of Second Year Pre-Advancement Meeting

Following successful completion of the Qualifying Exam at the end of your first year of graduate study, the next step toward the doctoral degree is demonstrating research progress toward the Advancement to Candidacy. All second-year students are required to convene a pre-advancement committee meeting at the end of their second year (i.e., end of the spring quarter – not in the summer). The committee should consist of the PI (silent participant) and two other MMG faculty members. The purpose of this meeting is to ensure that all second-year students have accomplished reasonable progress in their research during their first full year in MMG. There is no written component for this meeting. However, all students are expected to prepare a PowerPoint presentation (between 30-45 min) for the pre-advancement meeting. During the oral presentation, the committee will discuss the research with the student. After this discussion, the committee will excuse the student from the room and evaluate the student's performance. Comments from the committee will be captured using the "End-of-Second-Year-Pre-Advancement" form (https://medschool.uci.edu/sites/default/files/2024-03/committee-assessment-of-student-presentation-for-second-year-exam.pdf). Please bring this form to the meeting. A copy of the pre-advancement form will be kept in the student's confidential file.

Advancement to Candidacy

Following successful completion of the second year of graduate study, the next step in progression toward the doctoral degree is Advancement to Candidacy. The purpose of this process is to ensure that the student has selected an appropriate topic for the dissertation and that the experimental work that has been completed or is contemplated is scientifically rigorous and likely to be completed successfully and within the normal period of graduate study (approximately 5 to 6 years).

The advancement to candidacy exam must be taken before the start of the fourth year of graduate study. The exam committee will consist of five members. One member will be your advisor who

will serve as Chair of the committee. At least one member must be faculty outside the MMG Department. Adjunct MMG faculty members are not considered to be outside the Department. It is important to emphasize that **the majority of committee members must be MMG faculty**.

A written research proposal modeled after an NIH grant application must be submitted to the committee members at least two weeks before the oral presentation. It should include the following sections: **Specific Aims** (up to 1 page), **Research Strategy** (up to 12 pages) that includes, **Significance, Innovation, and Approach**. The proposal is limited to 13 pages (single-spaced, 12 point type) including embedded figures, but excluding references. During the oral presentation, the committee will discuss the proposal at length with the student. After this discussion, the committee will excuse the student from the room and evaluate the student's performance. The committee will inform the student of its decision immediately after that meeting. After completion of the exam, the student must request the Department to initiate the filing of the Ph.D. Form I. On behalf of the student, the Department office will select the option "Advancement to Candidacy - Ph.D. Degree (Ph.D. Form I)". Shanti Iyer will be happy to assist you in this process. A copy of the Ph.D. I form will be kept in the student's confidential file. Once the advancement meeting date is set, students must inform the Graduate Student Coordinator (Shanti Iyer), so she can request information to initiate the PhD Form I DocuSign immediately after the Advancement meeting.

The Doctoral Committee is composed of at least three members from the Advancement Committee. The chair and a majority of members should be from the Department. The student may opt to retain more than three members for the Doctoral Committee. The student and the advisor need to indicate at the time of the Ph.D. Form I submission which member of the Advancement Committee will remain as a member of the Doctoral Committee. If not otherwise specified on the form all Advancement Committee members will remain members of the Doctoral Committee. The Doctoral Committee shall meet with the student no less than once a year to evaluate the student's progress and plans for future work. To document that the student has convened a yearly committee meeting, an annual committee meeting form (https://medschool.uci.edu/sites/default/files/2024-03/advisement-committee-meeting-report.pdf) must be signed by all committee members. This form is included in the student's file so that the Graduate Advisor can make sure that the student is being properly advised. Beginning in the third year, students are expected to present their research in the Thursday morning research seminar series. A convenient time to have their committee meeting is at the time of this yearly seminar. Additional meetings may be called, as necessary, by request of the student, advisor, or committee members.

Dissertation Presentation and Ph.D. Thesis Submission

The written and oral presentations of a student's Dissertation are the criteria for receiving the Ph.D. degree. The student must meet with the Doctoral Committee and present a reasonable timeline to complete the final draft of the thesis to receive the approval of the Doctoral Committee to schedule the oral thesis defense. This meeting is often referred to as the "Green Light Meeting." The final draft of the thesis must be submitted to the Doctoral Committee members at least two weeks before the scheduled defense. A detailed handbook on how to prepare and submit the doctoral thesis is available at https://guides.lib.uci.edu/gradmanual. In addition to the hard copy for the Department, an electronic thesis must be submitted after the oral defense.

When a date is arranged for the defense of the Dissertation, the student must request the Graduate Student Coordinator to initiate the Ph.D. Dissertation Checklist/final degree DocuSign (PhD Form II). These forms, together with the signature page from the dissertation, will be signed by the Doctoral Committee after the oral defense and will be submitted with the final draft of the Dissertation to the Library Archives. Students who will complete their graduate requirements within the following academic year are allowed to participate in the UC Irvine graduation ceremonies. Caps and gowns may be rented in advance from the UCI Alumni Association. Be sure to go over to the Archives at the Main Library and pick up a dissertation packet. It will have all the requirements for your thesis preparation.

Individual Development Plan (annually)

Policy:

Doctoral students will be required to complete an **Individual Development Plan** (IDP) on an annual basis in consultation with their faculty advisor. This will help graduate students to structure their goals, identify skills and competencies that need to be developed, maintain a record of their achievements, and start conversations with their advisor about career goals. Graduate students may use the Graduate Division IDP template (link below) or modify the document to include additional questions relevant to their specific discipline.

(https://grad.uci.edu/wp-content/uploads/2021/11/IDP_form.docx)

Implementation:

By the end of each fall quarter, faculty and graduate students submit a signed copy of their annual IDP discussion to the Department graduate coordinator (Shanti Iyer) to be kept in the Department's confidential student file.

Research Units Work Expectation Documentation (quarterly)

Policy:

Faculty are required to provide written expectations for all graduate research units they direct. This may be a syllabus, or a brief outline of work expected to be completed within the quarter. Implementation of this policy will ensure that both the faculty member and graduate student have a clear understanding of expectations of work to be completed within a given quarter.

Implementation:

For graduate research units only, faculty and graduate students must hold individual meetings during the first week of instruction for each quarter to discuss research work expectations. A signed outline of the agreed-upon work expectations will be submitted to the Graduate Student Coordinator (**Shanti Iyer**) by the end of the first instructional week. A copy of this outline will be kept in the Department's confidential student file.

Policies to Reduce the Time To Degree (TTD) for Ph.D. Students to 5 Years

The Department of Microbiology & Molecular Genetics implemented strategies to reduce the TTD for Ph.D. graduate students from the current average of 6.0 years to the university-suggested 5.0 years. Recently established departmental policies are likely to decrease current student graduation times. These include:

- Enforce the policy that students must advance to candidacy before beginning their 4th year of graduate study. Failure to do so may result in academic probation.
- To ensure early progress towards establishing an attainable thesis project and to ensure that students are on track for a timely advancement to candidacy, all students convene an end-of–second-year exam. Student performances are evaluated using a pass/fail option.
- Starting in their 3rd year of study, each Ph.D. student will give formal Research in Progress presentations.
- Recurring committee meetings (one per year) after advancement to candidacy; **two per year for students in the 5th year and beyond.**
- All matriculated MMG students will be reviewed by the entire faculty on an annual basis. The thesis mentor presents the advances/progress/accomplishments/limitations of their student(s). The ensuing discussion among the faculty may lead to policy changes in dealing with individual students; for example, by requesting to increase the frequency of committee meetings or by setting new deadlines. A summary of the discussion will be shared with the Ph.D. candidate and placed into their academic folder.
- Salary and tuition support for Ph.D. graduate students is no longer guaranteed after 5 years of study. The intent here is to define an expected graduation timeframe to which students and faculty will adhere.
- Annual Individual Development Plans.

Policy for Conferring a Master's Degree on Students Pursuing the Ph.D. Degree

Minimum academic requirements:

A student requesting a Master's degree along the path to receiving a Ph.D. degree must complete a minimum of two years of training. The following requirements must be met to confer the Master's degree.

(1) First year:

- must have completed and passed all required first-year Cellular and Molecular Biosciences Ph.D. graduate program (CMB) classes
- must have completed all necessary rotations as stipulated by CMB or the MMG Department
- must have passed their oral Qualifying Examination as stipulated by CMB or the MMG Department

(2) Second year:

- 200 A, B, C - credit for laboratory research [Graded, based on performance]
- 203 A, B, C - credit for organized group study based on readings, discussions, and presentations given within each lab group [S/U]
- 201 A, B, C – Attendance at the Thursday Morning Seminar series given by graduate students, postdocs, and faculty [Graded, based on attendance]
- Students must have a minimum of 12 units per quarter

(3) End of Second-Year Examination:

At the end of their second year of graduate study, students will be required to pass an oral pre-advancement examination administered by the MMG faculty as is outlined above. The successful completion of the "End-of-Second-Year-Pre-Advancement" equates with the "Advancement to Candidacy" for the Master's Degree *en route* to the Ph.D.

(4) Ph.D. Advancement to Candidacy Examination:

Following successful completion of the second year of graduate study, the next step in progression toward the doctoral degree is Advancement to Candidacy, as is outlined above. The successful completion of the "Advancement to Candidacy" for the Ph.D. equates with the "Final Examination" for the Master's Degree on route to the Ph.D.

Master's Degree Conferral Steps:

The following steps need to be completed to confer a Master's Degree for students pursuing the Ph.D. degree.

(1) Upon successful completion of the "End of Second-Year-Examination" the student must request the Department to initiate the filing for the Advancement to Candidacy form for the Master's degree. On behalf of the student, the Graduate Student Coordinator will initiate the "Master's Advancement to Candidacy Comprehensive Exam DocuSign form." Thus, the End of Second Year Exam committee will also be the Master's Advancement to Candidacy committee. A copy of the Master's Advancement to Candidacy form will be kept in the student's confidential file.

(2) Upon successful completion of the "Ph.D. Advancement to Candidacy," the student must request the Department to initiate the filing for the "Final Degree Paperwork for the Master's Degree/Comprehensive Exam." The Graduate Student Coordinator will initiate the DocuSign form on behalf of the student. Thus, the Ph.D. Advancement to Candidacy committee will also be the Master's Final Examination committee.. A copy of the Master's Degree/Comprehensive Exam form will be kept in the student's confidential file.

Policy for Conferring a Terminal Master's Degree

A student requesting a terminal Master's degree – meaning changing the degree level from Ph.D. to M.S. - must complete the same requirements as those listed above for Conferring a Master's Degree on Students Pursuing the Ph.D. Degree.

Changes to financial commitments and responsibilities upon changing the degree level from Ph.D. to M.S.

Upon agreeing to the transfer from the Ph.D. program to the Master's program, the thesis advisor (the mentor who has taken over financial responsibility for the student after the first CMB umbrella year) is officially relieved from the financial responsibility of supporting tuition and stipend payments for the Master's student. Unless mutually agreed upon arrangements are made between the student and the thesis advisor, the student will solely be responsible for future tuition and stipend payments from the decision date onwards. Upon consultation with the thesis advisor and the Department chair, the Department of Microbiology and Molecular Genetics may offer additional financial stipend support for up to two months.

Exceptions to the policies listed

Exceptions to any of the listed policies can be granted only upon mutual agreement by the Ph.D. or M.S. candidate, his/her thesis advisor, the Department Graduate Advisor, and the Department Chair. A written plan is required prior to consideration of any exceptions to policies.

Course Enrollment Requirements

Every student should enroll every quarter in:

- 200 A, B, C - credit for laboratory research [Graded, based on performance]
- 203 A, B, C - credit for organized group study based on readings, discussions, presentations given within each lab group [S/U]
- 201 A, B, C - The Thursday Morning Seminar series given by graduate students, postdocs and faculty [Graded, based on attendance]

You must have a minimum of 12 units per quarter.

At the end of the first year, you will have completed all of the course requirements of the CMB program. From your second through fifth year, you are required to take one elective course per year.

List of Classes

A list of the currently offered courses from the Department of Microbiology and Molecular Genetics can be found online by clicking the following link:

http://catalogue.uci.edu/allcourses/m_mg/

A list of additional approved elective courses organized by other departments follows. If you and your advisor identify a course not on this list that you judge to be useful to your course of study, a substitution can be made with the approval of the Graduate Advisor.

1) Advanced Molecular Genetics (BC 207)
2) Chromatin Structure and Function (BC 225)
3) New Breakthroughs in Basic and Translational Cancer Research (BC 240)
4) Organometallic Chemistry (Chem 216)
5) Metallobiochemistry (Chem 218)
6) Representations and Algorithms for Molecular Biology (CompSci 284A)
7) Mouse Developmental Genetics (Dev Bio 207)
8) Advanced Developmental Genetics (Dev Bio 210)
9) Principles of Genomics (Dev Bio 214)
10) Cell Biology (Dev Bio 231B)
11) Stem Cell Biology (Dev Bio 245)
12) Nucleic Acid Structure and Function (Mol Bio 203)
13) Proteins (Mol Bio 204)
14) Molecular Virology (Mol Bio 205)
15) Virology Journal Club (Mol Bio 201C).
16) High Resolution Structures: NMR and Xray (Mol Bio 211)
17) Integrative Immunology (Mol Bio 215/Physio 215)
18) Cancer Biology I (Mol Bio 217A)
19) Cancer Biology II (Mol Bio 217B)
20) Advanced Topics in Immunology (Mol Bio 221)
21) Introduction to Computation Biology (Mol Bio 223)
22) Physiology of Ion Channels (Physio 232)
23) Introduction to Proteomics (Physio 252)

During the 2nd-5th year students may also be selected for a teaching assistant position to gain teaching experience. Students interested in a TA position should put their names on a departmental list of potential graduate student TAs, typically solicited the quarter before TA appointment.

Graduate Students in the Department

Graduate Students by Laboratory:

Nick Baker - **Neha Joshi**
Alan Barbour - **Jonathan Duong**
Emiliana Borrelli - **Lauren Otsuka**
Thomas Burke - **Anh Phuong (Jessie) Luu, Meggie Danielson**
Minji Byun - **Marie Strauss, Zachary Pope**
Alan Goldin
Anthony James
Klemens Hertel - **Jessie Altieri, Megan Holmes, Harika Pulipelli**
Orkide Koyuncu - **Stephanie Salazar, Khanh Luong, Christina Pantoja, Audrey Loaiza**
Gina Lee - **Cuauhtemoc Ramirez**
Matthew Marsden - **José Morán, Tessa Chou, Nishad Maggirwar**
Michael McClelland
Bert Semler
Yongsheng Shi - **Lindsey Soles, Marielle Valdez Yadollahi**
Ming Tan

Graduate Students in Laboratories of Joint Faculty:

Rosa Andrade
Michael Demetriou
Timothy Downing - **Annie Trinh**
Nir Drayman
Suzanne B. Sandmeyer
E.R. Chulie Ulloa
Xiangmin Xu

Professor Emeriti:

Michael Buchmeier
Sidney H. Golub
George A. Gutman
G. Wesley Hatfield
Rozanne M. Sandri-Goldin
Eric Stanbridge
Marian L. Waterman