

USC Dornsife  
College of Letters,  
Arts and Sciences

**HBIO409 – Metabolic Diseases (4 units)**  
**Spring 2017**  
**Lecture:** T/Th 11:00-12:20 p.m.  
**Location:** VKC 206

**Instructor:** Gioia Polidori Francisco, PhD  
**Office:** AHF 253  
**Office Hours:** Monday and Friday 2-4 pm.  
**Contact Info:** [gpolidor@usc.edu](mailto:gpolidor@usc.edu)

**Course Description**

Examination of the etiology, prevention and treatments of metabolic disorders such as diabetes mellitus, insulin resistance, metabolic syndrome and obesity as major threats to public health. *Prerequisite:* BISC 220L (Duplicates credit in former EXSC 409).

**Learning Objectives**

- To develop a deeper comprehension of the central and cross-disciplinary concepts of human biology, which include, but are not limited to bioenergetics, physiological homeostasis, and metabolic dysfunction.
- To place biological, nutritional and physiopathological knowledge into an applicable and ethical context, especially how biology, physiology and nutrition can contribute to the resolution of sociocultural issues.
- To provide sufficient depth of knowledge for entry-level employment in a wide variety of fields or for graduate study in the health professions or other biology-related disciplines.

**I. Suggested Readings:**

All readings are available for free on the University library website as follows:

1. Harrison's Principles of Internal Medicine. Dennis Kasper, Anthony Fauci, Stephen Hauser, Dan Longo, J. Larry Jameson, Joseph Loscalzo, McGraw-Hill, 2015  
<https://library.usc.edu/uhtbin/cgisirsi/x/0/0/5?searchdata1=4811982%7BCKEY%7D>
2. Metabolic basis of obesity, editor: Ahima Rexford S, Springer, 2011  
<https://library.usc.edu/uhtbin/cgisirsi/x/0/0/5?searchdata1=3362933%7BCKEY%7D>
3. The Metabolic Syndrome, 2nd edition, Christopher D Byrne and Sarah H Wild, Wiley, 2011.  
<https://libproxy.usc.edu/login?url=http://site.ebrary.com/lib/uscisd/Doc?id=10484908>

## **II. Grading Outline**

<b>Assignment</b>	<b>Points</b>	<b>% of Grade</b>
Midterm 1	250	25
Midterm 2	250	25
Project	200	20
Final Exam	250	25
Quizzes	50	5
<b>TOTAL</b>	1000	100
JEP (Extra Credit)	25	2.5

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

	<b>A (≥93%)</b>	<b>A- (≥90%)</b>
<b>B+ (≥87%)</b>	<b>B (≥83%)</b>	<b>B- (≥80%)</b>
<b>C+ (≥77%)</b>	<b>C (≥73%)</b>	<b>C- (≥70%)</b>
<b>D+ (≥67%)</b>	<b>D (≥63%)</b>	<b>D- (≥60%)</b>
<b>F (≤59.9%)</b>		

## **III. Description and Assessment of Assignments/Exams**

- Class material will be evaluated via quizzes and exams.
- Quizzes will be given during lectures and will be based on the material discussed. Quizzes are intended to be a learning tool and thus are only meant for students that attend lectures. Submitting a quiz from home is considered plagiarism and will be reported to SJACS. Please contact Dr. Polidori if you have to miss a lecture and would like to be excused from taking the quiz.
- The project will focus on novel strategies to prevent/control obesity. It will be based on at least 5 scientific articles and will entail the development of a novel strategy to combat obesity or a metabolic disease discussed in class.
- The project will be automatically submitted to turnitin for plagiarism. Plagiarized projects will receive a penalty based on the similarity report.
- Late submission penalties: Projects that are submitted up to 1 week after the deadline will receive a 10% penalty. Projects that are submitted more than one week after the deadline will not be accepted.
- Exams will not be given a letter grade. Only the final grade will be given a letter grade.
- A request to take a make-up midterm exam must be accompanied by evidence of necessity (ie: letter from a doctor) and must be made before the date of the scheduled exam. Make-up exams may be proctored by personnel who do not have extensive knowledge in the area being tested.

## **IV. Blackboard**

- Blackboard will be used to post announcements, handouts, articles, rubrics, deadlines, feedback to quizzes and midterm exams so check this site periodically.
- Lecture slides will be posted on blackboard, however, please do not rely entirely on slides, these are meant as a starting point for note-taking. Class notes and textbook information will form the basis of the material that will be on the exams.
- Blackboard automatically calculates a “total grade”, please ignore this as it is not a weighted grade and thus it is an overestimation of the actual grade.

### **V. Tentative Lecture Schedule**

<b>Date</b>	<b>Lecture Topic</b>	<b>Harrison's</b>	<b>Ahima</b>	<b>Byrne</b>
Jan 10	Intro & Macromolecules			
Jan 12	Adipose Tissue	77	3	
Jan 17	Adipokines		4	
Jan 19	Obesity	77		
Jan 24	Immune system and Inflammation	314		
Jan 26	Inflammation and adipose dysfunction		9	
Jan 31	Diabetes	344		
Feb 2	Insulin Resistance		10	
Feb 7	Complications of Diabetes		10	
Feb 9	Review			
Feb 14	<b>Midterm I</b>			
Feb 16	Liver Disease I		12	15
Feb 21	Hepatocellular Disease		12	15
Feb 23	Cholestatic Disease and Hepatocellular Carcinoma	369		
Feb 28	Lipoproteins and dyslipidemia	356		
Mar 2	Cardiovascular System	224		
Mar 7	Atherosclerosis	241		14
Mar 9	Hypertension	298		
Mar 12-19	<b>Spring Break</b>			
Mar 21	Myocardial Infarction	293		
Mar 23	Review			13
Mar 28	<b>Midterm II</b>			
Mar 30	Project Check-in			
Apr 4	Clinical Nutrition I	73-74		
Apr 6	Clinical Nutrition II	73-74		
Apr 11	Neural control of feeding		5	
Apr 13	Circadian Rhythms and Metabolism		13	
Apr 18	Metabolic syndrome and CR Fitness			1,10
Apr 20	Childhood Obesity		5	
Apr 25	Prevention Plans			
Apr 27	Review			
Apr 29- May 2	<b>Study Days</b>			
TBD	<b>Final Exam</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 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/department/department-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](mailto: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](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.