Syllabus Spring 2017

Course Number and Title: Physics of the Human Body I – Physics 1110
Credit Hours: 3 hours
Meeting Times: MWF Room JFB 103  10:45-11:35
Instructor: Richard Ingebretsen, M.D., Ph.D.
Course coordinator: Justin Coles  jcoles3@live.com
Office hours: JFB B7 - by appointment; however, I am usually there before class.

Phone: 801-581-6901 (main physics office)

Email: richi47@comcast.net

TA: Justin Coles – can be reached through canvas messaging system or at jcoles3@live.com

Course Description: The course is to help understand how the body works. Topics include muscles: how bones break, how the heart pumps, how the brain thinks, pain, x-rays, MRI scans, optical illusions and how energy is used when we eat.

Textbook: PHYSICA DE HUMANO CORPUS
This is available on line through Amazon.com either as a hard copy or Kindle version

Teaching: We will meet Monday, Wednesday, and Friday at 10:45 in JFB 103. There are some days we will not meet due to school holidays and because the professor is traveling. Refer to the teaching schedule to see these dates. There may be a lecture or a PowerPoint presentation, a movie or a guest lecturer. There will be 4 quizzes. And there is a weekly homework assignment due most Fridays. There is a short paper or presentation.

Quizzes: The quizzes are designed to focus your study on the most recent material that we discussed. The quizzes will consist of multiple choice questions, fill-in-the-blank questions and true/false questions.

First Quiz: Friday September 15th
Second Quiz Friday October 30th
Third Quiz: Friday November 17th
Fourth Quiz: Wednesday December 6th
**Weekly writing assignment:** This will be a short assignment that is posted online. The assignment will be one or two questions about those weeks’ lectures. Weekly writing assignment is due each Friday (except for quiz dates and holidays) and should be uploaded to canvas. You will have a grace period of one week for each assignment. This means you are allowed to turn in each respective assignment up to one week after the printed due date. Any assignments that are turned in past these respective grace periods will not be accepted.

**Paper/Project:** This paper or presentation is designed for you to learn about something that interests you from one of the subjects listed below. Choose an area of interest that you have in medicine and learn more about it. I do not want you to do a research paper but work off the internet, as well as look at other texts, and learn about a topic that would benefit you. Make sure you cite your work. It should be no more than a few pages long. However, there is not a required minimum length. Regardless of which you choose to do, submit it on the due date, electronically by uploading it to canvas under the project/paper assignment under the ‘assignments’ tab. If you would rather print it out and turn it in by hand that is also acceptable. You will have the same one-week grace period to turn in your paper/project as your weekly writing assignments.

I may ask around 5 students to present either their paper to the class. I will select them based on topics that I think the class will find interesting. Should I ask you, you do not need to present it in front of the class. Here are some examples of past papers to help give you an idea.

*Do football or other helmets really work to prevent injury?*
*What is a concussion, how can you recognize one, how do you prevent and treat one?*
*Should athletes wrap their ankles?*
*How do you cool yourself off when exercising and why is this important?*
*How do swimmers reduce drag in the water? Why is this important?*
*What are common shoulder injuries, how do you prevent and how do you treat them?*
*What are common ankle injuries, how do you prevent and how do you treat them?*
*What are common knee injuries, how do you prevent and how to you treat them?*
*How does the body heal broken bones?*
*Are protein shakes valuable? What is protein for? Can you have too much protein?*

**Paper due: Due Monday November 6th**

**Grading methods and criteria:** Students will be evaluated in the following manner:

1. There will be 4 quizzes. Each quiz will be worth about 30 points.
2. 10 total weekly writing assignment. Each assignment will be worth 2 points.
3. Paper/PowerPoint presentation: Will be worth 10 points.
Grading
Quiz 1 – (20% of final grade)
Quiz 2 – (20% of final grade)
Quiz 3 – (20% of final grade)
Quiz 4 – (20% of final grade)
Weekly Assignment – 10 total each worth 2 points for a total of 20 points (10% of final grade)
Paper/Project – 10 points (10% of final grade)

It is important to attend classes. Much of the learning comes from demonstrations, in class quizzes, movies, in class speakers and examples that are done on the board. You will need to take the quizzes on time unless you are at a university function or ill. You have a one week grace period for the homework.

Course Objectives: At the end of the course the students will be able to:
- describe energy metabolism in the human body
- describe how sugar is converted into ATP, into fat, and into protein
- describe common illnesses of sugar metabolism such as diabetes and obesity
- describe the strength of bones and teeth and how trauma causes bones to break
- describe the function, and common injuries to the knees, shoulders and ankles
- discuss the pumping action of the heart, and how the heart generates blood pressure
- discuss blood pressure within the body
- outline various diseases of the heart and blood circulatory system
- describe how the lungs operate
- discuss how oxygen enters the mouth and travels to the organs where it is utilized
- outline common diseases of the lung
- describe pressure changes within the body and how they affect body function and related diseases
- discuss the electrical conduction system of the nerves, the brain and the heart
- describe the optical system of the eyes
- discuss how the ear is able to convert sound waves into electrical current
- discuss how x-rays are produced and how they interact within the body
- discuss how x-rays and gamma rays are used to treat cancer

ADA STATEMENT
The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 585-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.
WELLNESS STATEMENT
Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness - www.wellness.utah.edu; 801-581-7776

FACULTY AND STUDENT RESPONSIBILITIES
All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. Faculty...must strive in the classroom to maintain a climate conducive to thinking and learning.” PPM 8-12.3, B. “Students have a right to support and assistance from the University in maintaining a climate conducive to thinking and learning.” PPM 8-10, II. A.

Sexual Misconduct
Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677 (COPS).