

USC Dornsife
College of Letters,
Arts and Sciences

HBIO302L – Nutrition and Metabolism (4 units)

Fall 2020

Lectures: Tuesday/Thursday; 9:30-10:50 am

Location: THH 208

Labs: Monday, 11:00-1:50 pm; Wednesday, 8:00-10:50 am; Wednesday, 11:00-1:50 pm; Wednesday, 2:00-4:50 pm; Thursday, 11:00-1:50 pm

Location: PED B12

Instructor: Lorraine P. Turcotte, PhD

Office: AHF 247

Office Hours: by appointment

Contact Info: turcotte@usc.edu

Lab Director: Anh-Khoi Nguyen, PhD

Office Hours: by appointment

Contact Info: agnguyen@usc.edu

Office: PED 109

Lab Instructor: Bara Floyd

Office hours: TBA

Contact Info: gbfloyd@usc.edu

Location: PED 109

For fall 2020, the lectures and the labs for this class will be taught online.

Course Description

•Gastrointestinal physiology and energy metabolism as it relates to macronutrient intake. Theories and principles of nutrition and their impact on metabolic regulation.

Learning Objectives

- to describe the structure/function of selected cells, tissues, organs and organ systems of the digestive tract
- to relate the knowledge of nutrition and metabolism to a healthy lifestyle
- to correlate circulating metabolic markers with dietary intake
- to develop and execute research hypothesis related to nutrition and health
- to use research articles to defend a scientific argument
- to complete research experiment using biological instrumentation, perform statistical analysis and report data
- to recommend ways by which dietary and physical activity interventions in different socioeconomic environments could help resolve the obesity epidemic
- to discover and discuss the impact of human diversity as manifested by age, disability, gender, ethnicity and social status on nutritional deficits

Prerequisite(s): BISC 220L or BISC 221L

Required Readings and Supplementary Materials

- 1) **The Science of Nutrition**, 5th edition, Thompson, J.L., Manore, M,M, and Vaughan, L.A. Benjamin Cummings, San Francisco, CA, 2016.
- 2) **Biochemistry (Illustrated Review)**, 7th 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 one homework assignment (Poster), one powerpoint presentation, two exams and one lab grade.
- Material covered in labs will be evaluated via homework and lab assignments as well as classroom exams.

Grading Breakdown

Assignment	% of Final Grade
Pathway Poster	15
Midterm 1	20
Topic presentation	20
Lab Grade	25
Final Exam	20
	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**.
- The final exam will not be available for review.
- A request to take a make-up exam must be accompanied by evidence of necessity and must be made before the date of the scheduled exam. Make-up exams may 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.**
- Powerpoint slides will be posted on blackboard the night before class. 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.
- Please turn off or disable all cell phones or other electronic communication devices during class time.
- Final grades will **NOT** be posted on Blackboard.

Course Schedule: A Weekly Breakdown

Date	Lecture Topic	Lab	Reading Chapters	
			Thompson	Ferrier
Aug 18	Course Overview; Digestion	Lab Introduction & Statistics	3	
Aug 20	Digestion/Absorption		3	
Aug 25	Digestion/Absorption	Micropipette	3	
Aug 27	Digestion/Absorption of Carbohydrates		4	7
Sept 1	Digestion/Absorption of Carbohydrates	NO LAB	4	7
Sept 3	Digestion/Absorption of Proteins		6	19
Sept 15	Digestion/Absorption of Proteins	Digestion & Absorption	6	19
Sept 8	Digestion/Absorption of Lipids		5	15, 17
Sept 10	Digestion/Absorption of Lipids	Digestion & Absorption	5	15, 17
Sept 15	Glycolysis/Glycogenolysis			8, 9, 11
Sept 17	Glycolysis/Glycogenolysis			8, 9, 11
Sept 22	Midterm	Digestion & Absorption		
Sept 24	β-oxidation, Lipolysis			16
Sept 29	Krebs Cycle, ETC	Caloric Expenditure		6, 9
Oct 1	Gluconeogenesis/Glycogen Synthesis			10, 11
Oct 6	FA Synthesis, TG Synthesis	Lifestyle & Dietary Analysis		16
Oct 8	ATP counts			
Oct 13	Regulation	Lifestyle & Dietary Analysis		
Oct 15	Regulation: Carbohydrate Pathways			

Oct 20	Regulation: Lipid Pathways	ETC		
Oct 22	Lipoprotein Metabolism & CVD		5	18
Oct 27	Healthful Diet	Metabolic Pathways	2	27
Oct 29	Healthful Diet		2	27
Nov 3		Metabolic Pathways		
Nov 5	Presentations			
Nov 10	Presentations	Lab Final Exam (TBA)		
Nov 12	Presentations			
TBA				

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:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call

engemannshc.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) 740-4900 – 24/7 on call

engemannshc.usc.edu/rsvp

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

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086

equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421

studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation 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 Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssa

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.