

## ACADEMIC INFORMATION

### **In-state Residency Status**

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, funding will be available (assuming satisfactory academic progress) only if 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 Graduate School Orientation. **\*International students cannot gain residency and will remain at an out-of state tuition rate; they are NOT personally responsible for the tuition differential.**

### **Checking Account**

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

### **CU Anschutz Identification Card**

Everyone on campus must carry a CU Anschutz picture ID. This ID serves many purposes including enabling students to access the library, obtain parking, gain access to buildings after hours, and attend special University functions. ID photos and paperwork are completed during Graduate School Orientation.

### **E-mail Access**

Graduate students will have an account in the electronic mail and World Wide Web access system by contacting the Student E-mail Coordinator, Mary Mauck (mary.mauck@ucdenver.edu). You will need to know both your nine-digit Student Identification Number and your four-digit Personal Identification Number (PIN) to obtain an account in the system. If you do not know your PIN, you may obtain it at the AMC Registrar's Office in Admissions & Records by going there in person with a picture ID.

## FINANCIAL SUPPORT

During the first academic year, the Integrated Physiology Program will support students with a stipend of \$30,000 per year, paid monthly by 8:00 AM on the last working day of each month. Monthly checks are automatically deposited into the bank account specified by the student. The Program also pays tuition, fees, and health insurance for the first year; thereafter, the chosen thesis mentor pays these expenses. Students are responsible for books, housing, etc. Please bring tuition bills immediately to the Program office when received. Not registering and paying a tuition bill by the deadlines set by Admission and Records will result in a late fee. Students are personally responsible for paying all late fees and fines. Student 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 third 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 insurance. Back up funding is available from the mentor's department in case of financial problems with the laboratory.

## **FINANCIAL AID**

Information regarding financial assistance is available at the Financial Aid office on the third floor of ED2 North (303-556-2886). You should plan to fill out all forms early. Short-term emergency loans are available. Types of financial aid include: grants, loans, work-study, and scholarships. Students should explore the possibility of obtaining grant support whenever possible; information regarding potential grant funding is available in the Program office.

## **OTHER RULES & REGULATIONS**

Rules and regulations, as well as information that pertains to all students on campus, can be found in the Graduate School Student Handbook and the CU Anschutz Course Book. When using these tools, be sure to refer only to the Graduate School Basic Sciences calendar and sections.

## **STUDENT GUIDELINES**

### First Year Requirements:

**Colorado Residency:** First year students who are U.S. citizens must take proper steps at time of arrival on the CU Anschutz campus to begin the process of establishing Colorado residency, so that this is complete by July 1 of the second year. If residency has not been established by this deadline, the student is responsible for the non-resident portion of tuition that exceeds the resident assessment.

**Course Work:** During the first year, students are required to take the "Biomedical Sciences Core Course", IDPT7806, 6 credits; 7810 A and B, 2 credits each (Fall, 10 hours total). This is a required course for all first year Ph.D. graduate students in biomedical programs at University of Colorado, and covers the fundamentals of biochemistry, cell biology, molecular biology, and physiology. One additional required course in Human Physiology (IPHY 6001- 4h) is taken in the Spring semester of the first or second year. This course provides an introduction to reproductive endocrinology from both a clinical and basic science perspective and students will review and discuss current literature. One additional elective course is taken in the Spring semester. An extensive list

of electives is available in other departments of the University of Colorado Graduate School. Electives should be chosen to meet the research interests of the student and should be made in consultation with the program student advisor. The elective courses suggested for Integrated Physiology students are: Developmental Biology, Receptors and Cell Signaling, Cancer

Cell Biology. Histology for Graduate Students. Molecular Biology advanced topics, An immunology course is highly recommended. Participation in the Research Seminar Program (IPHY 7652; 1 credit) is required and students must now register for this as a course for credit every semester(1 hour).

1st year students take three laboratory rotations over the first year for 1 hr. credit each (IPHY 7650 Research). Registration for courses in the first year must be approved by the program student advisor.

Integrative Physiology students must take Ethics in Research (PHCL 7605) in the fall semester of either their first or second year, with the stipulation that the course must be completed prior to taking the Comprehensive exam.

Students are required to maintain a 3.0 grade point average throughout the program. Additionally, the Program requires students to make a grade of B (3.0) or better in all required courses, regardless of the overall grade point average. If a student receives a B- in any required course, he/she may be allowed, at the discretion of the program faculty, to either retake the course or perform remedial work acceptable to Program faculty. 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. Students are placed on probation by the Graduate School if their grade point average falls below 3.0 and are dismissed from the program if the grade point average is not raised to 3.0 within one semester.

To avoid retirement from being withheld all students are required to register for 1 hr of IPHY 8990 over the summer.

**Research Rotations:** Students are required to take research rotations in the laboratory of three different faculty members of the program. Each rotation lasts for approximately twelve weeks and they are generally taken over the Fall and Spring semesters. 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 program student advisor before making a selection. Factors such as space, number of students in a laboratory and how much time and effort a faculty member can spend should be taken into account. 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. 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, laboratories in which she or he may choose to perform their thesis research. Students are required to give an oral presentation at the weekly program seminar upon completion of each laboratory rotation. These are brief 10-

15 minute slide talks that cover the work done during the rotation. Students should consult with the director of the rotation laboratory in putting together their talks.

Students take research rotations for 1 hour of credit (IPHY 7650, Research) 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 director 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. Evaluations are co-signed by the faculty and student, and placed in the student's file.

**Seminar Program:** The program holds a seminar every other week 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, 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 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. Outside faculty speakers are scheduled to maximize interactions between both students and faculty. Students do not register for this course the first year but are required to attend.

**Preliminary Examination:** At the completion of the first year, students take a preliminary examination, which is given in early June. This consists of a grant proposal based upon a set of papers selected by the examination committee. Students will defend their proposals in an oral exam. The steering committee, in consultation with the Student Advisor, establishes the guidelines for pass/fail, reviews the exam results, and makes its recommendation to the program faculty. 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.

**Evaluation and Selection of Thesis Advisor:** The program faculty will evaluate the overall performance of the student based on three areas: course work, laboratory rotations and the preliminary examination. This evaluation will take place at a general faculty meeting in June. Upon successful completion of this evaluation, students then select a thesis advisor and a project. Selection of the thesis advisor should be the mutual decision of the student and the program faculty member. At the completion of the third laboratory rotation (by June 1), students are asked to submit in writing (to the program student advisor), the name of the potential thesis advisor and a brief description of the proposed research project so that this request can be presented at the general faculty meeting in late June. The program faculty will review written requests and make final approvals. Every effort will be made to accommodate a student's first choice. However, factors such as the

number of other students in a laboratory, space, and financial resources of the potential thesis advisor must be considered. Therefore, a student may be asked to make an alternate selection.

**Graduate Student Advisor:** Students in their first year should consult on a regular basis with the program student advisor. This provides a mechanism for continuous rapport to be established between one faculty member and students throughout the critical first year. This permits continuous monitoring of potential problems and a useful way for students to have input into the program. The program student advisor consults regularly with program faculty regarding student questions and concerns. The Program advisor approves registration for all first-year students.

### Second Year Requirements:

**Course Work:** In consultation with the program student advisor and the thesis advisor, students may choose additional elective courses to round out their expertise in selected areas and to provide general knowledge in others. Students must register for Ethics in Research (PHCL7605, 1 hour) in the fall semester if they have not completed it previously. Continued participation in the Research Seminar Program IPHY 7652; 1 credit) is required and students must now register for this as a course for credit (1 hour). The seminar course will be graded based on participation, and the spring semester grade will in part be based on the student's research seminar presentation (see below). Additionally, students must register for IPHY 7650 OV3(Research) each semester during their second year. Graduate school requirements stipulate that students must accumulate or be registered for 30 semester credit hours prior to taking the comprehensive exam, scheduled no later than the end of fall semester of the third year. Thus, students are urged to transfer credits for any graduate level courses taken from their previous universities. Registration forms for courses in the second year must be signed by the program student advisor.

To avoid retirement from being withheld all students are required to register for 1 hr of IPHY 8990 over the summer.

**Research Seminar:** 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 (see below) immediately following the Spring seminar presentation.

**Journal Clubs:** Beginning in the second year and throughout the remainder of the training program, all students are expected to participate and help organize a journal club. The series is run by students who may invite faculty to participate. Other grad students and postdocs are welcome to attend. The journal club meets monthly

### **Selection of Thesis Advisory Committee:**

Students are expected to form a thesis advisory committee by March 1 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 on the afternoon following the Spring seminar presentation. 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. This committee (five members) is composed of a minimum of three Program faculty and at least one external member. The Chair must be an Integrated Physiology faculty member. After the Comprehensive Exam is completed and the student advances to Ph.D. candidacy, the student's mentor will become an additional member of his/her committee. All committee members must have faculty appointments in the Graduate School. It is the duty of the committee to advise the student and to monitor the student's progress, and report to the student advisor. Students must meet with their committee at least annually; more frequently is advisable. This committee is also charged with administering the comprehensive examination and guiding the student throughout their thesis project. It is the responsibility of the student to form the committee, submit the names of all members to the Program office, arrange annual committee meetings (to take place after the seminar), inform the members and the Integrated Physiology office in writing of the date and place of the meetings (at least two weeks in advance), and prepare a written progress report of their research.

It is the responsibility of the committee chair to write a brief summary of each committee meeting and submit this to the program administrator, who places this in the student's file, distributing a copy 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. Written summaries are signed by the student and the committee chair, and turned in to the office within one week following the committee meeting.

### Third Year Requirements:

**Course Work:** In the fall semester of the third year, students register for IPHY 7650 OV3 (Research 5 hours) if they still need research hours to complete the required 30 hours prior to the comprehensive exams. If the student has taken additional electives or has transferred credits from other schools, the 30 hours may already be fulfilled. Upon successful completion of the Comprehensive Exam (see below), students will register for IPHY 8990 (Doctoral Thesis 5 hours) throughout the remainder of their time in the program.

No summer course work is required.

**Comprehensive Examination:** 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 and should contain the following sections; specific aims, background and significance, preliminary data, experimental design and approach, and a supporting bibliography. 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 student defends the proposal orally at the examination. The oral portion of the exam will also test general knowledge through questioning related to the proposals.

To schedule the exam, students must have completed or be registered to have 30 credit hours. A packet of appropriate forms and instructions must be picked up from the Graduate School office, and returned with all signatures at least two (2) weeks prior to the date of exam. Students should submit their completed written portion to committee members at least 2 weeks in advance of the exam date. Students must obtain written approval of the topics of their proposals from the chair of their advisory committee and submit this to the Integrated Physiology Office before beginning preparation of the written portion of the exam. The format of the oral portion of the exam will be set by the committee chair. Students are required to take the exam no later than the end of the fall semester, though earlier in the fall is preferable. Upon successful completion of this exam, the student is advanced to the Ph.D. candidacy.

**Research Seminar:** In the third year, students present a seminar on their research progress at the weekly program seminar series. Students must meet with their thesis advisory committee immediately following their seminar presentation.

Fourth Year and Beyond:

**Course Work:**

It is the goal of the program for students to complete their thesis research and to successfully defend their thesis by the end of their fifth year. The fourth years and beyond are devoted almost entirely to research. Students during this period continue to participate in the weekly seminar series and journal clubs. Students also participate in individual research group meetings during this period. Students are strongly encouraged to make presentations at national meetings during their final two years. The program makes efforts to aid the students in developing independence and leadership skills during this period and to devote considerable thought to their career and postdoctoral research plans. Students are required to continue to meet at least annually with the thesis advisory committee during their final year(s). Again, it is often advisable to meet more frequently than this as the student nears completion of the thesis work. Students continue to register for IPHY 8990 (Doctoral Thesis in Integrated Physiology, 5 hours) during their fourth year and beyond, keeping in mind the necessity to complete 30 hours of thesis credit prior to thesis defense and graduation.

To avoid retirement from being withheld all students are required to register for 1 hr of IPHY 8990 over the summer.

**Research Seminar:** In the Fall of the fourth year, students present a seminar on their research progress, as part of the program's weekly research seminar series. This seminar should serve to focus the student's research project and to provide training in oral presentation skills. Students must meet with their committee immediately following seminar presentation.

## **EXPECTATIONS OF GRADUATE STUDENTS**

It is our intention to train students so that they can function as independent, imaginative, productive scientists in a research capacity in academia or other challenging environments. It should be understood by all students that their productivity during their tenure as graduate students will strongly influence the opportunities that are available when they seek employment. The Program thus requires considerable investment of time in developing experimental, critical thinking and organizational skills. Although the output expected can be influenced by a variety of factors including the importance and thoroughness of publications, most successful students graduate with the equivalent of two or more principal-author papers. Students should be prepared to invest a substantial amount of time above and beyond the normal workweek during their training to place themselves in a competitive position upon graduation.

The success of each student admitted to the Program is our goal. During the first two years of graduate school, there are clear and tangible milestones every graduate student must meet. In the first year, students must obtain passing grades in their coursework, successfully complete three research rotations, and pass the year-end preliminary exam. In the second year, they must begin thesis research and successfully pass the comprehensive exam. In the subsequent years of thesis research, the milestones become much more nebulous and success relies on a student's own self-motivation, intellectual drive and hard work. Graduate school is not a job – it is training for a challenging career. A student's success at this stage of his/her training and in subsequent steps will depend on the student's own efforts. The thesis advisor and thesis committee are in place to provide scientific and professional guidance and support. It is the student's responsibility to take the initiative to work with his/her advisor and committee to achieve success in research and in a career. Ultimately, a student's success lies with the student!

The Program has the following expectations for a student's thesis career:

1. A student must be self-motivated. Motivation should come from within and not determined by the mentor or arbitrary deadlines.
2. 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.
3. 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.

4. 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.

## **PROGRAM POLICY FOR VACATION AND LEAVE**

Graduate school is a privilege; obtaining a Ph.D. 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 Integrated Physiology 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. Additionally, for a student to maintain full-time student status, the Graduate School has established the following guidelines for leave time. These represent the leaves to which a graduate student is entitled; however, research demands and commitment to studies often result in students using less than the allotted leave. The Integrated Physiology Program does not have a formalized system for accounting for vacation and sick leave; the accounting falls under the honor system and is the responsibility of the student.

**Leave of Absence** - Leaves of absence are arranged with and approved by Program Directors; the Graduate School should be informed by the student. A leave of absence may be approved for a maximum of one year. Students who fail to register or submit a Statement of Academic Intent after an absence of one academic year will be withdrawn and required to reapply for admission to the Graduate School through their program and be considered with all other applicants. A leave of absence does not automatically extend the time limit set forth for graduation. Doctoral students who have passed their Comprehensive Examination are required to be registered continually for the Fall and Spring semesters. Failure to do so will result in the student being required to retake the Comprehensive Examination or reapply to the Graduate School. An official leave of absence may modify this registration requirement during the leave period.

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

**Sick Leave and Other Leave** - (Stipended PhD Students). Graduate students may

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

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

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

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