

Preliminary Syllabus (details to follow; schedule subject to change)

HBIO 409 Metabolic Diseases

Spring 2020

Department of Biological Sciences, Human & Evolutionary Biology
University of Southern California

Instructor: Lindsey A. Schier, Ph.D

Office hours: by appointment

Email: Lschier@usc.edu

Phone: (213) 740-6633

Prerequisite: BISC 220L

Class Time & Locations: Tuesdays and Thursdays 12:30 pm to 1:50 pm; VKC 156

Course Overview & Objectives: This course is focused on the metabolic dysfunctions associated with obesity and diabetes. Students will read primary research papers aimed at understanding the causes and consequences of these two conditions and exploring the basic science paving avenues for treatment. Additionally, all students will conduct an “in-class” experiment in a laboratory setting that builds upon this background literature. This will offer hands-on experience with the research process, from experimental design to data collection to data analyses to scientific writing.

Readings & Materials: Empirical papers and review articles will be provided as PDFs on blackboard (see schedule).

Grades: Points earned on each of the following assignments/modules will be tallied and divided by the total number of possible points (100) to calculate a final grade (as percentage). That percentage will be given a letter grade according to the traditional scale shown below.

Assignments/Modules

- 30 pts for in class/lab participation
- 25 pts for the midterm exam
- 20 pts for the lab report
- 10 pts for the seminar reports
- 15 pts for the final

Grading Scale

93-100 = **A**, 90-92 = **A-**, 87-89 = **B+**, 83-86 = **B**, 80-82 = **B-**, 77-79 = **C+**,
73-76 = **C**, 70-72 = **C-**, 67-69 = **D+**, 63-66 = **D**, 60-62 = **D-**, 0-59 = **F**

Participation. Research is an interactive process that includes discussion of data, methodologies, and ideas found in the background literature, performing experiments, analyzing data output, and writing up/presenting the outcomes. Thus, a significant portion of the grade will be based on participation in these various activities. Students are expected to read the assigned

articles before class, attend each class, and contribute to class discussion based on the reading material. In some cases, there will be a short pop participation quiz, based on concepts found in the readings, at the beginning of the lecture.

We will also be conducting an experiment during the course of semester. Students are expected to participate in these research-related activities during the assigned lab times. Lab times will fall outside of normal class in some cases (~60-90 minutes/week). These assigned lab times will differ for each student in accordance with the experimental schedule (to be arranged). Additionally, students are required to complete animal care and use and general lab safety training modules prior to participation in the experiments. Absence from and/or tardiness to these lab and lab-related activities will be penalized with a 5 point (that's a 20%) deduction on the Participation grade.

Midterm. The midterm exam will include a combination of short answer and multiple choice questions based on the materials covered in weeks 1-6. Midterms must be taken on the date listed on the schedule below, unless you have a documented, university-sanctioned excuse. Students with an excused absence are required to take a make-up exam. Make-up exams, which will differ from the in-class exam, must be arranged ahead of the scheduled exam and accompanied by legitimate documentation for absence (e.g., doctor's letter, athletic release). Make-up exams may be proctored by someone who is not familiar with the test material.

Lab report. The lab report will be a detailed write up of the methods and results, including statistics and data figures, from the in-class experiment. These two components will be graded and given written feedback by the instructor and then will be revised accordingly for inclusion in the scientific manuscript (see below). Details regarding content and format will be provided in class. Lab reports are due by 5 pm on April 4; late reports will receive a grade deduction of 2 points per day.

Seminar/Report on Human Biology/Obesity-related Research. This will take the form of an empirical paper, which includes a Title Page, Abstract, Introduction, Methods, Results, Discussion, and References, and will be based on the experiment conducted in class. Details regarding content and format will be provided in class. The scientific manuscript is due by 5 pm on April 23; late manuscripts will receive a grade deduction of 3 points per day.

Final. The final exam will include a combination of short answer and multiple choice questions based on the materials covered in the weeks after the midterm. The exam must be taken on the date listed on the schedule below, unless you have a documented, university-sanctioned excuse. Students with an excused absence will be required to take a make-up exam. Make-up exams, which will differ from the in-class exam, must be arranged ahead of the scheduled exam and accompanied by legitimate documentation for absence (e.g., doctor's letter, athletic release). Make-up exams may be proctored by someone who is not familiar with the test material.

Schedule (*tentative*: schedule and topics are subject to change)

Date	Topic	Location	Readings
Jan 14	Course Overview	TBD	N/A
Jan 16	Obesity: Definitions, Etiologies, Comorbidities	TBD	Schulkin & Power Chps 1 & 2; Bray Chp 8
Jan 21	Sensory and Metabolic Signals Linked to Appetite Control I	TBD	
Jan 23	Sensory and Metabolic Signals Linked to Appetite Control II	TBD	
Jan 28	Neural Control of Appetite I	TBD	
Jan 30	Neural Control of Appetite	TBD	Fernstrom et al 2014 TBA
Feb 4	HBIO Seminar	TBD	TBA
Feb 6	Peripheral Regulation of Glucose Homeostasis	TBA	TBA
Feb 11	Neural Regulation of Glucose Homeostasis	TBA	TBA
Feb 13	General Lab Safety Training	TBA	TBA
Feb 18	Review for Midterm Exam	TBD	TBA
Feb 20	Midterm Exam	TBA	TBA
Feb 25	Primary Literature Review: Experiment Topic		
Feb 27	Primary Literature Review: Experiment Topic	SOS B28	
Mar 3	Experimental Design/Plan	SOS B28	TBA
Mar 5	Experiment	SOS B28	TBA
Mar 10	Experiment	SOS B28	TBA
Mar 12	Experiment	SOS B28	TBA
Mar 17	Experiment		
Mar 19	No Class: Spring Break		
Mar 24	No Class: Spring Break	SOS B28	TBA
Mar 26	Data Analyses; Scientific Writing: Methods and Results; Lab Report Overview	SOS B28	TBA
Mar 31	Data Interpretation	SOS B28	TBA
Apr 2	HBIO Seminar	SOS B28	
Apr 7	Lab report due; Scientific Writing III: Discussion, References	SOS B28	TBA
Apr 9	Lab Report Feedback	SOS B28	TBA
Apr 14	Dietary Treatments for Obesity	SOS B28	TBA
Apr 16	Pharmacological Treatments for Obesity & Comorbidities	SOS B28	TBA
Apr 21	Surgical Treatments for Obesity & Comorbidities	SOS B28	TBA
Apr 23	Science Informing Policy: Sugar Debate I	SOS B28	
Apr 28	Science Informing Policy: Sugar Debate II	SOS B28	

Apr 30	Review for Final Exam		
May 13	Final Exam (2-4 pm)	GFS 223	

Blackboard:

Reading assignments will be periodically posted on blackboard. However, the information posted on blackboard is not the only material that will be on the exams. Material may come from class discussions and lab activities.

Electronic Devices:

Please turn off or disable all cell phones or other electronic communication devices during class time. Using a laptop in class to take lecture notes is permitted. However, please turn off your browser, email, messaging and any other programs that do not involve the course material.

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. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

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

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

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, 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

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

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

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

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, 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

Non-emergency assistance or information.

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

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.