

USC Dornsife
College of Letters,
Arts and Sciences

**HBIO401L – Physiology of Movement (4 units)
Spring 2022**
Lecture: T/Th 3:30-4:50 p.m.
Location: LVL 3B

Laboratory: Wed 5:00-7:50 PM
Location: PED B12

Instructor: Gioia Polidori, PhD
Office: AHF B40
Office Hours: Thu 5-7 pm and Fri 2-4 pm
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Laura Held, PhD
Office Hours: TBD
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Lab Director: Anh-Khoi Nguyen
Contact Info: agnguyen@usc.edu

For Spring 2022, the first week of classes will be online.

Course Description

The study of human movement including (1) bioenergetics, circulation, respiration, and the musculoskeletal system, (2) effects of exercise and training on those systems, and (3) basic laws of motion and analysis of sports locomotion. Prerequisite: MATH 108.

Learning Objectives

- 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, cardiovascular, musculoskeletal and nervous systems.
- Develop critical thinking and problem solving skills, using an interdisciplinary approach to understanding complex human movement by exploring cause-effect relationships governing human performance.
- Demonstrate proficiency in modern research methodologies that involve analyzing human movement, quantifying and interpreting physiological & biomechanical variables.
- Improve oral, written, and electronic communication & technical presentation skills
- Apply biological and physiological knowledge towards the resolution of ethical and social issues.
- Provide sufficient knowledge and skill for entry-level employment in a wide variety of fields in the health professions or other biology-related disciplines.

Required Text:

Powers, S. and E. Howley, E. (2011). Exercise physiology: theory and application to fitness and performance (9th ed.). New York, NY: McGraw-Hill.

Description and Assessment of Assignments

- Class material will be evaluated via quizzes and exams.
- Material covered in labs will be evaluated via laboratory exercises and quizzes as well as classroom exams.

Grading Breakdown:

| Assignment | % of Grade |
|--------------------|------------|
| Midterm 1 | 20 |
| Midterm 2 | 20 |
| Final Exam | 30 |
| Lab | 25 |
| Quizzes | 5 |
| TOTAL | 100 |
| JEP (extra Credit) | 2.5 |

Additional Policies

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

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|----------------------|---------------------|----------------------|
| | A (≥ 93.00%) | A- (≥ 90.00%) |
| B+ (≥ 87.00%) | B (≥ 83.00%) | B- (≥ 80.00%) |
| C+ (≥ 77.00%) | C (≥ 73.00%) | C- (≥ 70.00%) |
| D+ (≥ 67.00%) | D (≥ 63.00%) | D- (≥ 60.00%) |
| F (≤ 59.99%) | | |

- 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.
- Quizzes will be given in asynchronously on blackboard.
- 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.
- The ***only*** extra credit offered for this course is JEP. 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/>.

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.

Course Schedule: A Weekly Breakdown

| Date | Lecture Topic | Reading Assignment |
|---------|--------------------------------------|--------------------|
| Jan. 11 | Introduction, Physiology of Exercise | |
| Jan. 13 | Bioenergetics I | 3 |
| Jan. 18 | Bioenergetics II | 3 |
| Jan. 20 | Exercise Metabolism I | 4 |
| Jan. 25 | Exercise Metabolism II | 4 |
| Jan. 27 | Hormonal Responses to Exercise I | 5 |
| Feb. 1 | Hormonal Responses to Exercise II | 5 |
| Feb. 3 | Nervous System | 7 |
| Feb. 8 | Musculoskeletal System | 8 |
| Feb. 10 | Circulatory System | 9 |
| Feb. 15 | Respiratory System | 10 |
| Feb. 17 | Acid/Base & Temperature Regulation | 11-12 |
| Feb. 22 | Review | |
| Feb. 24 | MIDTERM 1 | |
| Mar. 1 | Cause-Effect, Motion Analysis | |
| Mar. 3 | Linear Kinematics | |
| Mar. 8 | Linear Kinematics | |
| Mar. 10 | Angular Kinematics | |
| Mar. 15 | Spring Break | |
| Mar. 17 | Spring Break | |
| Mar. 22 | Angular Kinematics | |
| Mar. 24 | Linear Kinetics (F=ma) | |
| Mar. 29 | Linear Kinetics (F=ma) | |
| Mar. 31 | Linear Impulse | |
| Apr. 5 | Projectile Motion | |
| Apr. 7 | Projectile Motion | |
| Apr. 12 | MIDTERM 2 | |
| Apr. 14 | Joint Kinetics | |

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| Apr. 19 | Joint Kinetics | |
| Apr. 21 | Joint Kinetics | |
| Apr. 26 | Real World Examples | |
| Apr 28 | Physiology Review | |
| | FINAL EXAM: see schedule of classes | |