Integrated Physiology Program

SCHOOL OF MEDICINE

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

STUDENT HANDBOOK

Last updated: July 15th, 2025

https://www.cuanschutz.edu/graduate-programs/integrated-physiology/home

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Program Guidelines Disclaimer

As a member of the Integrated Physiology 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.

Program Overview

Integrated Physiology faculty and students are united in the goal of improving human health through mechanistic research in areas of cellular physiology, endocrine systems and metabolism, reproductive science, and vascular biology. With a faculty composed of both basic and clinical research scientists, our program offers students opportunities to learn about how to target basic research to clinically important problems and to develop translational research projects. Graduates from our research programs have careers in academic and private research institutes, industry, and government laboratories.

Office of Research Education Contacts

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Office of Research Education (located in the Fitzsimons Building, 5th Floor West, Suite W5107)

Angie Ribera: Associate Dean of Research Education, angie.ribera@cuanschutz.edu
- Point of contact for faculty, program, and organizational concerns and planning

Jodi Cropper: Business Services Program Director, jodi.cropper@cuanschutz.edu
- Point of contact for financial and organizational planning concerns and coordination

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- Point of contact for program specific concerns and additional point of contact for Program Administrators

Stephen Frazier: Business Service Professional, stephen.frazier@cuanschutz.edu
- Point of contact for ORE administrative concerns, organizational planning and ORE leadership availability

BSP & MSTP Requirements

Students transferring to the Integrated Physiology Program from the Biomedical Sciences (BSP) or Medical Scientist Training (MSTP) programs may have different credit/course requirements (see appendix 1). Applications for transfer will be evaluated based on thesis lab availability, transcripts, and performance on the preliminary exam and in rotation labs. It is important to understand that transfer from either program into the Integrated Physiology Program depends on an Integrated Physiology Program 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 in 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)
- Course Catalog (for course descriptions)
- Register for Classes (see The Graduate School)

- All basic science PhD students must register for 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 Requirements and Courses

Fall Semester		
Course Title	**Registration Information**	**Credits**
Foundations in Biomedical Science	BMSC 7806	6
Core Topics (Student Choice)	BMSC 7810	2
Core Topics (Student Choice)	BMSC 7810	2
Special Topics in Integrated Physiology (Seminar and Journal Club)	IPHY 7652	1
Integrated Physiology Research (Rotation 1)	IPHY 7650 (001)	1
Integrated Physiology Research (Rotation 2)	IPHY 7650 (002)	1
Spring Semester		
Course Title	**Registration Information**	**Credits**
Comprehensive Physiology	IPHY 7800	6
Signaling in Physiological Systems	IPHY 7803	3
Special Topics in Integrated Physiology (Seminar and Journal Club)	IPHY 7652	1
Integrated Physiology Research (Rotation 3)	IPHY 7650 (001)	1
Summer Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	IPHY 8990	1
Research (Pre-Comps) *only if instructed to register*	IPHY 7650	3

- **Rotations and Rotation Seminar**

  Students are required to complete three lab rotations in their first year. At the end of each rotation, students give a seminar covering work done during their rotation. For additional information on rotations and rotation seminars, please see appendix 2.

  After identifying a rotation mentor, students will submit the **ORE Milestone Rotation** Request. The Program will communicate instructions and submission deadlines. Three forms will be submitted throughout the academic year: one form per rotation.

- **Preliminary Exam**
  At the completion of the first year, students take a preliminary examination, which is given early to mid-June and spans 2 days. The preliminary exam is an in-person exam based on knowledge learned throughout the first year. Please see the Examinations Section for more information.

- **Transfer to Thesis Lab**
  Students officially transfer to their thesis labs on July 1st. Students should submit in writing to the Program Director and Program Administrator the name of their chosen thesis advisor by June 1st, except in the case of a 4th rotation. See appendix 2 for information on 4th rotations. After the thesis lab is chosen and approved, the Program Administrator will route the Predoc Financial Support Agreement for signatures.

- **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. Students who do not obtain Colorado Resident Status as defined by the Registrar (with the exception of international students) will be required to pay the difference between in-state and out-of-state tuition beginning the Fall of year 2.

- **Program Director & Graduate Training and Oversight Committee (GTOC)**
  Students in their first year should consult on a regular basis with the Program Director and their GTOC mentor. This permits continuous monitoring of potential problems and a useful way for students to have input into the program. The Program Director consults regularly with the GTOC and program faculty regarding student questions and concerns. For additional duties of the GTOC, see appendix 3.

Year 2 Requirements and Courses

- The minimum registration requirement for full-time graduate students is 5 credits. Anything above 5 credits must be approved by the student's faculty mentor.

- **One Advanced Topics or Elective Course:** IPHY students in their 2nd year are required to take an Advanced Topics or Elective Course. Choices should be discussed with thesis advisor and the program director. Recommended elective courses include:
  - Developmental Biology
  - Molecular Biology Advanced Topics
  - An immunology course
  - Principles of Pharmacology
  - Bioinformatics

Fall Semester		
Course Title	**Registration Information**	**Credits**
Responsible Conduct of Research	BMSC 7811	1
Statistics and Data Analyses for the Biomedical Sciences	BMSC 7820	3

Special Topics in Integrated Physiology (Seminar and Journal Club)	IPHY 7652	1
Integrated Physiology Research (Pre-Comps)	IPHY 7650 Section 0V3	1-5 (variable)
Spring Semester		
Course Title	**Registration Information**	**Credits**
Grant Writing	IPHY 7802	1
Histophysiology	CANB 7620	3
Rigor and Reproducibility in Biomedical Research	BMSC 7812	1
Special Topics in Integrated Physiology (Seminar and Journal Club)	IPHY 7652	1
Integrated Physiology Research (Pre-Comps)	IPHY 7650 Section 0V3	1-5 (variable)
*Proteomics and Computational Analysis	IPHY 7804	1
* Only required for students on the Physiology of Human Health and Disease Training T32		
Summer Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	IPHY 8990	1

- **Seminar & Research Update Talks**
  - 2nd years+ are required to give a research update talk during seminar once per year.
  - Seminars are on Thursdays, 12-1pm. An exact schedule will be provided.
  - Attendance is required for all students as part of IPHY 7652

- **Journal Club**
  - For AY 25-26, 2nd and 3rd year are required to lead journal club once per year.
  - Journal club is on Fridays, 12-1pm. An exact schedule will be provided.
  - Attendance is required for all students as part of IPHY 7652

- **Comprehensive Exam:** Some students will be ready to plan their comprehensive exam late in year 2. Please see the Examinations Section for more information.

Year 3+ Requirements and Courses

- The 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 IPHY 8990. If a student is defending in between semester dates as defined by the Academic Calendar, the student must register for 5 credits of IPHY 8990, in the proceeding semester of the scheduled defense date.

Fall Semester		
Course Title	**Registration Information**	**Credits**

Doctoral Thesis (if post comps)	IPHY 8990	1-5 (variable)
Integrated Physiology Research (If pre-comps)	IPHY 7650 Section 0V3	1-5 (variable)
Special Topics in Integrated Physiology (Seminar and Journal Club)	IPHY 7652	1
Electives	Variable	Variable
Ethics in Research (must take every 4 years)	Discuss with Program Administrator if applicable	No Credit
Spring Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis (if post comps)	IPHY 8990	1-5 (variable)
Integrated Physiology Research (If pre-comps)	IPHY 7650 Section 0V3	1-5 (variable)
Special Topics in Integrated Physiology (Seminar and Journal Club)	IPHY 7652	1
Electives (if applicable)	Variable	Variable
Summer Semester		
Course Title	**Registration Information**	**Credits**
Doctoral Thesis	IPHY 8990	1

- **Seminar & Research Update Talks**
  - 2nd years+ are required to give a research update talk during seminar once per year.
  - Seminars are on Thursdays, 12-1pm. An exact schedule will be provided.
  - Attendance is required as part of IPHY 7652

- **Journal Club**
  - For AY 25-26, 2nd and 3rd year are required to lead journal club once per year.
  - Journal club is on Fridays, 12-1pm. An exact schedule will be provided.
  - Attendance is required for all students as part of IPHY 7652

- **Thesis Committee Meetings:** Students are required to have a thesis committee meeting every 6 months.

- **Thesis Defense:** Students typically defend in years 4+. Please see the Examinations Section for more information.

Examinations and Evaluations

Preliminary Exam

Every first-year student takes the Preliminary Qualifying Exam at the end of the first year of graduate school. The Integrated Physiology Preliminary exam typically takes place in mid-June. Dates are finalized and announced each year during the Spring Semester.

- **Format of the Preliminary Exam:**

- The exam spans 2 full days (9am – 5pm) and is in-person. Students are provided with breaks as needed. **Please do not show up late.**
- The exam is a written exam. Each day, students will be provided with a list of questions solicited from lecturers of IPHY 7800 Comprehensive Physiology. Students are expected to select 5 questions from each day's list to answer for a total of 10 questions across 2 days. These are expected to be thought responses requiring comprehensive answers *(but please refrain from unnecessary information that is not relevant to the question as this will be reflected in your grade)*.
- You are welcome to provide your answers in written form on paper or as electronic files. **For grading purposes, please respond to each question on a separate piece of paper/electronic file with your name and the name of the faculty member who submitted the question at the top.** Faculty names will be referenced in the question bank.
- You are allowed to use your lecture notes, but not the internet.
- Please bring your laptop and charger.

- **Grading of Preliminary Exam:**
  - Each question will be graded by the faculty member who submitted the question.
  - The requirement for passing is a minimum of 75% on each day of the exam (not an average of both days).
  - Failure to turn in your exam by 5pm each day will result in a "0%" grade for each day that the exam is turned in late.
  - Students who fail the exam may be dismissed from the program or given the chance to retake the exam, depending on their performance in laboratory rotations and course work.
  - Students who are allowed to retake the preliminary exam will do so in the next academic year when the exam is typically administered, and the entire examination must be retaken.

- **Policies for BSP Students:** BSP students that plan to join Integrated Physiology typically take the IPHY Preliminary Exam. However, if a BSP student takes a Preliminary Exam offered by a different program, IPHY will honor the results of that exam.

- **Policies for MSTP Students:** IPHY will honor the results of the MSTP specific Preliminary Exam.

Comprehensive Exam

- **Timing and requirements of the Comprehensive Exam:**
  - Students are required to take the comprehensive exam no later than the end of the fall semester of their third year, though earlier in the fall is preferable.
  - To schedule the exam, students must have completed or be registered to have 30 credit hours.
  - All students who take the Comprehensive Exam must have passed a Preliminary Exam.

- **Formation of the Comprehensive Exam Committee:**
  - A student's comprehensive exam committee must meet the following criteria:
    - 3 IPHY Faculty Members
    - 1 IPHY Faculty Chair
    - Preferably, at least 1 outside Graduate Training Faculty not affiliated with IPHY.

        - The student's thesis advisor may not chair the comprehensive examination committee.
        - All committee members must have prior approved Graduate School appointments.
    - 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.

- **Required Forms to Schedule Comprehensive Exam:**
    - Graduate School - Resources & Forms - CU Anschutz
        - App Candidacy form
        - Exam request form
    - Once a date has been set with your 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.

- **Format of the Comprehensive Exam:**
    - Exam Proposal
        - The exam centers on a NIH F31/30-style grant proposal of the student's thesis work.
        - The thesis advisor can provide input into the content of the proposal but should not edit the proposal prior to the oral exam. This proposal is meant to be the student's ideas/written document and not based entirely on a funded grant of the thesis advisor's research.
        - The student may discuss the Specific Aims of the proposal with their comprehensive exam committee in order to focus the Aims, but the committee should not view the entire proposal until 2 weeks before the oral exam.
        - Students must obtain written approval of the topics of their proposals from the chair of their comprehensive exam committee before beginning preparation of the written portion of the exam.
        - Students should submit their completed written portion to committee members **at least 2 weeks in advance** of the exam date.
    - Public seminar
    - Oral defense of a written proposal
        - The format of the oral portion of the exam will be set by the committee chair.

- **Grading the Comprehensive Exam:**
    - Grading will follow the approved rubric to standardize comprehensive exam evaluation across all students. Students will receive the following: "pass", "pass with conditions" with specific conditions and timeline set by the comprehensive exam committee, or "fail." See appendix 4 for the rubric.
    - Students who fail the exam may be dismissed from the program or given the chance to retake the exam.

Thesis Defense

- **Thesis Committee Formation:**

A student's thesis committee must meet the following criteria. While a comprehensive exam committee can roll over to become the thesis committee, this is not required.

- 5 Graduate Faculty Members. Please ensure that all your committee members have a faculty appointment listed in the Graduate School Faculty Directory.
- 3 IPHY Graduate Faculty Members
- The chair must be IPHY Faculty but cannot be the student's thesis advisor.
- 1 External Graduate Faculty Member (someone without an IPHY appointment)

- **Timing and requirements of the Thesis Defense:**
  - To schedule the defense, students must have completed or be registered for 30 hours of IPHY 8990.
  - At the time of defense, the student must have a minimum of one first author research manuscript of the thesis work in press.
  - If you are 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 deadline dates, please see the links below)
  - The student must submit finalized draft copies of the dissertation to the defense committee at least 2 weeks before the examination.

- **Thesis Defense**
  - Thesis defense begins with a public seminar that lasts approximately one hour.
  - After the seminar, the closed-door portion with the committee and student begins. Please block 2 hours for this portion of the exam.

- **Required Forms:** Graduate School - Resources & Forms - CU Anschutz
  - Below forms must be submitted 4 weeks before the exam:
    - Biosketch Form (This is a graduate school form, not the NIH form)
    - Exam request form
  - The Thesis Approval form should be initiated prior to your exam date and completed by Graduate School Deadlines (see Deadlines tab, Graduation Deadlines Thesis for appropriate year).
  - Watch how to prepare the correct forms and upload your dissertation.
  - The Defense Report, which is the form on which Committee members indicate the score of Pass, Pass with Conditions, or Fail, will be sent directly to the committee by the Graduate School.

- **Thesis Defense Resources and Dissertation Guidelines**
  - Thesis & Dissertation/ProQuest Format & Guidelines
  - ProQuest General Information for Submitting Dissertation & Thesis page 13 on Graduate School website
  - Graduate School Deadlines, Forms, Policies

Policies and Procedures

Integrated Physiology

- **Academic Standing & Satisfactory Progress**

Students in the Integrated Physiology Program are expected to maintain good academic standing and make satisfactory progress towards their PhD degree. Maintaining good academic standing is defined meeting all expectations in the following 2 sections as well as adhering to all policies. Please note that failure to maintain good academic standing may result in a recommendation for dismissal from the program.

- Students are required to maintain a 3.0 grade point average throughout the program.
  - Students are placed on probation by the Graduate School if their grade point average falls below 3.0.
  - Students are dismissed from the program if the grade point average is not raised to 3.0 within two semesters (Summer & Fall; Fall & Spring; Spring & Summer)
- Additionally, the Program requires students to make a grade of B (3.0) or better in all required mandatory courses, regardless of the overall grade point average.
- If a student receives a B- in any required mandatory course, they may be allowed, at the discretion of the program Graduate Training and Oversight Committee (GTOC), to retake the course.
  - Should the student be allowed to retake a required course in which they have received a grade of less than a B (3.0), it must be completed by the end of the next academic year.

➢ **Additional Requirements for Graduate Students by Year**

- In the first year, students must:
  - Obtain passing grades in their coursework, defined above.
  - Successfully complete three research rotations.
  - Pass the year end preliminary examination (see examinations).
  - Secure a position in a thesis laboratory by July 1st (except in cases of a 4th rotation).
- In the second year, students must:
  - Obtain passing grades in their coursework.
  - Begin thesis research.
  - Form a comprehensive exam committee.
- In the third year, students must:
  - Obtain passing grades in their coursework.
  - Pass the comprehensive exam by the end of Fall semester.
  - Form a thesis committee and meet with the committee.
- Further expectations during the thesis years:
  - A student must be self-motivated. Motivation should come from within and not 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 his/her own career and take responsibility for research successes and failures. If things are not working out in the lab or with the advisor, in addition to the advisor's responsibilities, 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.

➢ **Procedure for leave reporting**

Policies for vacation and leave for IPHY students are the same as for other students at CU Anschutz. These are outlined on the Resources page of the Graduate School website under the Policies tab.

- Students are allowed up to 14 calendar days per year and are also given all University holidays.
- Once students have joined a lab, they should discuss vacation time with their thesis advisors.
- Students are required to utilize the Graduate School Leave Reporting System.

➢ **AI Policy** *(adapted from CSD, NSP, and Campus Guidelines)*

The recent emergence of freely accessible Artificial Intelligence (AI) platforms that use large language models and other generative algorithms necessitates new guidelines to ensure that students understand when and when not to use these tools. Their benefits include enhancing scientific writing, accelerating the writing process, and reducing barriers to non-native English speakers. Major potential drawbacks also exist, however, including the potential for false or inaccurate information, breaches of confidentiality, plagiarism, and depriving students the critical tasks of working through problem sets that reinforce core didactic material. Thus, improper use of AI tools has the potential to undermine the learning objectives of the program.

This policy establishes a simple set of guidelines for acceptable and unacceptable use of AI language model tools in IPHY courses, dissertation work, and research articles. Our goal is to promote acceptable use of new technology while maintaining our overall goals and standards for training. Failure to follow these guidelines may result in course failure. Any questions regarding this policy and its implementation should be directed to the Course Directors and/or Program Director.

Please note that these guidelines are minimum expectations and in cases where guidance is stricter, these policies are superseded by any specific guidelines provided by Course Directors (i.e. you must attend to any guidance provided by Course Directors and instructors for those relevant courses); Principle Investigators (as a member of a laboratory group, you must respect the wishes of use by your PI); or any other guiding entity (e.g. thesis committees).

Generally acceptable use

If you use AI tools for these purposes, you must be transparent about their use. Citation of any use should be included in the bibliography of your written assignments: include the name of the specific tool (and version) and how it was used. Ex: ChatGPT, v4 was used to evaluate the grammar in this proposal. Suggestions from this evaluation were included in the final draft.

1. Language and grammar checks. Except for course exams (see below), AI tools can be used to check or edit your original text drafts for grammatical errors. This provides an opportunity for you to learn rules and best grammatical practices.

2. Coding help. AI tools can help translate code between computer languages, explain code structures and principles, and teach you to code as a tutor might. These methods can be problematic if too many errors creep in, but in general, you may find it helpful to design your own tutorials driven by your own questions and curiosity that AI tools can help with.

Generally unacceptable use

1. Answering test questions for courses. Exams in IPHY courses are intended to challenge you to think and translate your thoughts into original answers that are then evaluated by the course directors. During course exams, AI tools cannot be used at all, even to make suggestions to improve grammar and clarity in your writing.
2. Deriving answers and generating new text for homework and writing assignments for courses. While AI tools can be used to evaluate the grammar of your own original written content, and make suggestions to improve grammar and clarity, they cannot be used to generate new content for homework assignments. Also, verbatim use of sentences generated by AI tools will be considered plagiarism.
3. Identifying topics/potential experiments and generating new text for comprehensive exam proposals. These exams are intended to evaluate your ability to identify important scientific problems and experiments that address them, as well as to translate this knowledge into a written grant proposal. While AI tools can be used to evaluate the grammar of your own, original written content, and make suggestions to improve grammar and clarity, they cannot be used to generate new written content in comprehensive exam proposals. Verbatim use of sentences generated by AI tools will be considered plagiarism. In general, you should be able to defend every sentence you write with knowledgeable discourse.
4. Drafting peer review summaries. You may not use AI tools to generate summaries or reviews of your classmates' work. Peer review is an excellent opportunity to sharpen your critical thinking and evaluate alternative ideas on a topic and provides a unique opportunity for practicing concise written communication. Use this opportunity to consider the proposal from your peer and provide your own perspective. Using AI tools to generate summaries or reviews denies you this opportunity and denies your peer from gaining your perspective. Furthermore, uploading content from another individual's proposal to an AI tool may violate confidentiality, as the uploaded content may be disseminated or used for other purposes and without your consent. NIH has recognized this threat and recently adopted a policy that prohibits the use of generative AI technologies for the peer review process.
5. Analyzing data, drawing conclusions, and generating new text for dissertation document. The dissertation project and final document are the culmination of your graduate work and are intended to evaluate your scientific expertise and research skills. While AI tools can be used to evaluate the grammar of your own, original written content, and make suggestions to improve grammar and clarity, they cannot be used to generate new written content in your dissertation. Verbatim use of sentences generated by AI tools will be considered plagiarism. In general, you should be able to defend every sentence you write with knowledgeable discourse.
6. Analyzing data, drawing conclusions, and generating new text for research articles for courses or publication. The purpose of research articles, whether submitted for a grade in a course or for publication in a journal, is to contribute to the scientific community with original research. While AI tools can be used to evaluate the grammar of your own, original written content, and make suggestions to improve grammar and clarity, they cannot be used to generate new written content for research articles. Verbatim use of sentences generated by AI tools will be

considered plagiarism. In general, you should be able to defend every sentence you write with knowledgeable discourse.

In general, you should follow the principles outlined below as you navigate the use of AI in your graduate work: Developed collaboratively with Campus Health Sciences Faculty Committee.

We, as members of the AMC Community, strive to be innovative and curious in our approach to the use of new technology. Especially, given our commitment to improving health and biomedical research, we are responsible to approach the use of these tools with integrity and professionalism.

1. Never enter identifiable patient data/information into third party tools.
2. If using tools to assist with clinical decision-making, ensure these are approved by the health system and based on the best available evidence.
3. Familiarize yourself with the pitfalls of various tools such as bias, hallucinations, and incorrect information. In particular, for our PhD students, all should be aware of the tendency for LLM chatbots to fabricate fake citations and other information.
4. Be vigilant about the presence of biases in work generated by AI/ML; strive to mitigate the dissemination of these biases.
5. Avoid use of AI/ML to replace successful, evidence-based study strategies given concern these tools may negatively impact learning. For example, work through problem sets on your own or with classmates rather than leaning on AI tools. The goal in a PhD program is for you to learn, not to check boxes.
6. Critically evaluate any AI/ML generated responses with knowledge from course work and other resources.
7. Be honest and transparent about the use of AI and ML tools in curricular work such as studying and assignments. Citation of use should include name of the specific tool (and version) used and how it was used (e.g. editing the first draft for grammar; syntax help in Python code). Ex: ChatGPT, v4 was used to edit my first draft for clarity and brevity.
8. Failure to cite the use of outside tools may be considered plagiarism and will be addressed in the same way other academic professionalism lapses would be.
9. 9. Approach new technology and tools with curiosity but always maintain intellectual integrity.

- **Elective Teaching Training and Opportunities:** Some of our trainees aim for careers with significant teaching expectations; therefore, we recognize that teaching experience is an important element of training.
  - IPHY students may opt to take on additional required roles, such as teaching assistants (TAs) or medical lab assistants, to fulfill this training requirement and to gain experience aligned with their long-term goals, pending approval from the program director and thesis mentor.
  - If needed, TA and medical lab assistant positions can be coupled to an independent study course added as an elective to better structure the student's experience toward these goals.

Office of Research Education

Policies can be found on the Office of Research Education website under Resources -> Policies.

- Conflict of Interest (reference to Comps and Thesis committees)

- Honor Code and Committee Procedures
- Anschutz Email address communication
- Student Badge Requirement: Students must have their university badge visible, on their person, at all times while on campus.
- Financial Aid for Graduate Students
- Tuition, fees and stipend
    - All incoming Graduate Students are offered a financial aid package from the Graduate School that includes an annual stipend of **$41,912** (approved for AY **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

Program Seminar

This seminar series is beneficial to all participants in the program, both faculty and students. It helps students practice the presentation skills that will be important in their careers, provides examples from faculty presentations, and helps enormously in finding the appropriate colleague to consult when problems arise in individual research efforts.

- The Integrated Physiology Program Seminar Series is approximately every other Thursday from 12:00-1:00pm. The seminar series consists of student thesis update talks, faculty membership talks, and invited guests.
- Attendance is required for all students.
- Starting in the spring of a student's second year, students are required to give a research in progress seminar during the seminar series. This serves to focus the student's research project and to provide training in oral presentation skills. Students will sign up to give these talks before the start of the academic year.

Journal Club

The program holds a journal club approximately every other week, opposite the seminar program, in which faculty and students discuss a research paper.

For AY25-26, 2nd and 3rd year students are required to lead an interactive journal club session. Students who lead the journal club are required to find a faculty representative with expertise in the area. Students will sign up for a date to lead before the start of the academic year.

Annual Retreat

Every Fall around early November, the program holds an on-campus retreat with scientific sessions and workshops. Attendance at the retreat is required for all students.

Recruitment

Around February of each year, prospective student applicants visit our program for interviews. It is in the Program's best interest to attract and retain the best of these prospective students. When asked, please be willing to spend some time with prospective students during dinners or other functions.

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 MSTP and BSP Additional Requirements

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

Appendix 2 Rotations, Tracks, & Rotation Talks

- **Selecting a Rotation Laboratory:**
  Selection of laboratories for research rotations should be a decision made mutually by the student and the participating faculty. However, students are encouraged to consult with the Graduate Training Committee before making a selection. Factors such as space, the number of students in a laboratory, and how much time and effort a faculty member can spend should be considered. Projects are selected to challenge the student but are adjusted in scope so that a logical conclusion can be reached within a one-rotation period.

- **Purpose of Rotations:**
  These rotations are used to introduce students to the techniques of molecular research, facilitate the development of the logic required for conducting research, and give the student an opportunity to view first-hand the laboratories in which they may choose to perform their thesis research. For each laboratory rotation, the student and rotation lab mentor complete a pre-rotation form that describes the research project, which is then reviewed and approved by the Program Director.

- **Evaluation of Rotations:**
  Students take research rotations for 1 hour of credit (IPHY 7650) and are evaluated on the basis of their performance, by their rotation lab mentor. These evaluations are used as one criterion for advancement to the second year of the program. Evaluations will be two-fold. The PI of the rotation laboratory will not only grade the student for 1 credit hour of research but will provide a written critique of the student's understanding of the material, ability to design experiments, bench and organizational skills, and quality of laboratory notebook.

- **Rotation Tracks:**
  Most students join the Integrated Physiology Program via Rotation Track. In this track, students complete 3 rotations to determine which laboratory they will join for their thesis research.

  Some students join the Integrated Physiology Program via the Thesis Track. In this track, students also complete 3 rotations during the first year. However, as Thesis Track students join their thesis lab at the beginning of their first year, all 3 rotations are conducted in their thesis lab, under their thesis mentor, but must be on 3 different projects.

- **Rotation Talks:**
  All students, regardless of track, are required to complete a Post Rotation Talk after each rotation. These are brief 10–15-minute slide talks that cover the work done during the rotation. Students should consult with the PI of the rotation laboratory in putting together their talks.

- **Rotation Dates:**
  Rotation 1: August 25th – November 14th
  Rotation 2: November 17th – February 20th
  Rotation 3: February 23rd – May 15th

- **4th Rotation:**
  In some cases, a student does not identify a laboratory in three rotations. If you need a **Fourth Rotation,** you must request approval from your Program Director. The Program Administrator and Program Director will work with the Office of Research Education accordingly.

Appendix 3 Graduate Training and Oversight Committee (GTOC)

While the Program Director assumes the overall responsibility for the quality of trainees, curriculum, and welfare of the students, oversight is offered by the Graduate Training and Oversight Committee (GTOC). Primary responsibilities include:

- Addressing student progress
- Curriculum/course development and evaluation. All courses undergo annual student review, which is reviewed by the GTOC.

- Assisting the Admissions Committee with recruitment and evaluation of graduate student applicants
- Taking part in orientation activities with the incoming 1st year students
- annually reviewing the program for successes and weaknesses,
- Actively review 1st year student rotation seminars, work in conjunction with the Preliminary Exam committee as oversight,
- Review the formats of the preliminary and comprehensive exams,
- Assist students with selection of their thesis committees,
- In conjunction with the PD, review the IPHY website and other recruiting materials, and on occasion, review the training faculty to make recommendations of addition or removal of any faculty.

Appendix 4: Comprehensive Exam Rubric

IPHY Comprehensive Exam Rubric

PURPOSE OF THE SCORING RUBRIC:

This scoring rubric is intended to help standardize the comprehensive exam process. Its purpose is to improve transparency, calibrate expectations, and to ensure that IPHY students are treated equitably. Comprehensive exams are customized for each student, making the exam process inherently subjective and difficult to standardize. Nonetheless, this scoring rubric provides a framework for evaluating the student in the most objective fashion possible given the complexities of the exam. It is meant to have some flexibility.

COMPREHENSIVE EXAM GOALS:

1. The exam process is intended to help students advance their scientific and communication skills. Think of this as a journey rather than destination.
2. The exam process is meant to help students focus their thesis work, increase their knowledge of IPHY topics, and improve their productivity in the lab. The exam is not meant to be punitive.
3. Another goal of the exam is to prepare students for future scenarios that require public speaking and “chalk talk” style defense of their data and ideas.

COMPREHENSIVE EXAM GUIDELINES:

1. The written exam follows the formatting guidelines of an NIH F31 NRSA application (see handbook for details).
2. The student should present a 30-40 min summary of their proposal to their committee.
3. The exam should be completed and passed before December 31st of the student’s third year in the program.
4. Examiners will be provided with the student’s preliminary exam results to determine training progression. Examiners should ask questions that evaluate the criteria present in the four-area scoring rubric (below). The exam chairperson is responsible for keeping the questioning focused.
5. Examiners should consider the stage of the student when scoring. A “1” is a strong performance score for the level, not a perfect one.
6. A passing exam will have scores of 1 or 2 in each area. The exam score in each area is based on the collective consensus opinion of the examining committee. Thus, only one report will be generated with a single score in each area.
7. A score of 3 or 4 in any area requires remediation. This does not indicate a failed exam. Instead, additional conditions need to be met to satisfy the exam requirements. This involves completing

a remediation plan (below). The intent of remediation is to improve the student's skills and knowledge. It is not meant to be punitive.

8. Remediation plans will be given to the student in writing. Remediation plans should be focused, completable in ≤ 6 weeks, and be designed to specifically improve the area(s) of deficiency. A revised rubric will then be completed to reflect the outcome of the remediation.
9. If remediation is unsuccessful, the exam is then considered a "fail".
10. This rubric, including the scores and comments, will be uploaded to the student's permanent record by the exam chairperson. In the case of a remediation, the remediation plan and both the original and revised rubrics will be uploaded to the record.
11. Rubrics should be completed immediately after the oral exam when the student is asked to leave the room for committee discussion.
12. The mentor acts as an observer during the exam. They do not provide or determine scoring. The mentor is permitted to answer questions from the examining committee about the student's aptitude and performance in the lab.

SCORING RUBRIC:

This rubric contains examples of exam performance and should not be viewed as a strict checklist.

	KNOWLEDGE AND SCHOLARSHIP Identifies background, existing information, and reasoning.	**score:**
1	• Strong evidence of synthesis of concepts to support the thesis topic. • Terms, concepts, principles and methods are correct and described in depth. • Clearly identifies research problem in the field, based on prior knowledge. • Critiques prior work on the problem. • Demonstrates command of literature relevant to the thesis topic. • Information presented is appropriately cited. • Demonstrates independence in reasoning and understanding of the topic.	**comments:**
2	• Evidence of synthesis of concepts to support the thesis topic. • Terms, concepts, principles and methods are mostly correct and described with sufficient depth. • Identifies research problem in the field, based on prior knowledge. • Some critique of prior work on the problem. • Demonstrates familiarity with the literature relevant to the thesis topic. • Most information presented is appropriately cited. • Shows some independence in reasoning and understanding of the topic.	

3	• Some evidence of synthesis of concepts to support the thesis topic. • Terms, concepts, principles and methods are mostly correct but lacking important details. • Description of prior knowledge is minimal. • Describes, but does not critique prior work on the problem. • Demonstrates familiarity with the literature relevant to the thesis topic, but some relevant literature or preliminary data are neglected. • Information presented is cited, but could be improved. • Shows little independence in reasoning and understanding of the topic.	
4	• Little to no evidence of synthesis of concepts to support the thesis topic. • Descriptions of terms, concepts, principles and methods are insufficient and/or incorrect. • Insufficient description of prior knowledge. • Insufficient description of prior work on the problem. • Insufficient incorporation of literature relevant to the thesis topic. • Information presented is rarely cited/attributed. • Lacks independence in reasoning and understanding of the topic.	
	SCIENTIFIC REASONING AND EXPERIMENTAL DESIGN Written or oral description of hypotheses and experiments designed to test it.	**score:**
1	• Hypothesis is clearly stated, along with compelling rationale • Compelling rationale for experimental approach is provided. • Experiments are clearly described, powered, and appropriate. • Clearly describes controls and how they impact interpretation of the results. • Alternative experimental approaches are clearly described. • Clearly describes how experiments and results test the hypothesis. • Identifies weaknesses in interpretation. • Alternative results are described, and impact on the hypothesis is considered. • Statistics, rigor, reproducibility and sex as a biological variable are deeply considered and suitable to the thesis project.	**comments:**
2	• Hypothesis is stated and rationale is provided. • Rationale for experimental approach is provided. • Description of experiments is mostly clear, powered, and appropriate. • Controls and their interpretation are described. • Alternative experimental approaches are described. • Describes how experiments and results test the hypothesis. • Alternative results are described and connected to the hypothesis. • Statistics, rigor, reproducibility and sex as a biological variable are sufficiently addressed and suitable to the thesis project.	
3	• Hypothesis is stated, but rationale is weak and could be improved. • Rationale for experimental approach is provided, but is unclear or weak. • Description of experiments lacks some important details or is underpowered.	

	• Controls are described, but description of interpretation is weak. • Alternative experimental approaches are described, but not developed. • Description of how experiments and results test the hypothesis lacks depth. • Alternative results are described, but not clearly connected to the hypothesis. • Statistics, rigor, reproducibility and sex as a biological variable are incompletely addressed.	
4	• Hypothesis is unclear and rationale is weak. • Insufficient rationale for experimental approach. • Description of experiments is unclear or inappropriate. • Controls are poorly described. • Alternative experimental approaches are insufficiently described. • Insufficient description of how experiments and results test the hypothesis. • Alternative results are insufficiently described. • Statistics, rigor, reproducibility and sex as a biological variable are not addressed.	
	WRITTEN COMMUNICATION Communicates knowledge and reasoning through writing and graphics.	**score:**
1	• Writing is clear and effective. • Graphics are well-organized and effective. • Terms, concepts, principles and methods are used correctly. • Writing takes full advantage of the student's preliminary data, experience, and/or the supporting literature. • Citations are organized, appropriate, and of sufficient depth.	**comments:**
2	• Writing is mostly clear and effective. • Most aspects of graphics are well-organized and effective. • Most terms, concepts, principles and methods are used correctly. • Writing partially takes advantage of the student's preliminary data, experience, and/or the supporting literature. • Citations are organized, but sometimes inappropriate or of limited depth.	
3	• Some aspects of writing are clear and effective. • Some aspects of graphics are effective or the graphics are incomplete. • Some terms, concepts, principles and methods are used correctly. • Writing poorly reflects the student's preliminary data, their experience, and/or the supporting literature. • Citations are poorly organized, inappropriate, or of insufficient depth.	
4	• Writing is unclear and ineffective. • Graphics are disorganized or lacking. • Terms, concepts, principles and methods are lacking and/or incorrect. • Writing does not utilize the student's preliminary data, their experience, and/or the literature. • Citations are unorganized, used inappropriately, or lacking.	

	ORAL COMMUNICATION Communicates scientific knowledge and reasoning through speech and visual displays.	**score:**
1	• Oral communication is exceptionally clear and effective. • Graphics are well-organized and effective. • The public seminar is highly effective, engaging, and on-time. • Response to questions (public and with the committee) consistently incorporates appropriate evidence and reasoning. • Response to questions is reflective and shows independent thinking.	**comments:**
2	• Most of oral communication is clear and effective. • Most graphics are well-organized and effective. • The public seminar is effective, but could be improved for clarity, engagement, or time. • Response to questions (public and with the committee) often incorporates appropriate evidence and reasoning. • Response to questions is correct after substantial prompting or "leading".	
3	• Some aspects of the oral communication are clear and effective. • Some aspects of the graphics are effective or the graphics are incomplete. • The public seminar is somewhat effective, lacks logical flow, or is inappropriately brief or long. • Response to questions frequently incorrect, even after substantial prompting or "leading".	
4	• Oral communication is unclear and ineffective. • The public seminar is ineffective. • Graphics are disorganized or lacking. • Routinely fails to answer questions correctly or coherently.	