Endocrinology-Reproductive Physiology, Ph.D.

The Endocrinology and Reproductive Physiology (ERP) Program is a multidisciplinary degree-granting program designed to promote research in both endocrinology and reproductive biology, to provide training and experience for pre- and post-doctoral students interested in these fields, and to provide training in problems of endocrine physiology and reproductive physiology in animals and humans. The program trains master’s and Ph.D. candidates for teaching and research careers in all aspects of the interrelated fields of endocrinology and reproductive physiology—basic, clinical and translational. Students have access to a full range of research facilities throughout campus. A joint M.D./Ph.D. degree is also offered by the School of Medicine and Public Health and student trainees are eligible to train for the Ph.D. in the ERP program.

Postdoctoral Fellows are encouraged to join the program as associate members and participate in the program’s diverse activities. While postdoctoral positions are arranged directly with individual faculty members, ERP also seeks NIH support in this area. The program supports and mentors the training of both Ph.D. and M.D. fellows in translational studies.

The multidisciplinary research and the diverse interests of the faculty make possible many approaches to the study of both endocrinology and reproduction, providing the individual student with a wide selection of research training experiences. Research opportunities are available, but not limited to: endocrine molecular signaling, endocrine physiology in body function and dysfunction, stem-cell programming, gamete and embryo biology, pregnancy, lactation, neuroendocrinology and placenta development. Research models range from molecular and cellular all the way to whole animal including nonhuman primates and humans.

All students complete a core set of courses during the first two years of enrollment in the program including participation in the weekly seminar program. After fulfilling core course requirements, students have the ability to design a curriculum that meets individual research and career interests. Students also have multiple opportunities to present research work in courses, seminars and symposia, and at regional, national and international scientific meetings. The preliminary exam for Ph.D. candidates is based on the research project and is structured in the form of a competitive grant proposal. Part one of the exam is development of the written proposal and submission to the thesis committee for review. Part two is focused on the rebuttal and oral review of the comments. Students should aim to complete the preliminary exam by the start of the third year of study and defend the thesis in the fifth year.

All students are required to form a thesis committee during the first year of study and have an annual meeting with the members. A written progress report must be submitted annually to the program administrator.

Admission to the program is competitive; applications are due December 1 of each year for fall semester. Potential applicants will have a major in the biological sciences, a minimum undergraduate GPA of 3.3/4.0, and appropriate preparatory courses in physiology, chemistry, biochemistry, biology, physics, calculus, statistics, organic chemistry, and genetics. Prior laboratory research experience is strongly recommended.

The application process includes the completion and submission of the online Graduate School application, payment of the application fee, submission of a personal statement for graduate study, receipt of GRE scores and TOEFL or International English Language Testing System (IELTS) scores (TOEFL and IELTS are for international applicants) by Educational Testing Service, receipt of three letters of recommendation, unofficial transcripts, and a current curriculum vitae. Applicants are strongly encouraged to use the online reference feature in the Graduate School application system.

Completed applications for fall entry are reviewed by a panel of faculty. Applicants who pass this first step will be invited to a campus visit to interview with faculty and learn more about the program. Applications for spring or summer term are rare but possible, but only with the approval of the admissions committee – please contact the program coordinator in advance of submitting an off-cycle application.

Funding

Graduate School Resources

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding) is available from the Graduate School. Be sure to check with your program for individual policies and processes related to funding.
PROGRAM RESOURCES

More than 95 percent of the program's enrolled students are supported by a research assistantship or fellowship. Incoming applicants are considered for competitive fellowships during the admissions process; no additional application is required. Additional fellowship support for minority and educationally disadvantaged students is also available (prospective students should contact the program administrator at the time of application). Teaching assistantships are discouraged until the student has passed the preliminary exam. Training-grant support may be considered in the third through fifth years of study for Ph.D. students, assuming the student meets citizenship criteria, satisfactory academic progress, has a project that is relevant to the mission of NICHD, and continued funding by the National Institutes of Health. Financial support generally includes tuition remission, monthly stipend check, and participation in the State of Wisconsin health insurance program. Benefit costs change on an annual basis; contact the program administrator for current rates. Support for international students varies by faculty advisor. International students offered admission will be required to submit a notarized financial statement prior to visa documents being issued.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Mode of Instruction Definitions</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evening/Weekend: These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Online: These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hybrid: These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accelerated: These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements Detail</th>
<th>Required Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>51 credits</td>
</tr>
<tr>
<td>Minimum Residence Credit Requirement</td>
<td>32 credits</td>
</tr>
<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide.</td>
</tr>
<tr>
<td>Overall Graduate GPA Requirement</td>
<td>3.00 GPA required.</td>
</tr>
<tr>
<td>Other Grade Requirements</td>
<td>The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.</td>
</tr>
</tbody>
</table>

Assessments and Examinations

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

Language Requirements

Contact the program for information on any language requirements.

Doctoral Minor/ Breadth Requirements

Doctoral students are not required to complete a doctoral minor.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN SCI 875</td>
<td>Special Topics (Endocrine Physiology)</td>
<td>3</td>
</tr>
<tr>
<td>STAT/F&amp;W ECOL/ HORT 571 or STAT/B M I 541</td>
<td>Statistical Methods for Bioscience I Introduction to Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>BIOCHEM 507</td>
<td>General Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BIOCHEM 508</td>
<td>General Biochemistry II</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOCHEM/PHMCOL-M/ZOOLOGY 630 or NTP/ NEURODPT 610</td>
<td>Cellular Signal Transduction Mechanisms Cellular and Molecular Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>OBS&amp;GYN 955</td>
<td>Responsible Conduct of Research for Biomedical Graduate Students</td>
<td>2</td>
</tr>
<tr>
<td>OBS&amp;GYN 956</td>
<td>Advanced Responsible Conduct of Research for Biomedical Students</td>
<td>1</td>
</tr>
<tr>
<td>OBS&amp;GYN/AN SCI/ZOOLOGY 954</td>
<td>Seminar in Endocrinology-Reproductive Physiology</td>
<td>1</td>
</tr>
</tbody>
</table>
Endocrinology-Reproductive Physiology, Ph.D.

Electives—additional statistics, biochemistry, and advanced topics courses as determined by the thesis committee

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

GRADUATE PROGRAM HANDBOOK

The Graduate Program Handbook (http://erp.wisc.edu/current-students/program-documents) is the repository for all of the program’s policies and requirements.

PRIOR COURSEWORK

Graduate Work from Other Institutions

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background and interest. Statistics courses may be considered by the student’s advisory committee for exemption; however, students are still strongly encouraged to have this refresher. Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for their degree.

UW–Madison Undergraduate

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background, interest, or program-related career relevance. Statistics courses may be considered by the student’s advisory committee for exemption; however, students are still strongly encouraged to have this refresher or choose one with different emphasis (e.g., clinical). Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

UW–Madison University Special

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background, interest, or program-related career relevance. Statistics courses may be considered by the student’s advisory committee for exemption; however, students are still strongly encouraged to have this refresher or choose one with different emphasis (e.g., clinical). Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

PROBATION

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

CREDITS PER TERM ALLOWED

15 credits

TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may by require to take another preliminary examination and to be admitted to candidacy a second time.

OTHER

Most ERP students are 100% funded through research assistantships and/or fellowships, which include tuition, health insurance, and a monthly stipend.

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School’s professional development resources (https://grad.wisc.edu/pd) to build skills, thrive academically, and launch your career.
LEARNING OUTCOMES

1. Demonstrate breadth in one's understanding of endocrine systems, i.e., the integration and control of reproduction and normal body function through endocrine signaling.

2. Utilize an understanding of specific principles involved in investigating endocrinology, reproduction and development to advance research in one's area of concentration.

3. Assess and synthesize cutting-edge research and development in one's area of concentration.

4. Assess and leverage discoveries in parallel areas of research to advance research in one's own area of concentration.

5. Articulate research problems, potentials, and limits with respect to knowledge and practice within the fields of endocrinology and reproduction and beyond where relevant.

6. Create study designs and employ established and new analytical tools appropriate to the identified research goal.

7. Formulate ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the fields of endocrinology and reproduction.

8. Communicate complex ideas in a clear and understandable manner. 

9. Recognize and apply principles of ethical and professional conduct.

10. Foster ethical and professional conduct.

11. Identify incentives and structures that may encourage unethical research practices and behaviors.

12. Identify resources to help manage or report potential ethical misconduct.

PEOPLE

Faculty:

Professors Ian Bird (Obstetrics and Gynecology), David Abbott (Obstetrics and Gynecology), Elaine Alarid (Oncology), William Bosu (Medical Sciences/Veterinary Medicine), Ted Golos (Comparative Biosciences), Colin Jefcoate (Cell and Regenerative Biology), Hasan Khatib (Dairy Sciences), Pam Kling (Pediatrics), Jon Levine (Neuroscience), Bo Liu (Surgery), Thomas Martin (Biochemistry), James Mtambi (Biochemistry/Nutritional Sciences), Jon Odorico (Surgery), Jon Parrish (Animal Sciences), Manish Patankar -associate director- (Obstetrics and Gynecology), Bret Payseur (Genetics), Francisco Pelegri (Genetics), Richard Peterson (Pharmacy), Linda Schuler (Comparative Biosciences/Veterinary Medicine), Dinesh Shah (Obstetrics and Gynecology), Ei Terasawa (Pediatrics), James Thomson (Cell and Regenerative Biology), Watts (Comparative Biosciences/Veterinary Medicine), Milo Wilbank (Dairy Science), Wi Xu (Oncology), and Jing Zheng (Obstetrics and Gynecology)

Associate Professors Craig Atwood (Medicine), Anjon Audhya (Biomolecular Chemistry), Dawn Davis (Medicine), Theresa Duello (Obstetrics and Gynecology), Laura Hernandez (Dairy Science), Joan Jorgensen (Comparative Biosciences), Chad Vezina (Comparative Biosciences/Veterinary Medicine)

Assistant Professors Reid Alisch (Psychiatry), Lisa Arendt (Comparative Biosciences), Sebastian Arriola Apelo (Dairy Science), Barak Blum (Cell and Regenerative Biology), Derek Boeldt (Obstetrics and Gynecology),

Michael Cahill (Comparative Biosciences/Veterinary Medicine), Ricki Colman (Cell and Regenerative Biology), Feyza Engin (Biomolecular Chemistry), Michelle Kimple (Medicine), Pam Kreeger (Biomedical Engineering), Matthew Merrins (Medicine), Bikash Pattnaik (Pediatrics), Aleks Stanic-Kostic (Obstetrics and Gynecology)