

USC Dornsife  
College of Letters,  
Arts and Sciences

**HBIO407L – Endocrinology and Metabolism (4 units)**

**Spring 2021**

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

**Location: [ONLINE](#)**

**Labs: *Monday, 11:00-01:50 pm; Wednesday, 08:00-10:50 am; Thursday, 02:00-04:50 pm; Friday, 12:00-02:50 pm***

**Location: [ONLINE](#)**

**Professor: *Lorraine P Turcotte, PhD***

**Office Location: [Online](#)**

**Office Hours: *Tuesday; 11:30 am- 12:30 pm and by appointment***

**Contact Info: [turcotte@usc.edu](mailto:turcotte@usc.edu)**

**Assistant Professor (Teaching): *Gioia Polidori, PhD***

**Office Location: [Online](#)**

**Office Hours: *Tuesday & Thursday; 11:00 am- 01:00 pm***

**Contact Info: [gpolidor@usc.edu](mailto:gpolidor@usc.edu)**

**Lab Director (Interim): *Anh-Khoi Nguyen, PhD***

**Office Location: [Online](#)**

**Office Hours: *By appointment***

**Contact Info: [agnguyen@usc.edu](mailto:agnguyen@usc.edu)**

**Lab Instructor: *Bara Floyd, MS***

**Office Location: [Online](#)**

**Office Hours: *TBA***

**Contact Info: [gbfloyd@usc.edu](mailto:gbfloyd@usc.edu)**

**Lab Instructor: *Carina Pautz***

**Office Location: [Online](#)**

**Office hours: *TBA***

**Contact Info: [cpautz@usc.edu](mailto:cpautz@usc.edu)**

**There will be 2 Wellness days that fall on Tuesday and Thursday during the spring semester and the class will not meet on those days (March 23<sup>rd</sup> and April 22<sup>nd</sup>).**

**The lab syllabus is ONLY tentative. We have not finalized the changes that will happen to the lab syllabus because of the Covid and the Wellness days. The updated lab syllabus will be available at the beginning of the semester.**

## **Course Description**

- Regulation of metabolic pathways and hormonally induced signaling pathways in health and metabolic diseases.
- This course has a capstone project and thus it is strongly recommended that students take the course in their senior year.

## **Learning Objectives**

- to describe the structure and function of selected endocrine cells and tissues as well as the signaling pathways and biological actions induced by selected hormones.
- to relate the knowledge of endocrine hormones to pathological conditions such as obesity and type 2 diabetes.
- to analyze differences in hormone levels with different physiological, nutritional and pathophysiological conditions and correlate changes in hormone levels with the development of clinical symptoms.
- to compile, analyze, synthesize and criticize primary research articles and prior knowledge obtained in earlier classes to formulate a testable hypothesis associated with independent research project.
- to design experiments, safely use the scientific equipment necessary to collect the data, statistically analyze the results, present and interpret the results, and respond to questions about the experiments and results
- to recommend ways by which dietary and physical activity interventions would help to reduce the rates of type 2 diabetes in different socioeconomic settings.
- to discover and discuss the impact of human diversity as manifested by age, disability, gender, ethnicity and social status on the development of endocrinal pathologies.

## **Prerequisite(s): HBIO 302L**

## **Required Readings and Supplementary Materials**

- 1) **Essential Endocrinology and Diabetes.** 6<sup>th</sup> edition. Holt, R.I.G. and Hanley, N.A. Blackwell Publishing, Malden, MA, 2007.
- 2) **Biochemistry (Illustrated Review).** 7<sup>th</sup> edition, Ferrier, D. Wolters Kluwer/Lippincott Williams & Wilkins, United Kingdom.
- 3) **The Metabolic Syndrome.** 2<sup>nd</sup> edition. Byrne CD and Wild SH. Wiley-Blackwell Publishing, 2011. This book can be downloaded for FREE on the library website at <https://ebookcentral.proquest.com/lib/socal/detail.action?docID=819330>
- 4) **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.
- Weekly quizzes will be done online and will only cover the second part of the material (Polidori).

## Grading Breakdown

Assignment	% of Grade
Midterm 1 – Turcotte	15
Midterm 2 - Turcotte	22.5
Midterm 3 - Polidori	15
Final – Polidori	17.5
Quizzes - Polidori	5
Lab Grade	25
Total	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:

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

- 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**.
- The final exam will not be available for review.
- 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.**

- Because of Covid-related issues, there will be NO JEP this semester.

- Notes will only 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	Lab	Ferrier	Holt Hanley	Byrne/Wild
Jan. 19	Course Overview: Endocrine System Overview	MLK Holiday Week – NO LAB		1	
Jan. 21	Classification of hormones; Secondary Messenger Systems			2	
Jan. 26	Catecholamines ; production & secretion	Introduction & Statistics		2, 3	
Jan. 28	Catecholamines ; secondary messenger system & biological actions			2, 3	
Feb. 2	Insulin; production & secretion	Glucose Lab		3, 6	
Feb. 4	Insulin; secondary messenger system & biological actions			3, 6	
Feb. 9	<b>Study day</b>	Glucose Lab		3, 6	
Feb. 11	<b>Midterm 1</b>			5, 6	
Feb. 16	Cortisol; production & secretion	President’s Day Week – NO LAB		2, 3, 11	
Feb. 18	Cortisol; secondary messenger system, biological actions			2, 3, 11	
Feb. 23	Glucagon; production & secretion, biological actions	Capstone Project Discussion		11	
Feb. 25	Feed-Fast cycle		23, 24		
Mar. 2	Feed-Fast cycle	Caffeine Lab	23, 24	11	
Mar. 4	<b>Midterm 2</b>			5	
Mar. 9	Diabetes; overview	Caffeine Lab			
Mar. 11	T1DM			11	
Mar. 16	Insulin resistance & T2DM	HIIT Lab		12	
Mar. 18	Diabetes, microvascular complications			13	
Mar. 23	<b>Wellness Day</b>	HIIT Lab		14	
Mar. 25	NAFLD				
Mar. 30	Adipose Tissue & Obesity	Capstone Project		15	
Apr. 1	<b>Midterm 3</b>				
Apr. 6	Inflammation	Capstone Project			

Apr. 8	Obesity; metaflammation				13/14
Apr. 13	Metabolic syndrome	Capstone Project		15	1/2
Apr. 15	Metabolic syndrome; hypertension				notes
Apr. 20	Metabolic syndrome; atherosclerosis	Capstone Project			12
Apr. 22	<b>Wellness day</b>				
Apr. 27	Metabolic syndrome; myocardial infarction	Capstone Presentations			notes
Apr. 29	Metabolic syndrome; Dietary changes				17
<b>May 11</b>	<b>Final; 8-10 AM</b>				

## 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 Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, [policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

### Support Systems:

*Counseling and Mental Health - (213) 740-9355 – 24/7 on call*

[studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*

[suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call*

[studenthealth.usc.edu/sexual-assault](http://studenthealth.usc.edu/sexual-assault)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

*Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298*

[equity.usc.edu](http://equity.usc.edu), [titleix.usc.edu](http://titleix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

*Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298*

[usc-advocate.symplicity.com/care\\_report](http://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](http://dsp.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*USC Campus Support and Intervention - (213) 821-4710*

[campussupport.usc.edu](http://campussupport.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

*Diversity at USC - (213) 740-2101*

[diversity.usc.edu](http://diversity.usc.edu)

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

*USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*

[dps.usc.edu](http://dps.usc.edu), [emergency.usc.edu](http://emergency.usc.edu)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

*USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call*

[dps.usc.edu](http://dps.usc.edu)

Non-emergency assistance or information.

*Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)*

[ombuds.usc.edu](http://ombuds.usc.edu)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.