



**School of Medicine
and Public Health**
UNIVERSITY OF WISCONSIN-MADISON

OBS&GYN 712

Critical Thinking in Reproductive Endocrine Physiology

COURSE INFORMATION

Credits: 2

Meeting Time and Location: 12:30 p.m. - 2:30 p.m., T; 6152 Med Sci Ctr, 1300 University Avenue. **Even Semesters.**

Course Designations and Attributes: Graduate Standing Only.

Requisites: Graduate/Professional standing.

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 2 hours per week over the semester. This will include direct instructor contact. It is expected that students will work on course activities (reading, identifying and analyzing articles, development and practicing presentation, writing final project, etc) outside of the classroom for about 4-6 hours per week.

INSTRUCTORS AND TEACHING ASSISTANTS

Course Directors:

Ian Bird, Professor, Department of Obstetrics and Gynecology
imbird@wisc.edu, 7e Meriter-Park, 202 S. Park Street (office hours available upon request)

Dave Abbott, Professor, Department of Obstetrics and Gynecology
dhabbott@wisc.edu, C203 Wisconsin Primate Center, 1223 Capitol Ct (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 Spring 2020 are listed in the course meeting table below.

Instructor/s Availability: Depending on the topic/theme for the semester's offering, Course Directors will either teach the course themselves or team-teach with other ERP faculty. In either scenario, 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

Provides advanced learning opportunities in Endocrinology and Reproductive Physiology areas, particularly reproduction, emphasizing human health whenever possible. Explores scientific questions core to the ERP graduate

training program and teaches how to communicate research findings as presentations. Skills developed include information discovery; organization of papers and identification of argument(s); and creation of documents/reports. Students are the driving force behind achievement of the learning objectives by undertaking learning activities, actively engaging in their peers' activities, and providing constructive feedback to their peers. Prior completion of OBS&GYN 710 recommended but not required.

COURSE LEARNING OUTCOMES

1. Incorporate knowledge of cutting-edge research in and related to one's research area to a specific research question.
2. Effectively communicate scientific information to course participants through learning activities.
3. Evaluate peer presentations and provide constructive feedback.
4. Distill research knowledge and activities into a variety of scientific outputs.
5. Develop and deliver effective scientific conference-style presentations.

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 advanced topics related to reproduction and pregnancy.

GRADING

Grades are assigned using the following criteria:

Presentation of Relevant Publications	30%
Presentation of Student's Research	30%
Final Project	30%
<u>Participation</u>	<u>10%</u>
Total	100%

Presentation of Relevant Publications. Identify key publications on a student's research topic and discuss the data and its meaning in a 25-30 minute presentation to the class. Lead the class in a 25-30 minute discussion of these publications.

Presentation of Student's Research. Present a 40-45 minute PowerPoint presentation pulling a student's own research findings together and presenting the student's understanding of the problem, the likely mechanisms, and possible solutions as relevant to humans. Lead the class in a discussion and field questions, 15-20 minutes.

Final Project. Prepare an essay, review article, or thesis chapter considering the same topic for submission. Present progress on the final project to the class. Submit the final project during exam week.

Participation. Students are required to actively engage the student speakers throughout the semester. Students are expected to ask clarifying questions, probe scientific implications and contributions, help make connections between topics, and provide thoughtful and constructive feedback on presentation style and delivery. Outstanding participants will always do 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.

This course is graded on the A-F grading scale. Assignment and final grades are not curved.

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

This course is taught by many contributors, students and professors alike, on areas of reproductive endocrinology physiology. As the course theme may change from semester to semester, course directors are responsible for providing relevant readings in advance of the course. These readings will be made available to students free of charge. Students will identify further readings relevant to their course projects. Similarly, there is no recommended textbook. As this is an advanced topics course, knowledge gained from other, scientifically relevant classes should provide a broad basis for understanding of the topics.

It is expected that students in this course have a basic understanding in biochemistry, molecular biology, and physiology, as well as the understanding of basic concepts in general endocrinology and reproduction. While one may not understand every piece of every peer presentation, it is assumed that students will be able to follow the scientific concepts presented.

LEARNING ACTIVITIES/COURSE HOURS

General Meeting Schedule.

Date	Learning Activity	Instructors
Meeting 1	Introduction, Presentation Skills	Course Director
Meetings 2 and 3	Lectures on Course Topic / Theme	Course Directors
Meetings 3 and 4	Discussions of Chosen Key Papers	Student Group A Student Group B
Meetings 5 and 6	Journal Club-Style Presentations of Key Papers	Student Group A Student Group B
Meetings 7 and 8	Discussions of Draft Oral Presentations	Student Group A Student Group B
	Spring Break – No Meeting	
Meetings 9 and 10	Oral Presentations	Student Group B Student Group A
Meetings 11 and 12	Discussions of Draft Written Project	Student Group B Student Group A
Meeting 13	Draft Written Project	Individual Activity – Course Directors available for consultation
Meeting 14	Final Exam Week – Submission of Written Project	

Note: Schedule will vary between semesters, due to the number of students enrolled and the number of lectures needed to set the foundation for peer-teaching and -learning.

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.

SPRING 2020 COURSE INFORMATION

Instructors for Spring 2020

Ian Bird, Professor, Department of Obstetrics and Gynecology
imbird@wisc.edu, 7e Meriter-Park, 202 S. Park Street (office hours available upon request)

Dave Abbott, Professor, Department of Obstetrics and Gynecology
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Theme – The Barker Hypothesis

Emphasis on:

An understanding of the Barker Hypothesis (developmental origins of adult disease)

Consideration of physiological principles necessary for successful reproductive outcomes and how that may be compromised by altered endocrine/uterine development

The underlying mechanisms by which altered pregnancy outcome may occur

Engaging “big data” analyses, i.e.,

- Individual genome
- DNA methylome
- Transcription factor analyses
- Population/public health studies

(Require multiple comparison corrected statistics, and appreciation for in-built approximated information)

Date	Learning Activity	Instructors
01/21/2020	Lecture: Introduction to Theme, Presentation Skills	Course Director – Dr. Abbott
01/28/2020	Lecture: Barker Hypothesis with Examples	Course Director – Dr. Bird
02/04/2020	Lecture: Fetal Programming of PCOS	Course Director – Dr. Abbott
02/11/2020	Discussion of Chosen Key Papers – Meeting 1	Student Group A
02/18/2020	Discussion of Chosen Key Papers – Meeting 2	Student Group B
02/25/2020	Journal Club-Style Presentations of Key Papers – Meeting 1	Student Group A
03/03/2020	Journal Club-Style Presentations of Key Papers – Meeting 2	Student Group B
03/10/2020	Discussions of Draft Oral Presentations – Meeting 1	Student Group A
03/17/2020	Spring Break – No Class	
03/24/2020	Discussions of Draft Oral Presentations – Meeting 2	Student Group B
03/31/2020	Oral Presentations – Meeting 1	Student Group B
04/07/2020	Oral Presentations – Meeting 2	Student Group A
04/14/2020	Discussions of Draft Written Project – Meeting 1	Student Group B
04/21/2020	Discussions of Draft Written Project – Meeting 2	Student Group A
04/28/2020	Draft Written Project	Individual Activity – Course Directors available for consultation
05/05/2020	Final Exam Week – Submission of Written Project	

Representative Readings: Manuscripts and chapters will be assigned initially by the course directors, to provide a shared foundation of knowledge on the selected topic/theme. A sample list of such readings is provided below. This list is not exhaustive, and course directors may assign additional readings as needed to achieve the necessary shared knowledge. Please note: Students will be responsible for identifying and sharing further readings, which will be determined by the students' selected research topics.

Hales CN, Barker DJ. Type 2 (non-insulin-dependent) diabetes mellitus: the thrifty phenotype hypothesis. *Diabetologia* 1992;35:595.

Barker DJ, Hales CN, Fall CH, Osmond C, Phipps K, Clark PM. Type 2 (non-insulin-dependent) diabetes mellitus, hypertension and hyperlipidemia (xynndrome X): relation to reduced fetal growth. *Diabetologia* 1993;36:62.

The Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. Consensus on women's health aspects of polycystic ovary syndrome (PCOS). *Hum Reprod* 2012;27;1;14-24.

Sattar N, Greer IA. Pregnancy complications and maternal cardiovascular risk: opportunities for intervention and screening? *BMJ* 2002;325;157-160.

Bellamy L, Casas JP, Hingorani AD, Williams DJ. Pre-eclampsia and risk of cardiovascular disease and cancer in later life: systemic review and meta-analysis. *BMJ* 2007;335;974.

Krupp J, Boeldt DS, Yi FX, Grummer MS, Bankowski Anaya H, Shah DM, Bird IM. The loss of sustained Ca²⁺ signaling underlies suppressed endothelial nitric oxide production in preeclamptic pregnancies: implications for new therapy. *Am J Physiol Heart Circ Physiol* 2013;305:H969-H979.

Barker Hypothesis Summary Document, provided by the Course Directors