

USC Dornsife
College of Letters,
Arts and Sciences

HBIO407L – Endocrinology and Metabolism (4 units)

Spring 2017

Lectures: Tuesday/Thursday; 09:30-10:50 am

Location: THH 114

Labs: TBA

Location: PED B15a

Professor: Lorraine P Turcotte, PhD

Office: AHF 247

Office Hours: Tuesday; 11:00 am- 01:00 pm and by appointment

Contact Info: turcotte@usc.edu

Lab Instructor: TBA

Office hours & Location:

Contact Info:

Lab Instructor: TBA

Office hours & Location:

Contact Info:

Lab Instructor: TBA

Office hours & Location:

Contact Info:

Lab Director: Emi Embler, PhD

Office: PED 109

Office Hours: By appointment

Contact Info: eembler@usc.edu

Course Description

- Regulation of metabolic pathways and hormonally induced signaling pathways in health and metabolic diseases.

Learning Objectives

- To develop a deeper understanding of the central and cross-disciplinary concepts of human biology, which in this course include: bioenergetics, physiological homeostasis and the interrelationship between form and function for the endocrine, digestive, musculoskeletal and nervous systems.
- To understand and apply the scientific method, including forming hypotheses, designing experiments to test hypotheses, and collecting, analyzing, interpreting, and reporting data.
- To demonstrate proficiency in modern methodologies pertinent to research in biological sciences specifically as they relate to the endocrine, digestive, musculoskeletal and nervous systems.
- To develop the ability to think critically, analyze, synthesize, and use information to solve problems.
- To place biological, nutritional and physiological knowledge into an applicable and ethical context, especially how biology, physiology and nutrition can contribute to the resolution of ethical, social and environmental issues.
- To provide sufficient depth of knowledge and skill for entry-level employment in a wide variety of fields or for graduate study in the health professions or other biology-related disciplines.

Prerequisite(s): HBIO 302L

Required Readings and Supplementary Materials

- 1) **Endocrine Physiology**. 4th Ed. Molina, P. McGraw-Hill Companies, 2013.
- 2) **Biochemistry (Illustrated Review)**, 6th edition, Ferrier, D. Wolters Kluwer/Lippincott Williams & Wilkins, United Kingdom.
- 3) **Lab Manual; available in the bookstore**

Description and Assessment of Assignments

- Class material will be evaluated via homework assignments and exams.
- Material covered in labs will be evaluated via homework and lab assignments as well as classroom exams.

Grading Breakdown

Assignment	Points	% of Grade
Pathway Poster		5
Midterm 1		20
Midterm 2		20
Final Exam		30
Lab Grade		25
TOTAL	0	100

Assignment Submission Policy

- Assignments will be handed in at the beginning of class on the assigned due date.

Additional Policies

- The grading scale is based on the traditional scale as follows:

	A (≥94%)	A- (≥90%)
B+ (≥87%)	B (≥84%)	B- (≥80%)
C+ (≥77%)	C (≥74%)	C- (≥70%)
D+ (≥67%)	D (≥64%)	D- (≥60%)
F (≤59.9%)		

- A midterm exam can be taken after the specified date **ONLY** if the student has a **documented** medical excuse.
- Exams and lab grades will not be given a letter grade. Only the final grade will be given a letter grade.
- The final exam is **cumulative**.
- A request to take a make-up exam must be accompanied by evidence of necessity (ie: letter from a doctor, plane ticket to a game from an athlete) and must be made before the date of the scheduled exam. Make-up exams will be different from the scheduled exam and may be proctored by personnel who do not have extensive knowledge in the area being tested.
- Grades are NOT rounded or curved.** A grade of 86.99 is a B grade. A final grade of 89.99 will **NOT** be reflected as an A-. It is always difficult to miss a grade boundary by a small amount. But to round up would defeat the purpose of having an objective grading scale and it would also mean that announcing a specific grade boundary is not accurate. That would be unfair. Therefore, I make the grade boundary objective and sharp. **There are NO exceptions.**
- JEP work must be registered with JEP and with ME, Dr. Turcotte, by February 2nd. If you are not registered with ME by February 2nd, JEP will **NOT** count towards your final grade. It can give you up to 2% extra points on the final grade. JEP is the oldest and largest university service-learning program in the country. It offers students the unique opportunity to combine academic coursework with experiences in the community surrounding the campus. At the beginning of the semester, a JEP representative will visit our class and tell you more about the opportunities available that semester. To register for JEP, visit <http://dornsife.usc.edu/joint-educational-project/>.
- Notes will **NOT** be posted on blackboard. Class notes and textbook information will form the basis of the material that will be on the exams. If you attend class regularly, you will be updated on the status of lecture notes and course material/announcements.
- Final grades will **NOT** be posted on Blackboard.

Course Schedule: A Weekly Breakdown

Date	Lecture Topic	Ferrier	Molina
Jan. 10	Course Overview: Endocrine System Overview		1
Jan. 12	Classification of hormones		1
Jan. 17	Hormone Production; Secondary Messenger Systems		1
Jan. 19	Secondary Messenger Systems; Feedback Loops		1,2
Jan. 24	Catecholamines ; production		2,3,6

Jan. 26	Catecholamines ; secretion		2,3,6,10
Jan. 31	Catecholamines ; secondary messenger system & biological actions		2,3,6
Feb. 2	Cortisol - <i>Pathway Diagram DUE</i>		2,3,6
Feb. 7	Insulin; production & secretion		
Feb. 9	Insulin; secondary messenger system		7,10
Feb. 14	Midterm 1		
Feb. 16	Insulin ; biological actions	23	7,10
Feb. 21	Glucagon	23	7,10
Feb. 23	GH and IGF1		2,3
Feb. 28	Feed-Fast cycle	23, 24	
Mar. 2	Fast	23, 24	
Mar. 7	Fast	23, 24	
Mar. 9	Obesity		
Mar. 14	Spring Break		
Mar. 16	Spring Break		
Mar. 21	Obesity	25, 26	10
Mar. 23	Midterm 2		
Mar. 28	Insulin resistance & T2DM; hormonal changes	25, 26	7,10
Mar. 30	Insulin resistance & T2DM; metabolic regulation	25, 26	7,10
Apr. 4	Insulin resistance & T2DM; exercise	25, 26	7,10
Apr. 6	Metabolic Syndrome; hormonal changes		7,10
Apr. 11	Metabolic Syndrome; metabolic regulation		7,10
Apr. 13	Metabolic syndrome; exercise		7,10
Apr. 18	Metabolic syndrome; dietary changes		7,10
Apr. 20	Type 1 diabetes Mellitus; hormonal changes		7,10
Apr. 25	T1DM; metabolic regulation		7,10
Apr. 27	T1DM; exercise		7,10
	Final Exam		

•For the date and time of the final exam for this class, consult the USC Schedule of Classes at www.usc.edu/soc

Statement on Academic Conduct and Support Systems

•Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/departments/departments-public-safety/online-forms/contact-us>. This is important for the safety

whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

•Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.