School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Spring 2023

Medicine 720
Endocrinology and Metabolism

Credits: 3. (Option A) This class meets for twenty 120-minute class periods over the spring semester and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc) for about 4 hours out of the classroom for every class period. The syllabus includes additional information about meeting times and expectations for student work.

Each class meeting (20 total) will require approximately four hours of out-of-class preparation, including: close reading of required scientific manuscripts; additional reading and preparation for in-class journal club sessions, including preparing to present and discuss a figure from a research article; preparing paper critiques; completing online learning modules and activities; and reviewing course materials (~80 hours total).

Course Attribute: Graduate

Canvas Course URL: TBA

Meeting Time and Location: 2:30 pm - 4:30 pm, Tuesday/Friday; 1202 HSLC, 750 Highland Avenue

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

INSTRUCTORS AND TEACHING ASSISTANTS

Course Directors
Dudley Lamming, Associate Professor of Medicine (Endocrinology)
dlamming@medicine.wisc.edu, UW Medical Foundation Centennial Bldg, 1685 Highland Avenue

Matthew Merrins, Associate Professor of Medicine (Endocrinology)
mmerrins@medicine.wisc.edu, C4134A Veterans Administration Hospital, 2500 Overlook Terrace

This course is team-taught by lecturers with expertise in each given subject area. Consistent with the endocrinology theme of this course, at least half of the lectures are given by instructors from the Department of Medicine. Specific instructors for 2022 are listed in the course meeting table below.

Regular and Substantive Student-Instructor Interaction: 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 through direct instruction; facilitating and grading class activities and assignments; and exam grading.

COURSE DESCRIPTION

Designed to provide students with a broad grounding in endocrinology and metabolism at the graduate level, with an emphasis on human and human-related disorders wherever possible. Explores further the physiological and molecular mechanisms by which the endocrine regulation of metabolism acts to preserve mammalian health, and how dysfunction in these mechanisms leads to disease, with an emphasis on diabetes, obesity and hypertension.

Requisites: Graduate/Professional Standing

Learning Activities/Course Hours

- Direct instruction: 1-to-2, 2-hour class meetings per week (~48 credit hours)
- Independent reading, on-line learning modules (e.g., Enduring Learning Objects, "ELOs"), and paper critiques, 4 hours per class meeting (~80 hours)
- Take home exams (~8 hours)

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

Week	Date	Topic	Instructor	Discussant
1	Tuesday, January 24, 2023	Introduction, History of Endocrinology	Lamming / Merrins	
Module on Obesity, Diabetes, Insulin Resistance and Related Disorders				
1	Friday, January 27, 2023	β-cell biology and diabetes	Merrins	
2	Tuesday, January 31, 2023	Islet biology and incretin hormones	Merrins	
2	Friday, February 3, 2023	Clinical treatment of diabetes and transplants	Odorico	
3	Tuesday, February 7, 2023	Metabolism of obesity and satiety	Davis	
3	Tuesday, February 14, 2023	Insulin signaling & insulin resistance	Lamming	
4	Friday, February 17, 2023	mTOR & Regulatory Nodes	Lamming	
5	Tuesday, February 21, 2023	Aging and metabolism 1	Lamming	
6	Tuesday, February 28, 2023	Aging and metabolism 2	Lamming	
6	Friday, March 3, 2023	Microbiome and metabolism 1	Leone	
7	Tuesday, March 7, 2023	Microbiome and metabolism 2	Leone	
	Exam 1 (take home, due March 10)			
Module on Cardiovascular and Lipid biology				
9	Tuesday, March 21, 2023	Hormonal control of the glycerolipid/free fatty acid cycle	Galmozzi	
9	Friday, March 24, 2023	Cold exposure and thermogenesis	Galmozzi	
10	Tuesday, March 28, 2023	Alzheimer's and other degenerative diseases	Anderson	
10	Friday, March 31, 2023	Skeletal Muscle and Exercise Metabolism	Konopka	
11	Tuesday, April 4, 2023	Blood flow regulation, cognition and aging	Barnes	
Module on Adrenal, Kidney, and Thyroid (Renin-Angiotensin and Cortisol) and Cancer				
12	Tuesday, April 11, 2023	Regulation of metabolism by the thyroid	Long	
12	Friday, April 14, 2023	Organismal Lipid and Cholesterol Metabolism	Parks	
13	Tuesday, April 18, 2023	Metabolic regulation by adrenal and kidney hormones	Dhital	
13	Friday, April 21, 2023	Gastric surgery	Harris	
14	Tuesday, April 25, 2023	Cancer Metabolism 1	Cantor	
15	Tuesday, May 2, 2023	Cancer Metabolism 2	Cantor	
	Exam 2 (take home, due May 5)			

Instructors

Rozalyn Anderson, Professor of Medicine (Geriatrics)
Jill Barnes, Assistant Professor of Kinesiology
Jason Cantor, Assistant Professor of Biochemistry
Dawn Davis, Professor of Medicine (Endocrinology)
Subarna Dhital, Assistant Professor (CHS) of Medicine (Endocrinology)

Andrea Galmozzi, Assistant Professor of Medicine (Endocrinology)
David Harris, Assistant Professor of Surgery
Adam Konopka, Assistant Professor of Medicine (Geriatrics)
Dudley Lamming, Associate Professor of Medicine (Endocrinology)
Vanessa Leone, Assistant Professor of Animal Biologics and Metabolism
Kristin Long, Assistant Professor (CHS) of Surgery
Matthew Merrins, Associate Professor of Medicine (Endocrinology)
Jon Odorico, Professor of Surgery
Brian Parks, Assistant Professor of Nutritional Sciences

COURSE LEARNING OUTCOMES

1. Develop knowledge of how endocrinology and metabolism act to promote health at the physiological and molecular level, with an emphasis on humans wherever possible.
2. Learn common mechanisms by which endocrine and metabolic dysfunction contribute to the pathophysiology of disease, including diabetes, obesity, and hypertension.
3. Develop knowledge of cutting-edge research findings and common approaches to developing new treatments for metabolic disease and endocrine disorders.
4. Evaluate primary research articles and demonstrate critical reasoning with regards to methods and conclusions.
5. Demonstrate critical thinking with regards to course material through in-class interactive discussion with peers and faculty.
6. 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 adult human health. 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 adult endocrine pathologies as well as case studies for real-world applications of course material. This course complements Reproductive Endocrine Physiology - OBS&GYN 710.

GRADING

Grades are assigned based on the following scale:

Participation	25%
Completion of Group Exercises	25%
First exam	25%
Second exam	25%
	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. 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.

In-Class Group Exercises. Some instructors will ask students to complete group exercises in-class; these exercises will be graded. Exercises will consist of long-format questions designed to apply the knowledge gained during the immediately preceding lecture (and in any readings or videos assigned for that lecture). Students may access any course material while completing the exercise, including notes, textbooks, readings, and videos; and it is expected that students may discuss their thoughts, answers, and approaches with other students as well as the instructor while completing the exercises. Sample in-class exercise grading key attached.

Take-Home Exams. There will be two take-home, non-cumulative, open book, and open note exams during the semester; access to electronic devices will not be permitted. Make-up exams will be permitted in case of documented illness or if the permission of the course director is secured in advance.

There is no graded homework; however, reading papers assigned by the instructor and preparation of manuscript critiques as directed will be essential.

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:	57%-69%
D:	45%-56%
F:	0-44%

Criteria for grading participation:

Outstanding contributor (Full 25% of grade)
Contributions reflect exceptional preparation. Ideas offered are always substantive, providing one of more major insights, as well as direction for the class. Challenges are well substantiated and persuasively presented. If this person were not a member of the class, the quality of discussion would be markedly diminished

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Good contributor (20%)
Contributions in class reflect thorough preparation. Ideas offered are usually substantive; provide good insights and sometimes direction for the class. Challenges are well substantiated and often persuasive. If this person were not a member of the class, the quality of discussion would be diminished.

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Adequate contributor (15%)
Contributions in class reflect satisfactory preparation. Ideas offered are sometimes substantive; provide generally useful insights but seldom offer a new direction for the discussion. Challenges are sometimes presented, fairly well substantiated, and are sometimes persuasive. If this person were not a member of the class, the quality of discussion would be diminished somewhat.

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Unsatisfactory Contributor (10%)

Contributions in class reflect inadequate preparation. Ideas offered are seldom substantive; provide few if any insights and never a constructive direction for the class. Integrative comments and effective challenges are absent.

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Non-participant (0%)
This person says little or nothing in class. Hence, there is not an adequate basis for evaluation.

REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

This course is taught by many contributors with different areas of endocrinology and metabolism research. Individual instructors are responsible for providing relevant readings or other material in advance of the course. These readings will be made available to students free of charge and will be available through Canvas. There is no recommended textbook. As this is a graduate course, knowledge gained from other, scientifically relevant classes should provide a broad basis for understanding of the topics.

CAMPUS SPACES FOR VIRTUAL LEARNING & TESTING

Dedicated on-campus spaces with high-speed internet are available for students to reserve for any exam/quiz taken during the semester. Computers can also be requested.

STUDENTS' RULES, RIGHTS & RESPONSIBILITIES

See the Guide's Rules, Rights and Responsibilities

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/.

PRIVACY OF STUDENT RECORDS & THE USE OF AUDIO RECORDED LECTURES

See information about privacy of student records and the usage of audio-recorded lectures.

Lecture materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

ACCOMMODATIONS 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 & 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.

COURSE EVALUATIONS

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your confidential feedback is important to us. We strongly encourage you to participate in the course evaluation.