

Physics of the Human Body

PHYS 0410, section 25189, Fall 2020 (2211)

Meetings: Wednesdays 4:30-5:20 pm on Zoom. Meeting ID: 94613461164

Presentations: 2700 Posvar Hall

Instructor: Dr. Matteo Broccio, mbroccio@pitt.edu

Office hours: on Zoom, by individual appointment

Course description and goals

This Honors supplement to the first half of algebra-based introductory Physics sequence for life sciences applies physics concepts to the human body and its interactions with the physical environment. The topics explored in this course include: human proportions, scaling laws, locomotion, strength and balance, elasticity, basics of blood circulation. This course is especially tailored around the interests of students who plan a career in the medical and health professions.

At the end of this course, the successful student will be able to apply mechanics principles to the human body, as well as show a moderate competence in analyzing complex situations. It is strongly recommended that students have already completed PHYS 0110 before enrolling in this course; however students with some background in Newtonian mechanics taking PHYS 0110 concurrently will also be permitted to enroll in this course.

Class meetings

Before our (virtual) class meetings on Zoom, you are expected to look at the “*food for thought*” posted on Canvas every Monday morning, starting August 24. Our meetings will begin with a broad review of underlying physics concepts and continue as an interactive discussion about physiological questions and everyday human activities. Frequently, you will be asked to exchange ideas with classmates in pre-assigned small groups. In terms of grading, your *active participation* (by asking relevant questions to the class and/or participating in discussions and problem solving, not your mere attendance!) will weigh 70% of your overall grade.

Out-of-class assignments

The main work you are expected to do outside of the (virtual) classroom is the reflection and bit of independent research based on the posted “food for thought” before the class meets. Your reporting on it in class will be considered as an integral part of your participation grade. On *two weeks* in the term, you will be asked a take-home writeup after the corresponding class meeting – see the details under “Peer reviews”.

Presentations

We will have *no written exams*, given the nature of this course, but instead you will be required to deliver *two* 8-minute presentations to the class, on two separate dates in the term. The human-body topic will be chosen from a list circulated by the instructor and related to learning objectives covered up to that point. (The schedule will be communicated via Canvas.) You will be expected to submit a preview of your presentation by the Monday preceding your presentation. Technical and logistical details will be communicated via Canvas. *Each* of your in-class presentations will weigh 10% of your overall grade.

Peer reviews

After each presentation round, you will be required to write and send me a short review of another presentation (chosen *at random* in advance), indicating its strengths and weaknesses. Common guidelines for the student peer reviews will be distributed via Canvas. The completion of *each* one of the peer reviews will weigh 5% of your overall grade.

Calculation of grade

Every student who has been an *active* participant in class, has delivered his/her presentations and has submitted the two peer reviews will be deemed to have satisfactorily completed the course. The weights of components are summed up in this table.

Component of coursework	Percentage weight
Participation (one excused absence)	70%
Presentations (average of the two)	20%
Peer reviews (total, upon completion)	10%

Disability Resource Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890, as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

Update policy

Any updates to the information shown in this document will have to be announced directly by the instructor *both* in the classroom and electronically on Canvas to be in effect. That said, I do not foresee any major changes.