STUDENT HANDBOOK

Last updated: August 2025

https://www.cuanschutz.edu/graduate-programs/molecular-biology

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Program Guidelines Disclaimer

As a member of the Molecular Biology PhD Program, you are expected to adhere to all established policies and procedures of the University, the Office of Research Edcuation, the Graduate School and this PhD Program.

CU Anschutz – University Policies	https://catalog.ucdenver.edu/cu-anschutz/university-policies/
Office of Research Education	https://medschool.cuanschutz.edu/ore/forms-and-resources
Graduate School	https://graduateschool.cuanschutz.edu/forms-resources/resources

For any policies, please make sure to review the Graduate School Policies and Procedures.

This handbook, which includes parts of the Graduate School Rules and the Molecular Biology Program Guidelines, does not constitute a contract with the University of Colorado Anschutz Medical Campus Graduate School, either expressed or implied. The Molecular Biology Program 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 Program to serve as firm guidelines rather than absolute rules, and exceptions may be made on the basis of extenuating circumstances.

**Items in this handbook will be updated as decisions and guidance are made/given during the transition of the MOLB program from the Graduate School to the School of Medicine Office of Research Education*

Program Overview

The Molecular Biology Program at the University of Colorado Anschutz Medical Campus is dedicated to providing rigorous training to its students in a supportive environment. The molecular biology faculty are members of fourteen different departments who are applying the techniques of molecular biology to answer questions in diverse areas at the forefront of modern biology. The Program offers a unique opportunity to study a wide variety of research areas in a student-centered environment, all in the inviting setting of Denver, Colorado, just a short distance from the Rocky Mountains.

Molecular biology, the science of how living things work at the molecular level, has spearheaded the recent revolution in our understanding of human disease and led to the birth of a major new industry based on biotechnology. The goal of the Molecular Biology Program at CU is simple: to equip students for careers at the cutting edge of biology. The faculty are committed to providing students with the training they need to carry out the highest quality research using state-of-the-art techniques. The teaching philosophy here is to instill the theoretical knowledge and practical experience that enables our students to identify important questions in science, to design experiments that address those questions and to critically evaluate results.

Special emphasis is placed on learning to communicate research results to others effectively. Previous graduates of the program are now working in academic, medical and biotechnology industry positions.

Molecular Biology Program faculty include members of the Departments of Biochemistry and Molecular Genetics, Cell and Developmental Biology, Medicine, Immunology and Microbiology, Pathology,

Pharmacology, Pediatrics, Craniofacial Biology, Pharmacy, and Obstetrics/Gynecology and include internationally recognized experts in genetics, genomics, immunology, virology, developmental biology, cancer biology, molecular endocrinology, cell signaling, and structural biology. Their diverse interests provide students with an enormous choice of areas in which to pursue their thesis research.

The Molecular Biology Program provides students with more than classroom and research training. Students learn to present their research by participating as featured speakers in the program's excellent seminar series. Students are encouraged to interact with the seminar series' invited guests during student-centered social hours. An annual retreat to the Rocky Mountains encourages interaction between students and faculty and familiarizes the students with the research goals and progress of each faculty member. Also, the MOLB program, along with the university, continues in its efforts to increase the number of minorities, disabled, and disadvantaged students, with the goal of training all students to become important contributors to the biomedical research field and their communities.

The training of each graduate student is carefully monitored by a committee selected by the student to ensure completion of a top-quality PhD thesis project in a timely fashion (five to six years on average). Because these committees are comprised of faculty from different departments, the committee meetings have always sparked exciting discussions of the student's research.

The Molecular Biology Program has been recognized as a Center of Excellence at the University of Colorado School of Medicine. A $5 million grant awarded in 1989 by the Lucille P. Markey Charitable Foundation allowed the program to grow and mature. In 1999, the program was awarded a highly competitive NIH pre-doctoral training grant that was renewed in 2004, 2010, 2015, 2020, and 2025 providing the funding to support and train students for years to come.

In 2001, the Program secured an endowment, the “Bolie Gift Fund”, to provide travel funding for MOLB students to participate in national and international conferences and workshops. To date, more than 91 students have attended meetings or workshops with support from the Bolie Fund. The Bolie Fund also supports an annual, student hosted distinguished Bolie lectureship. In 2011, Dr. Victor Bolie passed away, and left a generous endowment to our program. Starting in 2013, the “Earleen and Victor Bolie Scholarship Fund” supports stipends for up to 3 students per year (based on anticipated income from this ~$2 million endowment).

Office of Research Education Contacts

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- Point of contact for financial and organizational planning concerns and coordination

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- Point of contact for ORE administrative concerns, organizational planning and ORE leadership availability

BSP, MSTP & Direct Admit Requirements

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

MSTP Students should enter a thesis lab with 27-33 graduate credits, including graduate core. They have also completed/will complete the MSTP Preliminary Course focused on grant writing in Spring term of their transfer year. This course covers F31 grants, but also F30 grants which are specific to dual-degree trainees. The MSTP administration will review student transcripts with the PhD Program Administrator at time of transfer and will confirm that all expected graduate credits have posted for program review and evaluation.

MSTP students have already selected and been accepted into a thesis lab within the selected PhD program. They will enter the program under this lab's support immediately upon transfer and should not incur charges to the PhD program at any point in training absent the need for gap funding/support. As such please consider this transfer to be equivalent to a second year PhD student. Time to degree is a very important metric for the NIH and the program's T32 grant. MSTPs are expected to complete their PhD training within four years of entering lab. Of course, mitigating circumstances can occur. The MSTP Administration should be alerted to any significant progress concerns which may impact a student's ability to graduate within the expected time frame. This can be accomplished by meeting, email, or committee meeting notes as appropriate.

- MSTP students should contact MSTP Administration to obtain the program specific lab mentor agreement to review lab mentor responsibilities, curriculum requirements and other expectations related to the research portion of training. **MSTP students must have thesis committee meetings every 6 months** regardless of their PhD program. Each MSTP student's thesis committee should have a faculty member representing MSTP. Students should discuss MSTP faculty representation with the Director or Associate Program Director to identify suitable candidates.
- Throughout the Thesis stage of training, MSTPs are required to register for the *Longitudinal Foundations of Doctoring* (FOD) course in 2 terms annually (Fall and Spring). They will enroll into the *Capstone Return-to-Clinics* course in their last year of thesis training, replacing FOD in the spring term. The MSTP mentor is responsible for covering the costs for these courses and agrees to this as part of the MSTP-specific mentor letter.

Curriculum Overview

Registration Process

- Academic Calendars (see The Graduate School calendar)
- Register for Classes (see The Graduate School)
  - All basic science PhD students must register in a minimum of 5 credits (fall and spring semesters), 1 credit of 8990 (summer semester), and anything above the minimum credit level will need approval from faculty mentor.
  - First year students, BSP and MSTP students should work with their program directors, program administrators, and faculty mentors as there will be additional credit requirements associated with their progress in the program.
  - The paying of tuition, fees and student health insurance occurs the week following the deadline for semester add/drop period, which can be found on the academic calendar . The Program Administrator will complete the process of submitting the appropriate form to the Bursar's Office. For those students receiving financial aid, please work with the Program Administrator to avoid any disruption in aid awarding.

Year 1

Fall Semester		
Course Title	**Registration Information**	**Credits**
Foundations in Biomedical Science	BMSC 7806	6
Core Topics in Biomedical Sciences – A (student may select topic)	BMSC 7810	2
Core Topics in Biomedical Sciences – B (student may select topic)	BMSC 7810	2
Rotation 1	MOLB 7650 (001)	1
Rotation 2	MOLB 7650 (002)	1
Spring Semester		
Course Title	**Registration Information**	**Credits**
Advanced Topics in Molecular Biology	MOLB 7800	4
Required Elective	Students are encouraged to speak to their rotation lab or GAC faculty mentors, along with current program students.	Variable
Rotation 3	MOLB 7650 (001)	1

Summer Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	MOLB 8990	1
Research (Pre-Comps) if instructed to register	MOLB 7650	3

- **Rotations**
  - **ORE Milestone Rotation** Request form to be used when first year students have identified their rotation mentor. Please follow Program specific guidelines, including the submission deadline. Three forms will be submitted throughout the academic year.
  - If you need a **Fourth Rotation (with PD approval),** you must request approval from your Program Director. The Program Administrator and Program Director will work with the Office of Research Education accordingly.
- **Research Update Talks**
  - Required to attend in-person seminars
  - Thursdays, 12 PM – 1 PM
  - The program holds a weekly seminar in which faculty, postdoctoral fellows, students and invited outside speakers present talks on their research. The seminar series is a major focus for the program in that it draws everyone together weekly and keeps individuals abreast of research in progress as well as scientific techniques and expertise present within the program. This seminar series is beneficial to all participants. It helps students learn and practice presentation skills that will be important in their careers and helps enormously in finding the appropriate colleague to consult when problems arise in individual research efforts. Outside faculty speaker visits are scheduled to maximize interactions between both students and faculty. Starting in their second year, students will register for a course (MOLB 7661) and receive credit for attending the seminars. Students do not register for this course in the first year but are required to attend.
- **Preliminary Exam**
  - **Preliminary Examination:** At the completion of the first year, students must take a Preliminary Examination which is required by the Graduate School and facilitated by each program for their students.
  - The Preliminary Exam format is in the form of a written mini-proposal, which is defended in a one-hour oral exam, administered in or around the third week of June by a standing committee within the program.
- **Transfer to Thesis Lab**
  - **Predoc Financial Support Agreement** for those faculty mentors who choose to take on a new predoctoral mentee.
- **Residency**
  - Per University policy, it is required that students begin the process of establishing their residency as soon as they accept their offer to join the PhD program. This process must be started promptly to ensure you meet the necessary deadlines by the end of your first year. For more information, please visit the University website – **Residency**

Year 2

- Minimum registration requirement for full-time graduate students is 5 credits. Anything above 5 credits must be approved by faculty mentor.

Fall Semester		
Course Title	**Registration Information**	**Credits**
Research (Pre-Comps)	MOLB 7650 sec. OV3	1-5 (variable)
Responsible Conduct of Research	BMSC 7811	1
Research Seminar Program	MOLB 7661	1
Biostatistics and Informatics	MOLB 7950	4
Spring Semester		
Course Title	**Registration Information**	**Credits**
Research (Pre-Comps)	MOLB 7650 sec. OV3	1-5 (variable)
Rigor and Reproducibility in Biomedical Research	BMSC 7812	1
Research Seminar Program	MOLB 7661	1
Optional Electives	Choose from online Course Catalog and with the input of the MOLB Faculty Mentor	Varies
Summer Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	MOLB 8990	1

- Research Update Talks
  - Required to attend in-person seminars
  - Thursdays, 12 PM – 1 PM
  - In their second year, students will register for a course (MOLB 7661) and receive credit for attending the seminars.
  - In the spring, second year students present a seminar on their research in progress. This is given as part of the program's weekly research seminar series. This serves to focus the student's research project and to provide training in oral presentation skills. Students should meet with their thesis advisory committee immediately following the spring seminar presentation.
- Comprehensive Exam
  - **Required forms** to be completed using DocuSign
    - Application for Candidacy form
    - Exam Request form
    - Once a date has been set with your Thesis Advisory Committee, you must contact your Program Administrator to initiate forms. You will also discuss room bookings at this time. All forms must be submitted to the Administrator at least a month prior to the exam date

- **Selection of Thesis Advisory Committee**: Students are expected to form a thesis advisory committee by March of their second year. This should be done in consultation with the program student advisor and the thesis advisor. The committee will have its first meeting with the student ideally on the afternoon following the spring seminar presentation, or as soon thereafter as possible. The first charge of the thesis advisory committee will be to guide and evaluate the student's research progress to this point, to set the guidelines for the upcoming comprehensive examination and to set a tentative date for the comprehensive examination. The committee is composed of four members, with at least three members coming from MOLB Program faculty; the Chair must be a Molecular Biology faculty member. All committee members must have appointments in the Graduate School; it is the responsibility of the student to ascertain that a proposed committee member has an active appointment in the Graduate School. Additional committee members can be added during the course of the thesis work to provide expertise if needed. After the comprehensive exam is completed and the student has advanced to the PhD candidacy, the student's mentor may become a member of the committee, and one of the former committee members may be dropped. The mentor may be a voting member but may not be the Chair.
- **Round Tables**: Beginning in the second year and throughout the remainder of the training program, all students are expected to participate and help organize Round Table Journal Club. Round Table Journal Club is monthly meeting that will be held once a month (September – May). The Molecular Biology Program will provide light snacks. Training grant appointed students will serve as coordinators and decide on a topic and the guests to be invited. The basic format is flexible, but generally one or two students (from any year) will present a paper of their choice to be discussed by all participating students. Alternatively, a student may choose to present their research project or an idea about new possibilities. Twice a year (once every semester) students will invite local outside speaker of their choice. Generally, the goal is for students to learn about a new area of interest, including alternative career options. Thus, speakers may be either academic researchers, representatives of industry or other potential alternative career pathways.
- **MSTP Specific**: Please work with MSTP Administration and PhD Program Administration to complete the required mentorship agreement for transitioning into a lab.

Year 3+

- Minimum registration requirement for full-time graduate students is 5 credits. Anything above 5 credits must be approved by faculty mentor.
- Students defending in the current semester must register for 5 credits of MOLB 8990. If a student is defending in between semester dates as defined by the Academic Calendar, the student must register for 5 credits of MOLB 8990, in the proceeding semester of the scheduled defense date.

Fall Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	MOLB 8990	1-5 (variable)
Optional Electives	Choose from online Course Catalog and with the input of the MOLB Faculty Mentor	Variable
Spring Semester		

Course Title	Registration Information	Credits
Doctoral Thesis	MOLB 8990	1-5 (variable)
Optional Electives	Choose from online Course Catalog and with the input of the MOLB Faculty Mentor	Variable
Summer Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	MOLB 8990	1

- Research Update Talks
  - Required to attend in-person seminars
  - Thursdays, 12 PM – 1 PM
  - In the fall semester (if the schedule permits) of the third year, students present a seminar on their research progress at the weekly program seminar series. Students do not register for Research Seminar for credit in the third year or in subsequent years, but attendance at the weekly research seminars is mandatory. Students must meet with their thesis advisory committee immediately following their annual seminar presentation.
- Thesis Committee meetings
  - Students are required to meet at least once per academic year with their thesis committee.
  - For additional information, please refer to Appendix 3.
- **Round Tables**: As in the second year, students are expected to participate in the Round Table sessions.
- **Symposium**: Third year students continue to be required to attend and participate at the annual Molecular Biology Program Symposium. *Third year students are responsible for organizing the annual symposium.
- **Retreat**: Students continue to be required to attend and participate at the annual Molecular Biology Program Retreat. *Fourth year students are responsible for organizing the annual retreat.

Examinations and Evaluations

Preliminary Exam

- Every first-year student takes the Preliminary Qualifying Exam at the end of the first year of graduate school. BSP students that plan to join MOLB will participate in the program's preliminary exam.
- For MSTP trainees transferring into MOLB current preliminary exams are accepted as an equivalent to the program preliminary exam. MSTP trainees will complete an MSTP specific preliminary exam prior to program transfer.

Comprehensive Exam

- **App Candidacy form**
- **Exam request form**

- Once a date has been set with your Advisory Committee, you must contact your Program Administrator to initiate forms. You will also discuss room bookings at this time. All forms must be submitted to the Administrator at least a month prior to the exam date.

- As you prepare for your Comprehensive Exam, please ensure that all your committee members have a faculty appointment listed in the Graduate School Faculty Directory.
- All forms are found in the Graduate School website under the "Forms" section.
  - Graduate School - Resources & Forms - CU Anschutz

Students are expected to have demonstrated competence in research during their second year and to have generated preliminary data to prepare for the comprehensive examination. This exam requires the written submission of a research proposal that describes the actual thesis project planned by the student. The proposal should be written in an NIH grant format to contain the following sections: specific aims, background and significance, preliminary data, experimental design and approach, and a supporting bibliography. While the overall project goals are formulated in consultation with the mentor, at least one aim should be based on the student's ideas. Students should consult with their committee chair and NIH guidelines for how to format the written portion of the exam. The proposal should be written to be as close as possible to the realistic goals of the thesis project and should not be an overly ambitious proposal for an entire laboratory group. The thesis advisor should read the proposal and provide general comments to the student prior to submission. The student can also seek advice from other colleagues, but again, advice should be limited to general comments so that the proposal is developed by the student. The student defends this proposal orally at the examination. The oral portion of the exam will also test general knowledge through questioning related to the proposal. Started in Spring 2017, all students must add a section on rigor, repeatability and reproducibility, similar to what is now being required for new NIH R01 grants, http://grants.nih.gov/reproducibility/index.htm

To schedule the exam, students must have completed or be registered to have 30 credit hours (letter graded credits only). A packet of appropriate forms and instructions must be obtained online from the Graduate School website and returned with all signatures at least two weeks prior to the date of exam. Also, students should submit their completed written portion to committee members at least two weeks in advance of the exam date. Students must obtain written approval of the topic of their proposal from the chair of their advisory committee and submit this to the Molecular Biology Office before beginning preparation of the written portion of the exam. This is accomplished sometime after the "precomprehensive exam" meeting in the previous spring semester (see above). The format of the oral portion of the exam will be set by the committee chair. During the exam, the student and the mentor will be asked to step outside individually, to allow each to briefly address the committee with any concerns. Students are required to take the exam no later than the end of the fall semester, though earlier in the summer or fall is preferable. Upon successful completion of this exam, the student is advanced to PhD candidacy.

Thesis Defense

The committee is composed of at least four members, with at least three of the committee coming from MOLB Program faculty; the Chair must be a MOLB faculty member. All committee members must have active appointments in the Graduate School; it is the responsibility of the student to confirm this status for each committee member. If needed, additional committee members can be added during the course of the thesis work to provide expertise. After the comprehensive exam is completed and the student has advanced to the PhD candidacy, the student's mentor may become a member of the committee, and one of the former committee members may be dropped. The mentor may be a voting member, but may not be the Chair.

To ensure independent evaluation of students' progress and examinations, and provision of impartial advice and guidance, no member of the committee should have undue influence over another member of the committee or the student. Undue influence could include, but is not limited to, direct employment (e.g. a postdoc employed by a faculty member), familial, domestic or amorous relationships, financial relationships or significant scientific collaboration (e.g joint funding). Any potential conflicts must be disclosed by committe4 on said committee.

All doctoral students are required to submit a thesis (or dissertation) to their Thesis Committee, **at least two weeks** prior to the date of thesis defense, as partial fulfillment of the requirements of the degree, Doctor of Philosophy. The thesis must be approved by the thesis advisor before submission to the Thesis Committee. All forms and applications needed are available online through the Graduate School's website. The form and scope of this thesis is determined by the student, the thesis advisor, the advisory committee, and the Program. The thesis should be based upon original investigation and showing mature scholarship and critical judgment as well as familiarity with tools and methods of research. Starting Fall 2019, all students are required to add a section on rigor and reproducibility, similar to what is now being required for new NIH R01 grants. In addition, prior to defense of the thesis, a Molecular Biology student must have a minimum of one accepted first author (or first co-author of "equal contribution") peer-reviewed research manuscript. An exception to this requirement can be granted under extenuating circumstances with approval of both the Thesis Committee and Program Director.

Approval of the written dissertation by the committee members does not constitute a "Pass" of the defense. The public seminar and oral defense remain important criteria and must be completed to the satisfaction of the committee and mentor. The possible outcomes of the thesis defense include Pass, Pass with Conditions, or Fail.

Final defense of the thesis/dissertation must be completed by Graduate School deadlines.

- **Biosketch Form**
  - This is a graduate school form, not the NIH form
- **Exam Request**
- **Thesis Approval form**
- Thesis and Dissertation Guidelines
- ProQuest **General Information for Submitting Dissertation & Thesis** page 13 on Graduate School website
- **Watch** how to prepare the correct forms and upload your dissertation.
- If defending after the semester ends you must register for 5 credits of 8990 in the proceeding semester. (Thesis defenses must be tied to the end of the semester deadlines dates please see the links below)

You can find all forms for the comprehensive exam and thesis defense on the Graduate School website under the "Forms" section.

- **Graduate School - Resources & Forms - CU Anschutz**

Thesis Defense Resources and Dissertation Guidelines

- **Thesis & Dissertation/ProQuest Format & Guidelines**
- **Graduate School Deadlines, Forms, Policies**
- See appendix 6 for program specific guidelines

Policies and Procedures

Molecular Biology Program

The success of each student admitted to the Molecular Biology Program is our highest priority. During the first two years of graduate school, students are expected to meet clear, tangible milestones:

> **Year 1:** Obtain passing grades in coursework, complete three research rotations, identify a thesis lab, and pass the year-end Preliminary Exam.
> **Year 2:** Begin thesis research and pass the Comprehensive Exam by the end of the fall semester of the third year.

In subsequent years, progress becomes more individualized. Success depends on each student's self-motivation, intellectual curiosity, and perseverance. Graduate school is not a job - it's professional training for a demanding and rewarding career. Advisors and committees provide mentorship and guidance, but ultimately, each student is responsible for their own growth and success.

Expectations for Students

- A student must be self-motivated. Motivation should come from within and not be determined by the mentor or arbitrary deadlines.
- A student should work the necessary hours in the lab to complete the experiments. Graduate school is not a five day a week, 9-5 job. The effort each student puts in will be reflected in the level of success and the timetable for graduation.
- A student should be intellectually engaged in the research project. Initially, the project is often conceived by the mentor; however, by the comprehensive exam, the student should be actively participating in experimental decisions and research directions. In subsequent years, the student should take progressively more control in the execution and direction of the research.
- A student must take initiative for their own career and take responsibility for research successes and failures. If things are not working out in the lab or with the advisor, the student should initiate actions to correct the problem. The thesis committee and student advisor exist to help, but the student must seek out that help.

(See the Molecular Biology Program By-Laws – Student Guidelines for additional curriculum details.)

The curriculum includes didactic courses, laboratory rotations, seminars, and electives. The first-year core course (IDPT) is taken alongside students from other biomedical programs. By the end of the first year, each student selects a thesis laboratory.

The **Graduate School** requires:

- 30 credit hours of pre-comprehensive coursework (including rotations and graded research courses)
- 30 credit hours of thesis research post-comprehensive exam
- All work must adhere to the Academic Code of Honor. Students who have completed the 30 post-comps credits must continue to register for 5 credits per semester until the PhD is awarded.
  Graduate School Policies and Resources

Molecular Biology Program Policy for Vacation and Leave

Graduate school is a privilege; obtaining a PhD and working in the biomedical research/academic field is a time-honored and challenging profession that requires a high level of commitment and responsibility.

Students in the Molecular Biology Program are required to pursue their training on a full-time basis, devoting each day of the normal work week, plus any additional time required of their research projects and academic courses. MOLB students receive a Graduate Student Assistantship (GSA) (1505) position, which is a full-time student position that also provides for tuition and fee remission per policy. To offer tuition remission, students in the program cannot have another position in addition to GSA. In special circumstances, usually involving additional teaching duties or internships, exceptions to this policy may be made that require the permission of both the mentor and the program director. Additionally, for a student to maintain full-time student status, the following guidelines for leave time have been established by the Office of Research Education. The Program does not have a formalized system for accounting for vacation and sick leave; this falls under the honor system and is the responsibility of the student in coordination with either the Office of Research Education (as a first-year student) or the department of the thesis mentor (second year student and above)

Leave time follows the Office of Research Education (ORE) and NIH guidelines:

Leave Policy (NIH Guidelines)

1. Vacation and Holidays - Trainees may receive the same vacations and holidays available to individuals in comparable training positions at the grantee or sponsoring institution (refer to the Office of Research Education website). Trainees shall continue to receive stipends during vacations and holidays. At academic institutions, the time between semesters or academic quarters (including summer) is considered an active part of the training period, not a vacation.
2. If student funding is obtained from a source other than the NIH, the other funding institution may provide leave guidelines that differ from those outlined above. In such cases, the guidelines from the relevant funding institution shall apply.
3. Sick Leave and Other Leave - Trainees may continue to receive stipends for up to fifteen calendar days of sick leave per year. Under exceptional circumstances, this period may be extended by the awarding component in response to a written request from the training Program director or the sponsor. Sick leave may be used for the medical conditions related to pregnancy and childbirth pursuant to the Pregnancy Discrimination Act (42 USC 2000 e (k)).
4. Parental Leave - Trainees may also continue to receive stipends for up to sixty calendar days of parental leave per year for the adoption or the birth of a child when those in comparable training positions at the grantee or sponsoring institution have access to paid leave for this purpose. Either parent is eligible for parental leave. For trainees, the use of parental leave must be approved by the training Program director. A period of terminal leave is not permitted, and payment may not be made from grant funds for leave not taken.
5. Unpaid Leave - Individuals requiring extended periods of time away from their research training experience, which could include more than fifteen calendar days of sick leave, or more than sixty calendar days of parental leave must seek approval from the awarding component for an unpaid leave of absence. Approval for a leave of absence must be requested in advance by the training grant Program director and be countersigned by an authorized institutional official.
6. Leaves of Absence - During a leave of absence, documentation to suspend the period of appointment must be completed by submitting an amended Statement of Appointment Form and a Termination Notice. These forms should be submitted to the awarding component at the beginning of the leave. At the resumption of NRSA support, the reappointment must be documented on another Statement of Appointment Form

Procedure for Changing Thesis Advisors or Leaving a 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 Molecular Biology 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 advisor or lack of mentoring, then the student should consult with the GAC, the Program Director and/or the Chair of the thesis committee. This action should be taken as soon as problems arise. A written summary of the meeting should be issued for documentation and added to the student's file.

2) If an advisor is unhappy with the performance, lab citizenship, work ethic or intellectual engagement of a student (or any other problem), then the advisor should meet with the student expressing these concerns. Consultation with the GAC, the Program Director and/or the Chair of the thesis committee is also recommended. A written summary of the meeting should be issued for documentation and added to the student's file.

3) In either of the cases above, the advisor and the student should then work out a plan of remedy. This plan should be in writing, and it is advised that the plan be forwarded to the Molecular Biology Program Director and the Chair of the student's thesis committee. Regular meetings between the student and MOLB Advisor should be held, and satisfactory or unsatisfactory improvements documented (copied to the Program Director and Chair of the committee).

4) Should a conflict reach the point where either the student or advisor decides that the mentor-student relationship should end, the student has several choices. The student can find another mentor within the 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 transfer to another lab in a different graduate program.

Financial Support

- According to financial aid, "…In order to avoid retirement withholding from your stipend checks, Financial Aid requires students to be registered for a minimum of 5 credit hours." The exception to this is in the summer semester, students will only need to register for 1 credit of MOLB 8990 to meet full-time status.
- During the first academic year, the SOM Office of Research Education (ORE) will provide students with a stipend of $37,000 per year, paid monthly on the last working day of each month. Monthly checks are automatically deposited into the bank account specified by the student. ORE also pays tuition, fees, and health/dental insurance for first year students. After the first year is completed, the chosen thesis faculty mentor will pay thereafter. Students are responsible for books, housing, etc.
- Not registering and paying a tuition bill by the set deadlines of the Registrar and Bursar's Offices will result in a $60.00 late fee. Students are personally responsible for paying all late fees and fines.
- Students' academic expenses, including stipend, will be paid until graduation contingent on the student meeting the following conditions:
  1) Satisfactory academic progress.
  2) Eligibility for in-state tuition after the first year. Students who fail to qualify for in-state residency will be personally responsible for the difference between in-state and out-of-state tuition (international students excepted).

3) Preliminary examination is passed at the end of the first year.
4) Comprehensive examination completed and passed by end of fall semester of 3rd academic year.
5) Chosen research advisor will provide financial support to the student beginning in the second year and continuing to graduation. Support includes stipend, tuition, fees, and health/dental insurance.

Office of Research Education

- Office of Research Education
- Conflict of Interest
  - Honor Code and Committee Procedures
- Anschutz Email address communication
- Student Badge Requirement
  - Everyone on campus must carry an Anschutz Medical Campus security access badge, which also acts as a photo identification card. This badge serves many purposes including enabling students to access the library, obtain parking, gain access to buildings after hours, and attend special University functions.
- Financial Aid for Graduate Students
- Residency
  - New students must immediately obtain documentation to support the petition for State Residency. This is a very important priority for first year students. After the first full year, only in-state tuition will be covered (assuming satisfactory academic progress), which requires that the student qualifies as an in-state resident*. The documents that must be obtained include local checking account, driver's license or State ID, and voter's registration, as well as proof of Colorado domicile. Further information will be provided during the School of Medicine Graduate Student Orientation, and you may also refer to the Registrar's Office for more information, https://www.cuanschutz.edu/registrar/residency
  - *All US citizens and permanent residents are eligible to become Colorado residents.
  - **International students cannot gain residency and will remain coded at the out-of-state tuition rate; these students are NOT personally responsible for the tuition differential.
- Tuition, fees and stipend
  - All incoming Graduate Students are offered a financial aid package from the Graduate School that includes an annual stipend of **$41,910** (approved for **Academic Year 2025-2026**), tuition costs, and payment of individual student health insurance and activity fees. The Stipend is evaluated on an annual basis for the cost of living. Please note that this support covers the period July 1, through June 30 for continuing PhD students, and August 15, through June 30 for first year PhD students. Payment of annual stipend, along with tuition costs, fees and individual health insurance is dependent upon satisfactory academic progress as defined in the Graduate School and Program policies.

Program Events and Activities

*As each Program defines and explains each event and activity listed below, it is important to list the expectation and/or requirement of participation/attendance for each event and activity.

Program Seminar

The program holds a weekly seminar in which faculty, postdoctoral fellows, students and invited outside speakers present talks on their research. The seminar series is a major focus for the program in that it draws everyone together weekly and keeps individuals abreast of research in progress as well as scientific techniques and expertise present within the program. This seminar series is beneficial to all participants. It helps students learn and practice presentation skills that will be important in their careers and helps enormously in finding the appropriate colleague to consult when problems arise in individual research efforts. Outside faculty speaker visits are scheduled to maximize interactions between both students and faculty. Starting in their second year, students will register for a course (MOLB 7661) and receive credit for attending the seminars. Students do not register for this course in the first year but are required to attend.

Annual Retreat

The program holds an annual two-day scientific retreat at an off-campus site. (For 2025, the annual retreat will be held at YMCA Snow Mountain Ranch (Granby, CO).) Faculty, students, and other members of faculty laboratories present either poster or oral presentations of their research in progress. The schedule for the retreat is arranged to ensure a vigorous exchange of information and to promote collegiality among participants. All students are required to attend and present a poster or talk at the annual retreat. Fourth year students are responsible for organizing the annual retreat.

Symposium

A valuable component of the Molecular Biology Program is the annual Symposium covering seminars on timely topics of interest. The annual topic is selected jointly by faculty and students (3rd years) of the curriculum committee. The symposium seminars are given by prominent visiting scientists and program members, who are experts on the topic of interest. Although the symposium is not taken for a grade, all students are expected to participate, beginning in their second year and throughout the remainder of the program. Third year students are responsible for organizing the annual symposium.

Training grants & endowments

Victor W. Bolie and Earleen D. Bolie Graduate Scholarship Fund

(Students in the 4th, 5th and 6th year are eligible to apply for the Bolie Graduate Scholarship award)

Guidelines:

1. Bolie Graduate Scholars will be chosen from students who have completed at least two years in the lab and successfully passed their Comprehensive Examination (as of August) *. For regular graduate students, these would be students who will begin their 4th years as of September. For MSTP students, students entering their 5th, 6th, or 7 th years (including 2 medical school years) as of September are eligible. Based on the endowment, there should be up to three Bolie Graduate Scholars per year. Students currently supported by the MOLB T32 or other fellowships over $15,000/year are not eligible. (So, a student currently supported by the MOLB T32 cannot apply for the Bolie Graduate Scholarship.) Bolie awards are restricted to US citizens and lawful permanent residents (who graduated from US colleges and high schools)**, and previous support by a T32 or other award will not negatively impact award consideration.
2. Each June, the program will issue an invitation for applications from those students who qualify (per stated rules) for the Bolie Scholarship. The application will include: a) the student's bio sketch, highlighting achievements of the student in the program, including a paragraph detailing progress in the research project; and b) a letter from the chair of the student's committee (half-page), requested by the student. The current T32 committee will choose up to three students to receive the award,

based on the above application, as well as review of the student's performance and participation in the program.
3. Bolie Graduate Scholars will receive $25,000 towards their stipend and $2,000 for educational expenses (such as computer, research-relevant software, or travel to conference). The remainder of the stipend and benefits/tuition would come from other sources, i.e. the mentor's grants.
4. The award will be for one year only.
5. Bolie Graduate Scholars will present talks at the Molecular Biology Retreat (same time as allotted for faculty/postdoc speakers).
6. Bolie Graduate Scholars must acknowledge support from the Victor W. Bolie and Earleen D. Bolie Graduate Scholarship Fund in the thesis and in publications.
7. At the discretion of the Program Director and the Steering Committee, the Program can choose to support an exceptional first year students as Bolie Scholars. This award would be offered during recruitment of prospective students, as an incentive to capture such an outstanding student.

Notes:

*The reason for choosing upper year students is to assure that the best students can be chosen as Bolie Graduate Scholars, without competing against students being considered for the MOLB T32, i.e. students in their 2nd and 3rd years.

**Revised December 2022 in that the conditions of the Bolie Foundation state that "each student sponsored by the fund be a US citizen or a lawful permanent resident that graduated from a U.S. high school and a U.S. undergraduate college.

MOLB T32 NIH Training Grant

The goal of the Grant Selection Committee is to award NIH training grant slots to the most promising Molecular Biology students. Typically, 10 slots will be awarded to students just completing their first or second years and starting their second or third years, respectively, when the award period will begin. For MSTP students, the first year is when they entered the Molecular Biology program.

1. In late May, the Grant Selection Committee will request nominations from faculty mentors of training grant eligible Molecular Biology students. The Grant Selection Committee will then meet and review the performance of those training grant-eligible MOLB students nominated by their mentors. Criteria evaluated will include undergraduate GPA, performance in classes during first year of graduate school, preliminary exam scores and performance in their labs (based on grades and both rotation and thesis lab seminars). For first-year students, preliminary exam performance represents a major criterion. Mentor Faculty participation in MOLB is also considered a criteria.
    a. Per NIH guidelines, (nominated) students must be US residents or non-citizens who have permanent resident status.
2. The training grant award is given for one year only. Qualified candidates, having completed their one-year allotment, can re-apply for a second year. Slots for a second year of support for prior training grant awardees will represent approximately half of "new" T32 awards.
3. Promising candidates will be chosen for short interviews. Typically, about twice as many interviews will be conducted as there are available training grant slots.
4. Each student applicant will be interviewed individually by the entire Grant Selection Committee for about 5 minutes.
5. After all candidates have been interviewed, the Committee will meet in private to decide which students should receive training grant support. If any Committee member has a student in their lab

being considered for a training grant slot, then that member will not be present for the discussion of their student.

6. An e-mail will be sent to all MOLB faculty and students announcing the new training grant awardees.

T32 Trainee Appointment Procedures. A T32 and Bolie Selection Committee (also selects MOLB Bolie Scholars) consists of five members that include Program Director, Associate Director, Director of BSP Umbrella Program, Director of MSTP Program, and a representative of RBI Program. We included BSP and MSTP Directors since MOLB recruits students directly from these programs. This committee meets each year in June to review the performance of training-granteligible students. Review criteria include undergraduate records, evaluations of rotations, student research presentations (in their current thesis lab), and grades at CU-AMC. The committee then selects students for 5-minute interviews; typically, twice the number of students is interviewed relative to available training grant slots. The interviews are intended to allow the committee to gauge the students' understanding of their research and their passion and commitment to science. Following these interviews, the committee chooses students to be funded by the T32 training grant. Committee members recuse themselves from evaluating and scoring their own trainees. In such cases, trainees are scored by the rest of the committee. Awards are given for 1 year, with a possible competitive extension for 1 more year.

To request a 1-year competitive extension, a T32 awardee writes a 2-3-page summary about their accomplishments during the first year of T32 funding including scientific achievements, and a description of their MOLB program participation (e.g. organizing the MOLB "Roundtables", Retreat, and/or Symposium). The T32 and Bolie Selection Committee reviews the summary and decides whether to grant a one-year extension.

Molecular Biology Program Award Resources

Bolie Travel Award

- Up to $1,200 total per student (lifetime limit).
- Supports travel to scientific conferences or workshops.
- Applications (available from the Program Administrator) should be submitted at least 60 days in advance.
- Students must also apply for any external travel awards from the sponsoring organization.

Eligibility:

- Full-time MOLB students in a thesis lab.
- First-year students are generally ineligible.
- Preference for students presenting posters or talks.
- Workshop travel must be justified as essential and unavailable on campus.
- Students are typically eligible **once** during their program.

Student Mini-Sabbatical Award

- 1–2 awards per year, up to $3,000 per student.
- Supports short-term research experiences in other labs or attendance at specialized training courses.
- Eligible students must have passed the Preliminary Examination.

Application:

- Solicited in April–May each year.
- Requires:
  - A biosketch.
  - A personal statement describing the benefit to training and research.
  - A support letter from the mentor.

Bolie Resiliency Award

- $2,000 award for first-year MOLB students demonstrating exceptional research excellence despite adversity or socioeconomic challenges.
- Up to five awards granted annually.

Eligibility:

1. First-year MOLB student.
2. Meets criteria of the Bolie Graduate Scholarship Fund.
3. Strong undergraduate biomedical research experience.
4. Documented adversity or disadvantaged background.

Selection:

- Candidates nominated by the Chair of the MOLB Admissions Committee.
- Final selection by the MOLB Director and Associate Director in July.

Computer Purchase Support

- MOLB provides up to $1,500 reimbursement toward a computer purchase during the first year.
- The purchase must occur during the fall semester, and students must submit proof of purchase.
- Support is subject to fund availability.

Resources and Support

Students can access a variety of campus services through the links provided below. The Office of Student Affairs is committed to supporting CU Anschutz students by offering guidance and assistance in navigating campus resources. For detailed information about available services or to schedule an appointment, please visit the Office of Student Affairs webpages. For additional questions or support, you may contact the office via email at StudentAffairs@cuanschutz.edu.

- Office of Student Affairs
  - Campus Life
  - Student Support
  - Health & Wellness
  - Student Resources
  - Student Services
- Students Resource Directory
  - Includes all campus resources
- Academic Calendar
- Residency
- Badging Office
- Student Parking & Transportation
  - Eco Pass
  - Campus Circulator (Transportation service)

- Medical Campus Rail Shuttle

- Office of Information Technology
- Student Health Insurance
- Office of Research Education – Concern Reporting Form (Maxient)
- CU Anschutz Student Outreach and Support Referral
- CU Anschutz Student Request for Medical Leave of Absence
- Graduation Deadlines Thesis, Anschutz
- Thesis & Dissertation/ProQuest Format & Guidelines

Appendices

Appendix 1

- **Medical Scientist Training Program**
  - HANDBOOK
- **Biomedical Sciences PhD Program**
  - HANDBOOK

Appendix 2

Molecular Biology Rotation Project Proposal

After you have met with your mentor to discuss your project, you will write a brief 1-2 page, double-spaced Introduction followed by a list of Specific Aims. The Introduction should include: 1) a brief background (*e.g.* "Lung cancer accounts for the highest number of cancer deaths in the US…", etc.) 2) the nature of the scientific problem your project addresses 3) the main hypothesis (or hypotheses) to be tested 4) description of your research project with brief methods *(e.g.* "In order to test this hypothesis, I will determine if levels of protein X are higher in more aggressive breast cancer cell lines by immunoblot analysis…"). 5) How the results of your project might impact the field more broadly. *Your introduction should cite ~5-10 relevant references.*

The Introduction will be followed by 2-3 Specific Aims, each of which consists of 2-3 sentence statements and/or bullet points, of the major goals of the aim and the methods for achieving the aims. The specific aims should be modest in scope, to increase the likelihood of achieving the aims during the rotation.

Examples of two Specific Aim styles:

Specific Aim 1: Methylate PCDH10 transcript RNA using purified METTL3/METTL14 enzyme. I will test the hypothesis that the mRNA of the HOTAIR target PCDH10 can be modified with m6A by the METTL3/14 methyltransferase to help us understand if this modification plays a role in HOTAIR RNA matchmaking.

a. The METTL3/METTL14 methyltransferase complex will be purified from overexpression in 293 cells using affinity resin via a FLAG tag.
b. Enzyme activity and extent of methylation of PCDH10 RNA will be determined using the EpiQuik™ m6A RNA Methylation Quantification Kit, which identifies m6A modifications through a colorimetric assay.
c.

Specific Aim 1: To determine the levels of protein X in a panel of breast cancer cell lines that have differing degrees of aggressiveness.

Breast cancer cell lines that have been identified as "aggressive" or "non-aggressive" based on their ability to invade synthetic extracellular matrix will be cultured and protein extracts will be subjected to immunoblot analysis to determine if there is a correlation between cellular levels of protein X and aggressiveness.

Your Project Proposal should also have a cover page with the title of your project and the names and signatures of the student and mentor (use template). The deadline to submit your signed Project Proposal is one week after your rotation begins.

The purpose of this exercise is to help you solidify your project with your mentor so that you can focus on your research and have a specific set of steps that will guide you through your project. The references that you use in the proposal will likely be valuable resources to help guide your work.

Rotation Project Proposal Title

Molecular Biology Rotation # ___

Student Name _____

Student Signature _____

Rotation Mentor _____

Rotation Mentor Signature _____

I**ntroduction (1 page)**

Specific Aims & Methods for Achieving Aims (2-3 Aims)

References (cite in text and provide full references at the bottom of the proposal)

May use additional pages as needed

Appendix 3

Template for Thesis Committee Meeting Progress Report

Written progress reports can be useful tools for structuring your committee meetings. It is recommended that you send your committee members a brief progress report a few weeks before your committee meeting. The goals of the progress report are to update your committee on your progress and accomplishments, identify any needs or concerns, and identify goals for the future. Below is a suggested format for your progress report.

Student Name:

Year started graduate school:

Year of comps:

Meeting date:

Last meeting date:

Committee members:

Thesis mentor:

Title of project:

Summary of progress since last meeting:

Thesis project:

Supporting projects/collaborations/pending publications:

Manuscripts:

Meetings, abstracts and form of presentation (poster/talk):

Fellowships/ Grants:

Other experience, accomplishments:

Potential timeline for the upcoming year and graduation:

Appendix 4

MOLB Mentoring Plan for Mentoring First Year Students

In their first year, MOLB trainees must successfully complete all their classes, pass their prelim exams, and select their PhD thesis laboratory. This process is inherently complex, and is complicated by the lack of a formal PhD mentor until the start of their second year. As such, MOLB provides a formal mentoring framework for first-year trainees.

Several issues often arise in the first year. Many trainees move from different states and do not start with a strong social support network, and incoming trainees are not familiar with MOLB program rules. To facilitate the integration of incoming students into the MOLB program, each student is assigned both faculty and peer mentors from the Graduate Advisory Committee. Below are the responsibilities and expectations of MOLB peer and faculty mentors.

Peer Mentors

Peer mentors are crucial for ensuring the success of first-year students. Peer mentors can provide student perspective and connect first-years to other students. Participation in peer mentoring is strictly voluntary; however, once committed, peer mentors are expected to actively participate in mentoring.

The expectations from peer mentors are listed below.

1) *June-July*. Zoom-based meeting with all incoming first-years, followed by one-on-one meeting with your mentee(s).

2) *July-August*. Frequent communications (email, zoom) with your mentee(s). The goal is to be available for incoming first-years to ask any questions related to the program, rotation choice, Denver/Colorado, and social aspects of student life.

3) *August*. Set up an in-person meeting as soon as your mentee(s) arrives on Campus. The goal of this meeting is to establish a personal connection and answer any questions. Address each of the following topics:

a) Picking first rotation.

b) Discussion of what is expected in the rotation (from a senior student point of view).

c) Discussing what to expect from first-year coursework (e.g. Core).

4) *September-May*. Bimonthly in-person meetings. The goals of these meetings are to ensure that the student is doing well and to communicate any potential issues to the GAC. After each meeting, the peer mentor should communicate (verbally or in writing) their opinion of mentee progress to the assigned GAC faculty mentor and the GAC Chair. It is very important to check with your mentee about what information they want to keep confidential. Address each of the following topics:

a) Wellness check: does the student have the support they need?

b) Picking second and third rotation.

c) Discussions about potential PhD lab.

d) Checking how mentee is doing in their classes.

e) Discussion about expectations in Prelims.

Strong mentor/mentee relationships are crucial for navigating the program past the first year and we expect that mentor/mentee relationships will extend into the second year and beyond, as there are additional stressful experiences, including the comprehensive exam, program presentations, and fellowship preparation.

GAC student representatives also play an additional role in student mentoring. Besides being paired one-on-one with incoming students, the GAC student representatives also participate in once-a-semester GAC meetings. Prior to this meeting, the GAC student representatives reach out to all peer mentors to discuss the first-year mentees and prepare short summaries of each first-year's progress.

First Year GAC Faculty Mentor

The main goal for a GAC faculty mentor is to ensure that the first-year student is progressing well and meeting all expectations. This is key to ensure that they successfully pick rotations, complete all the classes, pass the Preliminary Examination and find a PhD lab. It is a challenging part of most students' graduate education, thus frequent communication with your mentee is key to their success. Please note that meetings with your first-year mentee should not be used as an opportunity to recruit them to your laboratory. In fact, if this is a likely possibility, matches should not be made between this student-faculty pair. If a mentor assigned to an incoming student subsequently becomes a rotation mentor, the GAC chair should be made aware of this situation immediately and a different mentor will be assigned to the student.

The expectations from GAC first-year faculty mentors are listed below.

1) *August*. Set up an in-person meeting as soon as your mentee arrives on Campus. The goal of this meeting is to establish a personal connection and answer any questions that the first-years may have. The following topics need to be covered:

a) Picking first rotation and strategy for 2nd and 3rd rotations.

b) Discussion of what is expected in the rotation (from faculty point of view).

b) Discussing what to expect from first-year coursework (e.g. Core).

In the middle of 1st rotation, touch base on how that rotation is going, discuss what they are learning about their mentoring needs and then revisit ideas for 2nd and 3rd rotations.

2) *September-May*. Bimonthly communications with the first-year mentee and with the peer-mentor who will be having monthly meetings with mentee. After each meeting peer-mentor will reach out to GAC faculty mentor to communicate their opinion about mentee progress (see above). The faculty mentor should confirm/ensure that these monthly meetings between students actually occur. Toward the end of each rotation schedule an in-person meeting with the mentee to check how they are doing in current rotation and what are their plans for next rotation. The student and faculty mentor should meet immediately before pursuing a third rotation, as this is often the most critical choice.

In addition to being a mentor, the GAC Chair should ensure that the GAIA report (trainee assessment) is completed by the rotation mentor at the end of each rotation and contains substantial feedback. The GAC Chair should also speak with the faculty member corresponding to each completed rotation to check how the mentee did and whether they are considering them as a potential lab member.

Reporting requirements for student and faculty mentors. Each major meeting between a peer/faculty mentor and mentee should be recorded. A simple electronic check-in form will be made available for this purpose. Major meetings include the first personal meeting of the year and the exit interviews from each rotation. You can enter notes for ad hoc meetings, but these should be limited to significant issues that arise during meetings.

Changing mentors. The initial student-mentor pairing is performed by the GAC in consultation with the Recruitment Chair, who is most familiar with the incoming class. However, if there are any communication issues between the student and their faculty or peer mentors, or if a new match is needed for whatever reason, the student can reach out to the GAC Chair, who will offer guidance and find a new match, if necessary.

Appendix 5

Expectations for Lab Members and Tips for Academic Success

These are some questions to review honestly with yourself and with your mentor a few times during your rotation and throughout your career. They are reasonable expectations for skills that you should be developing as you progress through your time in the labs. Some are more or less applicable depending on your position, but at least some are relevant to everyone, whether you are a temporary rotation student, working in your thesis lab, or as a postdoc, technician, or PI in academia or industry.

Scientific/ Career Development.

1. Are experiments well planned with proper controls?

2. Are the technical aspects of the experiments done well?

3. Are the experiments well documented (can someone else repeat what was done from your lab notebook or written protocol)?

4. Are experiments repeated an appropriate number of times?

5. Are results evaluated critically?

6. Are subsequent experiments logical extensions of previous experiments?

7. If problems are encountered, are experiments designed to identify the problem?

8. Take opportunities to present your work and get feedback.

Work habits

1. Are you organized, keep a detailed lab notebook and organize and archive your stuff?
2. Be a good lab citizen, clean up after yourself and help clean general use areas when needed.
3. Follow rules regarding things to double-check and sign off on if you are the last person to leave the lab.
4. Is work planned efficiently to optimize the amount that can be done?
5. Are experiments planned ahead, so that experiments aren't lost due to lack of reagents?
6. What use is made of waiting periods in experiments? Do your activities promote your success and progress?

Keeping up with the literature and other research.

1. Do you routinely search for and read papers in your research area?

2. Do you search for techniques that might allow you to do new types of experiments?

3. Do you read papers provided for journal club or other recommended papers?

4. Do you regularly attend seminars that are in your research area or in other areas?

Creativity and initiative

1. How much input do you have in the routine design, execution and analysis of your experiments?

2. How much input do you have in the medium-range goals (months) of your experiments?

3. How often do you suggest new approaches or new lines of experiments on your current project?

4. Do you suggest new lines of research?

5. How much personal responsibility do you take for meeting deadlines, devising experiments, and writing papers or grants?

6. If you see a problem in the lab, what is your response (ignore it, complain, suggest a solution, take the initiative to solve the problem)?

Communication skills

1. How effectively can you put together a draft of a paper or a grant?

2. How much help (and in what areas) do you need to complete the project?

3. Can you plan and prepare good slides?

4. How effectively can you assemble a spoken or poster presentation?

5. How effectively can you give a talk?

6. How well can you critique papers or spoken presentations of others?

Interactions with others

1. Do you leave general lab areas, hoods and equipment clean when you've finished?

2. Do you return reagents, equipment etc. to designated places?

3. Do you cooperate with others to share equipment, space, reagents etc.?

4. Do you share information, techniques etc. when asked?

5. Do you volunteer information and/or help others on your own initiative?

6. How do you handle summer students or others who help with your experiments?

7. Give and take constructive criticism well….it is not personal. The successes of each member of the lab reflects well on the whole lab and helps us towards our ultimate goals of understanding biology at the molecular level. Our other major goal since we are at an academic institution is to develop scientific careers, and a large part of that is learning how to take and give constructive criticism.

Appendix 6

Guidelines for Thesis Advisory Committees

Comprehensive Exam and Thesis Defense Exam

Revised August 2022

1) **Composition**: The committee is composed of at least four members, with at least three of the committee coming from MOLB Program faculty; the Chair must be a MOLB faculty member. All committee members must have active appointments in the Graduate School; it is the responsibility of the student to confirm this status for each committee member. If needed, additional committee members can be added during the course of the thesis work to provide expertise. After the comprehensive exam is completed and the student has advanced to the PhD candidacy, the student's mentor may become a member of the committee, and one of the former committee members may be dropped. The mentor may be a voting member, but may not be the Chair.

   To ensure independent evaluation of students' progress and examinations, and provision of impartial advice and guidance, no member of the committee should have undue influence over another member of the committee or the student. Undue influence could include, but is not limited to, direct employment (e.g. a postdoc employed by a faculty member), familial, domestic or amorous relationships, financial relationships or significant scientific collaboration (e.g joint funding). Any potential conflicts must be disclosed by committee members to the student, the committee and program director. Familial, domestic or amorous relationships, perceived undue influence or other potential conflicts of interest, involving a prospective committee member and the Thesis Advisor(s), Committee Chair and/or Student, will prohibit that prospective member from serving on said committee.

2) **Responsibility**: The committee will administer the comprehensive examination, guide the student throughout their thesis project, and conduct the thesis defense examination. Students are expected to form a thesis advisory committee by March 1 of their second year. The committee will have its first meeting ("pre-comps meeting") with the student on the afternoon following the spring seminar presentation, or as soon as possible thereafter. The first charge of the committee is to guide and evaluate the student's research progress to this point, and set the guidelines and a tentative date for the comprehensive examination. The comprehensive examination should be completed by December 31 of the third year. Students must meet with their committee at least annually; more frequent meetings are advisable as the student moves further into their research. It is the responsibility of the student to arrange annual committee meetings, to inform the members and the Molecular Biology office in writing of the date and place of the meetings, at least 2 weeks in advance, and to submit a short written summary of progress to the committee before the meeting.

3) **Committee Chair**: For each committee meeting, it is the responsibility of the committee chair to complete the on-line evaluation (https://predocprogress.ucdenver.edu/), which is automatically submitted to the program administrator. A copy is also automatically sent to the Student Advisor. This summary should include: 1) the student's progress since the last committee meeting; 2) planned studies for the immediate future; 3) indication of how student's progress relates to the specific aims of the thesis proposal presented in the comprehensive exam; 4) manuscripts published, in press, or in preparation; and 5) number of years in the program as well as anticipated date of completion. Summaries are signed off on by the student and the committee chair, and completed within one week following the committee meeting.

4) **Comprehensive Examination**: This exam requires the written submission of a "major" research proposal that describes the actual thesis project planned by the student. Students must obtain written approval of the topic of their proposal from the chair of their advisory committee and submit this to the Molecular Biology office by September 1 of the third year. The proposal should be written in the style and format of an NIH R21 grant format, and contain the following sections: specific aims, background and significance, preliminary data, experimental design and approach, and a supporting bibliography. Students should consult with their thesis advisor and NIH guidelines to format the written portion of the exam. The proposal should be written to be as close as possible to the realistic goals of the thesis project and should not be overly ambitious (e.g. a proposal for an entire laboratory group). **It is the student's responsibility to obtain the packet of forms and instructions online from the Graduate School website and return it with the appropriate signatures one month prior to the exam date. Proposal must also be submitted to committee members at least 2 weeks prior to the exam.**

   The student defends this proposal orally at the examination. The oral portion of the exam will also test general knowledge through questioning related to the proposal. The student should demonstrate critical and original analyses of their own proposal as well as the research from other labs that form the background for the proposal. The student should be prepared to defend their ideas against challenges from faculty members of the committee. The format of the oral portion of the exam is set by the committee at the beginning of the examination.

   There are three options for evaluation of the exam:

   Pass: The student must receive affirmative votes from a majority of the members of the examination committee in order to pass.

   Fail: If a majority of the committee votes "fail", the student may not continue in the Program.

   Pass with Conditions: The committee may feel that, although a student has essentially passed the examination, additional work is required. This may be in the form of additional coursework, the rewriting of exam materials, etc. The committee should sign the form as passing, with the conditions stipulated on the bottom. Once the student has completed the conditions to the satisfaction of the committee, the chair should sign approval. The form is returned to the Graduate School after the exam and given to the chair for final approval of conditions upon the chair's request.

Upon successful completion of this exam, the student is advanced to the PhD candidacy.

Comprehensive exam recommendations:

1. **Form your committee prior to your first Mol Bio seminar and encourage them to attend your seminar**. The committee is made up of four faculty, at least three of whom should be members of the Molecular Biology program. Your thesis advisor is not a member of this committee. You should decide on your committee with the help of your advisor.
2. **Meet with your committee immediately after your seminar (or soon after) to discuss your comprehensive format, tentative dates, and expectations**. Remember – each committee will have slightly different ideas of how a comprehensive exam is conducted.
3. **Contact your committee by e-mail and start picking dates when everyone is available – this will be the most challenging part of your exam, so start early!** The exam typically lasts for 2-3 hours. Make sure you schedule your exam and book a room for the appropriate amount of time.
4. **Ascertain if your committee members have current appointments in the graduate school, and be sure they are up-to-date.**
5. **Once you have scheduled the exam, make sure you complete the appropriate graduate school forms. The forms with signatures must be returned to the graduate school office one month prior to the exam**.
6. **Proposal**
   NIH R21 format (see below)

   Based on thesis work

   1 page of Specific Aims plus 6 pages of Research Strategy (not including references)

   Preliminary data not essential

   Understanding of research essential

   Must be distributed to your committee **2 weeks prior to your exam**.

7. **Exam (typical format)**
   You will be asked to leave the room while they discuss your progress, grades etc.

   Give a short presentation (length will be determined by committee)

   Questions

   You will be asked to leave the room while a decision is made

Advice

Work with your faculty mentor while you are writing your proposal

Get input from your committee members

Look at other students' proposals

Form a "mock comps committee" of more senior students, and practice

DON'T procrastinate!

Rough idea for proposal organization (see NIH guidelines)

Specific aims	1 page
Significance	1 page
Approach	4.5-4.75 pages
Rigor and Reproducibility	0.25-0.5 page

Total should be no more than 6 pages excluding the Specific Aims page (i.e. 7 total pages including the Specific Aims page).

NIH GUIDELINES

The Research Strategy/Plan is now organized into three sections: Significance, Innovation, and Approach and should answer the following questions: *What do you intend to do? Why is the work important and is it innovative? What has already been done? How are you going to do the work?*

Specific Aims

The purpose of the specific aims is to describe concisely and realistically the goals of the proposed research and summarize the expected outcome(s), including the impact the proposed research will exert on the research fields involved. Content should include broad, long-term goals, the specific objectives and hypotheses to be tested, summarize expected outcomes, and describe impact on the research field. This is the most important page of the entire application since it may be the only section the unassigned reviewers read to understand approach, impact, and innovation. **Recommended Length: 1 page**.

RESEARCH PLAN PART 1: Significance

The Significance section should explain the importance of the problem or describe the critical barrier to progress in the field that is being addressed. Explain how the proposed research project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved. Content should include the state of existing knowledge, including literature citations and highlights of relevant data; rationale of the proposed research; explain gaps that the project is intended to fill; and potential contribution of this research to the scientific field(s) and public health. **Recommended Length: 1 page**

RESEARCH PLAN PART 2: Approach

The purpose of the approach section is to describe how the research will be carried out. This section is crucial to how favorably an application is reviewed. Include PI's preliminary studies, data, and experience relevant to the application and the experimental design; the overview of the experimental design; and a description of methods and analyses to be used to accomplish the specific aims of the project. Discuss potential difficulties and limitations, and how these will be overcome or mitigated; expected results, and alternative approaches that will be used if unexpected results are found. Provide a projected sequence or timetable (work plan), and if the project is in early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work. Discuss in detail the way in which the results will be collected, analyzed and

interpreted, and include a description of any new methodology used and why it represents an improvement over the existing ones.

Recommended Length: **4.5 pages**.

Research Plan Part 4: Rigor and Reproducibility

Starting in the Fall 2017, we will require all students to add a section on rigor and reproducibility, similar to what is now being required for new NIH grants. (http://grants.nih.gov/reproducibility/index.htm)

Training in this area will have started in the spring 2017 semester in new MOLB/PHCL7801 course

(see http://grants.nih.gov/reproducibility/index.htm)

Recommended Length: 0.25-0.5 pages. Alternatively, you can discuss rigor and reproducibility throughout the document without having a separate section on it.

(you can see sample R21 applications at the NIH site: https://www.niaid.nih.gov/grants-contracts/sample-applications).

Appendix 7

Guidelines for graduate student 4th rotation: Guidelines for Students.

MOLB and other graduate students typically do three lab rotations and consult with rotation advisors to decide on which laboratory to pursue their thesis work. Occasionally, none of the three labs will be suitable for the student, for any of a variety of reasons. In this case, the student may do a 4th rotation over the summer, after the preliminary exam. However, the 4th rotation is unique in that it carries several special circumstances:

(1) The 4th rotation lab is usually the only choice a student will have for a thesis lab, with rare exceptions[1].

(2) Graduate school rules stipulate that students who cannot find an acceptable and accepting lab by the beginning of their second year will be dismissed from the program.

[1] Exceptions include: 1. Student has a preferred lab but that lab is waiting on June-August funding decision, and so 4th is alternative if needed. 2. Student has a potential lab but is not sure (or not satisfied) and has strong interest in a 4th lab. 3. Variation of #2, where 4th lab was not available for rotations during the fall-spring period. 4. Other exceptions may apply, but please note that 4th rotations should have strong rationale and require approval of program director and the student advisor (see "Requirements" below).

BEFORE the 4th rotation is established, the student must interview and be interviewed by the prospective fourth rotation advisor, just as they would if they were applying for a job (e.g. a postdoc). It is critical that both the student and the faculty come to a consensus that this is a good lab to pursue PhD thesis work BEFORE starting the rotation. Acceptance of the student for a 4th rotation should be a commitment by the advisor to accept them into the lab, provided that clearly stated expectations are met (see below). If the faculty advisor or student cannot meet these requirements, their lab is not suitable for a 4th rotation.

The student must make sure that the following requirements are met BEFORE undertaking a 4th rotation:

1. The student needs to identify possible 4th rotation labs, make initial inquiries to see if the faculty are interested, and must let the program director and the student advisor know which ones they would like to consider. The program director will then send the faculty their 4th rotation guidelines.

2. The 4th rotation faculty advisor must have the space and interest in training a graduate student for their PhD thesis.

3. The fourth rotation faculty advisor must have secured funds to support the student for their continued thesis work after the rotation period. Usually, the program secures funding from the Office of Research Education to support the student for the 4th rotation.

4. The student must not be competing for a position with any other personnel (e.g. other student, postdoc candidates, or other lab personnel). For example, if the PI wishes to take on two 4th rotation students (from any program), they must be able, interested, and willing to take both for thesis research.

5. The faculty advisor should agree to accept the student into the lab provided that clearly stated expectations are met during the rotation.

6. The student must receive from the faculty advisor a written document by email stating expectations of the student for the 4th rotation.

7. Once the student and faculty have discussed the rotation, the expectations, these requirements, and have come to an agreement, both need to meet with the program director to ensure that all parties are advised of the rotation's parameters and goals.

8 For special cases in which a 4th rotation is desired but not necessarily essential (see "Exceptions" above[1]), prior approval of the program director is required. The student must present in writing the reasons for a 4th rotation, and may need to meet with the program director and the student advisor. Because of variable circumstances for different situations, specific modified requirements and guidelines tailored to those circumstances will be given to the student and 4th rotation faculty.

The following guidelines should be followed by the student:

1. Before beginning serious discussions with any potential 4th rotation advisor, the student should (1) first identify several possible labs of interest, (2) find out if they have money, space, and potential interest, and (3) carefully and fully investigate the science of all potential labs. The student MUST have sufficient interest and motivation to pursue their PhD thesis in these labs, before embarking on meeting the pre-rotation requirements listed above. It is strongly advised that the student consider several choices from which they will decide based on more in depth discussions with the faculty and lab personnel. This is very similar to what graduating PhD students do when applying and choosing postdoc labs.

2. Before deciding on the 4th rotation, the student should interview with the faculty advisor to determine if there is sufficient mutual interest in working together.

3. Before deciding on the 4th rotation, the student is strongly advised to meet with other lab personnel, just as they would if they were considering doing a postdoc in the lab. The student is encouraged to talk to former students of the lab as well.

Appendix 8

Guidelines for graduate student 4th rotation: Guide for Faculty.

MOLB and other graduate students typically do three lab rotations, and consult with rotation advisors to decide on which laboratory to pursue their thesis work. Occasionally, none of the three labs will be suitable for the student, for any of a variety of reasons. In this case, the student may do a 4th rotation over the summer, after the preliminary exam. However, the 4th rotation is unique in that it carries several special circumstances:

(1) The 4th rotation lab is usually the only choice a student will have for a thesis lab, with rare exceptions[1].

(2) Graduate school rules stipulate that students who cannot find an acceptable and accepting lab by the beginning of their second year will be dismissed from the program.

(3) The Office of Research Education will often fund students for the 4th rotation, but this may depend on circumstances and resources, and requires prior inquiry. It is possible that other funding sources must be found after July 1, typically research or departmental funds of the rotation advisor.

[1] Exceptions include: 1. Student has a preferred lab but that lab is waiting on June-August funding decision, and so 4th is alternative is needed. 2. Student has a potential lab but is not sure (or not satisfied) and has strong interest in a 4th lab. 3. Variation of #2, where 4th lab was not available for rotations during the fall-spring period. 4. Other exceptions may apply, but please note that 4th rotations should have strong rationale and require approval of program director and the student advisor (see "Requirements" below).

Therefore, these special circumstances merit special requirements that must be met and guidelines that should be followed before a 4th rotation is undertaken. These requirements and guidelines are described below. Essentially, the faculty advisor should vet and interview the student, just as they would for a postdoc applicant, BEFORE agreeing to take on the student for the 4th rotation. Acceptance of the student for a 4th rotation should be a commitment by the advisor to accept them into the lab, providing clearly stated expectations are met (see below). If the faculty advisor cannot meet these requirements or does not wish to follow them, they should not take on a 4th rotation student.

The following requirements must be met BEFORE a 4th rotation begins:

1. The fourth rotation faculty advisor must have the space and interest in training a graduate student for their PhD thesis.

2. The fourth rotation faculty advisor must have secured funds to support the student for their continued thesis work after the rotation period. Usually, the program secures funding from the Office of Research Education to support the student for the 4th rotation.

3. The student must not be competing for a position with any other personnel (e.g. other student, postdoc candidates, or other lab personnel). For example, if the PI wishes to take on two 4th rotation students (from any program), they must be able, interested, and willing to take both for thesis research.

4. The faculty advisor should agree to accept the student into the lab provided that clearly stated expectations (see #5) are met during the rotation.

5. The student must receive from the faculty advisor a written document by email stating expectations of the student for the 4th rotation. Faculty and student should discuss these expectations. Failure of the student to clearly meet these expectations can justify declining the student a position, but this will likely lead to dismissal from the program.

6. Once the student and faculty have discussed the rotation, the expectations, and come to agreement, the expectations should be emailed to the program director and the student advisor and the student and faculty should meet with them to ensure that all parties are advised of the rotation's parameters and goals.

7. For special cases in which a 4th rotation is desired but not necessarily essential (see "Exceptions" above[1]), prior approval of the program director is required. The student must present in writing the reasons for a 4th rotation, and may need to meet with the program director and the student advisor. Because of variable circumstances for different situations, specific modified requirements and guidelines tailored to those circumstances will be given to the student and 4th rotation faculty.

The following guidelines are strongly recommended for faculty BEFORE agreeing to the 4th rotation:

1. The faculty advisor is advised to review the student's records (grad school application and grad school performance records; available from the program administrator). The advisor is also strongly encouraged to communicate with the program director and student advisor, previous rotation advisors, course instructors and other references provided by the student, both to evaluate the suitability of the student for the lab and to identify any potential issues that might need to be addressed during the rotation.

2. The faculty advisor should interview the student, just as they would interview a postdoc candidate, to determine if there is sufficient mutual interest in working together. In addition, it would be wise to have the student meet all other lab personnel, again just as a postdoc or other job candidate would.

3. The faculty and student should meet regularly to assess progress and any issues with the rotation as they occur.

Appendix 9

MOLB Seminar Host Duties

MOLB Seminar Series – Procedures and Responsibilities

Outside speakers are an important component of our training program. They provide unique opportunities to learn about new ideas and areas of research, stimulate discussions of our own projects, and provide networking opportunities for students. Each academic year, MOLB Seminar Series will host a set of outside speakers that are supported by either MOLB, Bolie or RBI.

This document describes the process for nominating, inviting and hosting speakers, and delineates the responsibilities of hosts and MOLB Program Administrator.

PROCEDURES

1. Nominating speakers

MOLB seminar speakers are selected by two mechanisms:

i) Bolie speakers

Each year all three Bolie Scholars invite Bolie Speaker. This speaker is supported by Bolie Endowment to MOLB. Each fall, Bolie scholars will decide on the speaker and will invite him/her to visit Anschutz Medical campus and give a Seminar in the spring or summer of the following year. Bolie Scholars will then be responsible for hosting Bolie Speaker.

ii) Other Invited Speakers

Each year MOLB will bring 12-15 outside speakers nominated by the MOLB community; either students, postdocs or faculty. The nominations will be asked for by MOLB Seminar Committee, typically in late Winer early Spring. Students, postdocs and faculty are encouraged to submit nominations for the MOLB seminar series.

The process of selecting speakers from all nominees will be determined by MOLB Seminar Committee. Each invited speaker will be hosted by faculty/student (or postdoc) pair. If speaker was nominated by faculty, they will need to find student or postdoc co-host. If speaker was nominated by student or post-doc, they will need to find faculty co-host. Once co-hosts have been determined, they will inform Program Administrator (PA) about who co-hosts are.

2. Inviting the speaker

The Hosts communicate with MOLB Seminar Committee chair to confirm available dates for outside speakers.

The Student Host contacts the speaker with the initial invitation to speak as part of the MOLB Seminar Series and cc's the Faculty Host and Program Administrator (PA). See sample invitation email in Appendix 1. For scheduling flexibility, please request that the speaker indicate 3 choices for preferred dates. Student/faculty/PA will confirm and schedule a date for the speaker to present. The Student Host then writes speaker to confirm the date.

3. Arranging the visit

The PA will send out an email, cc'ing student and faculty hosts, 6-7 weeks prior to the scheduled talk for guest speaker to make needed arrangements (air/hotel), request CV, talk title and preferred needs for presentation/technology. Also at this time, a link to the MOLB faculty web pages is sent for the guest speaker to consider faculty to meet with while on campus.

The Faculty Host will arrange for the speaker to have one-on-one or small group meetings with CU AMC faculty during the visit. If the speaker has communicated campus faculty with whom they would like to meet, those meetings should be the top priority. For the remaining meetings, the Faculty Host can either directly contact faculty who may be interested in meeting with the speaker or can email MOLB program faculty to identify additional faculty who may be interested in meeting with the speaker. *At least some of these one-to-one meetings should be with students or postdocs!*

Student Host will identify 4-6 students (or postdocs) to have lunch with speaker. MOLB PA will order the food based on information provided by Student Host.

Next, the Faculty Host will create the visit schedule based on polling potential faculty of their availability to meet with the guest speaker. Most visit schedules start at 9 am and will go through 5-6 pm, depending on the number of interested faculty that want to meet with the speaker and also the speaker's flight itinerary.

The Faculty Host is responsible for finalizing the schedule and sending to all participating parties including speaker.

The Faculty Host is also responsible for booking the restaurant for the dinner and inviting dinner attendees (typically 4 in addition to speaker). *Half of dinner attendees should be students/postdocs and should include the Student Host.*

4. During the visit

The speaker will get breakfast on their own and the Faculty Host or Student Host will pick up the speaker at the hotel in the morning. (Take note that on-campus parking for either the faculty or student host cannot be reimbursed, so please plan accordingly.)

For lunch, the Student Host can either take the speaker and attendees to a nearby restaurant (e.g. T Street Kitchen) or order take-out and hold the luncheon in a conference room on campus. The PA can help reserve a conference room as needed. The Student Host can either arrange with the PA in advance to pay for lunch using the PA's university purchasing card or can pay with their own credit card and submit receipts for reimbursement. Lunch costs cannot exceed $20 per person- including tax and tip.

The Faculty Host will organize a moderately priced dinner with the speaker. Per ORE rules, the total cost (food, drinks, tip and tax) must be less than $36/person and a maximum of $252 for the total meal. ***Alcohol must be on a separate tab and cannot be reimbursed from the program. Make sure to have itemized receipt for all food***. Faculty Host attending dinner will be responsible for alcohol tab (can also be split between Faculty attending the dinner if agreed). Faculty Host will also pay for the food and will get reimbursement from MOLB PA.

ROLES AND RESPONSIBILITIES

Student Host

Seminar invitation: Student Host communicates with MOLB Seminar Committee Chair and PA to confirm available dates for speakers selected by the seminar committee. Student Host contacts speaker with initial request to speak as part of the MOLB Seminar Series and cc's the Faculty Host and Program Administrator. Student writes speaker to confirm date.

Advertise: Post seminar notice in elevators and bulletin board in RC1 North and South and in RC2.

Organize student luncheon: Invite students (and postdocs) to join for lunch with the speaker. Organize food order or restaurant reservation as needed. PA can place the food order for delivery, but student host should gather the food order and send to the PA (at least 3 business days in advance for the visit) along with the location/time of delivery so that all information is collected for placing the online order.

Faculty Host

Arrange visit schedule: Identify potential faculty to meet with speaker and develop schedule for meetings. The faculty host will be responsible for finalizing the schedule including filling any gaps in the schedule and communicating with the student host for pick-up and breakfast arrangements. Once complete or at least 2-3 days in advance, PA will send schedule to speaker, faculty host and all faculty/students on the schedule.

Arrange dinner: Faculty host will organize a moderately priced dinner with the speaker and faculty. The total cost (food, drinks, tip and tax) must be less than $36/person and $252 total meal (limits may vary based on sponsoring department). Alcohol must be on a separate tab and cannot be reimbursed from the program. Host Faculty will be responsible for the alcohol tab and food tab (food tab will be reimbursed later by MOLB PA).

Program Administrator (PA)

Identifying open dates for outside speakers: Work with Seminar Committee to identify open seminar dates relative to other speakers and other program activities. Post the seminar schedule on the MOLB website.

Assist guest speaker with travel arrangements: Send out an email to guest speaker to make needed arrangements (air/hotel), request CV, talk title and preferred needs for presentation/technology. Also at this time, a link to the MOLB faculty web pages is sent for the guest faculty to consider faculty to meet with while on campus. Speaker suggestions should be returned to Faculty Host.

Seminar announcement: Create the seminar announcement and send to Dean's Office so it can be sent to all faculty on the campus. Send to Student Host for posting inside campus buildings. Email to all MOLB community the week prior and on the morning of the seminar.

Appendix 10.A: Sample Speaker invitation

Dear Dr. XYZ,

On behalf of the graduate students from the University of Colorado School of Medicine, I would like to invite you to speak in our 2022-2023 Molecular Biology Seminar Series. I think that your research on XYZ will be of great interest to our program and will also appeal to the community of scientists here. As a program we are focused on a variety of molecular and cellular questions related to your research. Dr. XYZ would be your faculty host and I would be your student host.

The Molecular Biology Graduate program (MOLB) at the University of Colorado School of Medicine is an interdepartmental program (for more information please see: https://www.cuanschutz.edu/graduate-programs/molecular-biology). The program seminar series, like the program itself, is diverse with topics ranging from single molecule structure to cancer and development. We feel that a seminar and visit from you would appeal to many faculty and students in the program. Therefore, as an invited lecturer, we ask that you meet with interested faculty throughout the day, enjoy a student lunch after your seminar, as well as a dinner with faculty and students.

Please consider coming to our campus in the 2022-2023 academic year. The first available date is XYZ and the seminars occur every Thursday at noon (below is a list of available dates).

Please let me know if you are interested and if so, pick at least 3 of the below dates that would be best for you. So that we can spread the dates of our seminar speakers, we ask that you please pick dates throughout the academic year. I would be happy to answer any questions that you may have.

Sincerely,

Your name
XYZ Lab
PhD Candidate | MOLB Program

OPEN DATES (please select three dates):
2021-2022 MOLB Seminar Schedule
FALL 2021
Open dates here

WINTER / SPRING 2022
Open dates here

Appendix 9: Sample Schedule

Marc Edwards, PhD -Amherst College

Wednesday, September 22, 2024

Faculty host: xyz. cell: xxx-xxx-xxxx

Student host: xyz

TIME	EVENT	LOCATION
8:00 - 8:40	Pick up at Hotel Breakfast with Student Host	Meet in Hotel Lobby
8:45 - 9:25	**James DeGregori, PhD** Professor Department of Biochemistry and Molecular Genetics	RC1 South 9115
9:30 - 10:10	**Scott Cramer, PhD** Professor Department of Pharmacology	RC1 South 6117
10:15 - 10:55	**Chandra Tucker, PhD** Professor Department of Pharmacology	RC1 South 6123
11:00 - 11:40	**Kristin Dahl** Graduate student – Macklin lab Molecular Biology Program	RC1 South 12115
11:45 - 12:00	Seminar Prep Time The OIT Help Desk Phone Number is: (303) 724-4357 (4-HELP on Campus)	
12:00 - 1:00	**CSD Seminar** "A mutually inhibitory Ras- PI(3,4)P2 feedback loop regulates migration in *Dictyostelium"*	Hensel Phelps East Student Host will introduce

7:15	**Dinner with Faculty Host and invited guests.** **The plimoth** 2335 East 28th Ave, Denver, CO, United States, 80205	
1:00 - 2:00	**Lunch with CSD Students: TBN**	
2:15 - 2:55	**Kristin Artinger, PhD** Professor Department of Craniofacial Biology	RC1 South 11112
3:00 - 3:40	**Chad Pearson, PhD** Associate Professor Department of Cell and Developmental Biology	RC1 South 12116
3:45 - 4:15	Break	RC1 South 12115
4:20 - 5:00	**Rytis Prekeris, PhD** Professor Department of Cell and Developmental Biology	RC1 South 12112
5:00 - 5:30	**Jeff Moore, PhD** Associate Professor Department of Cell and Developmental Biology	RC1 South 12100

Appendix 10

- Faculty information/resources
  - **Quick Reference table for membership**