



School of Medicine
and Public Health
UNIVERSITY OF WISCONSIN-MADISON

OBS&GYN 710

Reproductive Endocrine Physiology

Credits: 3

Meeting Time and Location: 3:30pm-4:30pm, MWF; 1022 WIMR, 1111 Highland Ave.

Instructional Mode: This course is conducted face-to-face and does not involve any blended learning.

How this course meets the credit hour policy standard: Option A - Class will meet for 3 hours per week over the semester, with required reading for each lecture. Exams will take place outside of normal classroom meeting. In total, students are expected to spend 6-8 hours per week on activities outside the classroom.

Course Designations and Attributes: Graduate Standing Only.

INSTRUCTORS AND TEACHING ASSISTANTS

Course Directors:

Derek Boeldt, Assistant Professor of Obstetrics and Gynecology
dsboeldt@wisc.edu, 7E Meriter Hospital, 202 S. Park St (office hours available upon request)

Manish Patankar, Professor of Obstetrics and Gynecology
patankar@wisc.edu, Box 6188 Clinical Science Center, 600 Highland Avenue (office hours available upon request)

This course is team-taught by lecturers with expertise in each given subject area. Consistent with the reproductive theme of this course, at least half of the instructors are from the OBGYN department; additional instructors are Endocrinology and Reproductive Physiology graduate training program faculty. Specific instructors for 2019 are listed in the course meeting table below.

Instructor/s Availability: Course directors will regularly attend class meetings to ensure course objectives are met and student performance is evaluated consistently. Office hours are available upon request. Course directors and instructors will have direct student contact throughout this course.

COURSE DESCRIPTION

Designed to provide students with a broad grounding in reproductive endocrine physiology at the graduate level, with an emphasis on human and human reproductive health wherever possible. Encompasses an overview of fundamental concepts in endocrinology, the hypothalamic-pituitary axis, steroidogenesis, early embryonic development, pregnancy and maternal-fetal adaptations, and pathologies associated with endocrine disruption and dysregulation. Provides more focus on pathologic pregnancies because such pregnancies lead to a higher risk of adult onset diseases including hypertension, obesity, and metabolic syndrome. By covering pregnancy and pathologic pregnancy in detail, this course complements Endocrine and Reproductive Physiology Program training in endocrinology and metabolism. Lectures are accompanied by instructor-assigned reading consisting of landmark papers and recent findings, provided before lectures to guide in-class discussion of presented materials.

Requisites: Graduate/Professional standing.

Learning Activities/Course Hours

Sample Class Schedule: Note this is an ongoing course; the schedule may change during the semester.

Lecture	Date	Topic	Faculty
Module 1: Fundamental Concepts in Endocrinology I			
1	September 5, 2018	Course Introduction. Fundamental concepts in Endocrinology I	Patankar
2	September 7, 2018	Fundamental concepts in Endocrinology II	Patankar
3	September 10, 2018	Hypothalamus/Pituitary I	Abbott
4	September 12, 2018	Hypothalamus/Pituitary II	Abbott
5	September 14, 2018	Hypothalamus/Pituitary III	Abbott
6	September 17, 2018	Hypothalamus/Pituitary IV	Abbott
7	September 19, 2018	Hypothalamus/Pituitary V	Abbott
8	September 21, 2018	Control of Cell/ Zone specific Steroid Synthesis in Adrenal and Ovary	Bird
9	September 24, 2018	Renin/A2/Aldosterone	Shah
	9/21/2018-9/28/2018	Exam I (Take home)	
Module 2: Fundamental Concepts in Endocrinology II			
10	September 26, 2018	Testicular Function Podcast/Reading	Parrish
11	September 28, 2018	Testicular Function (reading material and link to podcast will be provided by September 24, 2018. Students are expected to watch podcast before class.)	Parrish
12	October 1, 2018	Ovarian Cycle I	Wiltbank
13	October 3, 2018	Ovarian Cycle II	Wiltbank
14	October 5, 2018	Ovarian Cycle III	Wiltbank
15	October 8, 2018	Gonadal development	Jorgensen
16	October 10, 2018	Organogenesis of Prostate	Vezina
17	October 12, 2018	Hormonal regulation of early embryonic growth and development-I	Atwood
18	October 15, 2018	Hormonal regulation of early embryonic growth and development-II	Atwood
19	October 17, 2018	Case Studies	Wiltbank
	10/15/2018-10/22/2018	Exam II (Take home)	
Module 3: Pregnancy and Maternal-fetal Adaptations			
20	October 19, 2018	Pregnancy I (Embryogenesis and Implantation)	Zheng
21	October 22, 2018	Pregnancy I and II (Embryogenesis and Implantation)	Zheng
22	October 24, 2018	Pregnancy III Maternal Recognition of Pregnancy	Stanic-Kostic
23	October 26, 2018	Pregnancy IV Maternal Recognition of Pregnancy	Stanic-Kostic
24	October 29, 2018	Pregnancy V Hormonal Changes During Pregnancy	Zheng
25	October 31, 2018	Pregnancy VI Maternal Adaptation to Pregnancy	Zheng
26	November 2, 2018	Pregnancy VII Maternal Adaptation to Pregnancy	Zheng
27	November 5, 2018	Pregnancy VIII Uterine Quiescence and Parturition	Zheng
28	November 7, 2018	Pregnancy IX Lactation	Patankar
29	November 9, 2018	Low Birth weight: Barker Hypothesis and adult consequences, Diet and Imprinting of fetus.	Boeldt
30	November 12, 2018	Low Birth weight: Barker Hypothesis and adult consequences, Diet and Imprinting of fetus.	Boeldt

31	November 14, 2018	Pathophysiology of preeclampsia	Boeldt
32	November 16, 2018	Diabetes in Pregnancy	Hoppe/Shah
	11/16/2018- 11/26/2018	Exam III (Take Home)	
Module 4: Pathology Associated with Endocrine Disruption/Dysregulation			
33	November 19, 2018	Infertility and PCOS- concepts	Abbott
34	November 21, 2018	Infertility and PCOS-discussion of assigned reading material	Abbott
	November 23, 2018	No Class - Thanksgiving Break	
35	November 26, 2018	Hormone Therapy	Cooney
36	November 28, 2018	Thyroid in Reproduction	Shah
37	November 30, 2018	Assisted Reproduction/IVF	Stanic-Kostic
38	December 3, 2018	Assisted Reproduction/IVF	Cooney
39	December 5, 2018	Endocrinology and Cancer	Patankar
40	December 7, 2018	Endocrine Disruptors- concepts	Patankar
41	December 10, 2018	Case studies	Boeldt
	December 12, 2018	No Class	
	12/7/2018- 12/14/2018	Exam IV (Take Home)	

Instructors

David Abbott, Professor of Obstetrics & Gynecology
 Craig Atwood, Associate Professor of Medicine
 Ian Bird, Professor of Obstetrics & Gynecology
 Derek Boeldt, Assistant Professor of Obstetrics and Gynecology
 Laura Cooney, Assistant Professor of Obstetrics & Gynecology
 Kara Hoppe, Assistant Professor of Obstetrics & Gynecology
 Joan Jorgensen, Associate Professor of Comparative Biosciences
 John Parrish, Professor of Animal Science
 Manish Patankar, Professor of Obstetrics & Gynecology
 Dinesh Shah, Professor of Obstetrics & Gynecology
 Aleks Stanic-Kostic, Assistant Professor of Obstetrics & Gynecology
 Milo Wiltbank, Professor of Dairy Science
 Jing Zheng, Professor of Obstetrics & Gynecology

COURSE LEARNING OUTCOMES

1. Recall and summarize fundamental concepts in reproductive endocrinology and physiology, with an emphasis on human and human reproductive health.
2. Gain insights into clinical perspectives of pathologies associated with reproductive endocrinology and physiology. Integrate fundamental concepts with clinical perspectives and apply to case studies.
3. Evaluate primary research articles and demonstrate critical reasoning with regards to methods and conclusions.
4. Demonstrate critical thinking with regards to course material through in-class interactive discussion with peers and faculty.
5. Integrate instruction material and personally-researched scientific texts to formulate individual thoughts on topics not directly covered in lecture.

This is consistent with Endocrinology and Reproductive Physiology (ERP) Program outcomes in that, by graduation, ERP students are expected to thoroughly understand endocrine systems and reproductive physiology from the whole animal level down to the subcellular signaling proteins and pathways responsible for physiological outcomes. This course focuses primarily on whole animal/human endocrinology and organ

systems regulating reproduction and pregnancy. Basic concepts of cell biology and biochemistry are also covered as a precursor to advanced topics courses to be taken later in the course of graduate study in ERP. This course bridges basic science with clinical outcomes and exposes students to endocrine pathologies as well as case studies for real-world applications of course material.

GRADING

Grades are assigned based on the following criteria:

Exam 1:	20%
Exam 2:	20%
Exam 3:	20%
Exam 4:	20%
Participation:	<u>20%</u>
	100%

Participation. Students are required to actively participate throughout the semester. Students are expected to ask clarifying questions, probe scientific implications and contributions, help make connections between topics, and provide thoughtful analyses of reading assignments. Classes devoted to case studies will be highly dependent on student participation and students should be ready to carry the conversation for longer periods of time. Outstanding participants will always achieve these benchmarks; a good contributor will usually achieve these benchmarks; an adequate contributor will sometimes achieve these benchmarks; an unsatisfactory participant rarely achieves these benchmarks.

Take-Home Exams. Examination will consist of one take-home exam for each module (non-cumulative). Students may utilize any resources at their disposal in order to construct their answers. Answers will be graded with this in mind and sufficiently researched and in-depth answers with originally constructed ideas will be expected as a result. Each exam will consist of 1-2 essay questions per lecture and students will have 1 week to return their answers in a private BOX folder. Answers for each question will be graded by the instructor of that lecture and posted in a private BOX folder.

This course is graded on the A-F grading scale.

A:	90%-100%
A/B:	85%-89%
B:	75%-84%
B/C:	70%-74%
C:	60%-69%
D:	50%-59%
F:	0%-49%

REQUIRED READING & RECOMMENDED TEXTS

There is no assigned textbook. This is a group-taught course, involving many instructors who will assign readings specific to their lecture material. Because this course is taught at a graduate level on topics under intense current research, we encourage lecturers to provide both historically important reading materials in addition to current cutting edge research. These readings will be made available to students free of charge.

It is also expected that students will seek out further primary source readings, which will be cited in their exam answers. Reading materials provided by the instructors will serve as a blueprint for the type of sources that should be independently researched.

ACADEMIC INTEGRITY

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

DIVERSITY AND INCLUSION

Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.