Instructor: Michael G. Flynn  
Office: Silcox 208  
Office hours: Please Schedule an appointment using Appointment Manager  
T-TH 10:45-12 noon; M-W 1-2 p.m.  
Phone: (843) 953-7291 (office)  
Email: mickflyn@cofc.edu  
Course meeting: Lecture  
340-01 M-W 2-3:15, JOHN 207  
340-02 T-R 9:25-10:40 JOHN 206  
Labs: Rooms 145 & 116 Silcox Center  
Prerequisite courses: BIOL 201 Human Physiology, PEHD 201 Introduction to Physical Education, or ATEP 245

Course Description: The purpose of this course is to provide students with a working knowledge of the physiological responses and adaptations to exercise, with application of these principles to allied health, physical education, physical fitness, and coaching. The course will also incorporate problem solving modules, which will allow the students to research, discuss, debate, and present information on controversial issues in exercise physiology. The laboratory is designed to provide "hands on" experiences and practice with blood pressure, body composition, aerobic and anaerobic field and laboratory tests, wet chemistry (cholesterol analysis) and maximal oxygen consumption tests. The lab also provides a venue to refine scientific writing skills and to reinforce the course content. The combination of experiences in this class will increase student “literacy” in exercise physiology, familiarize them with field-specific jargon, improve their ability to read and understand the literature, and to be conversant on basic topics of interest.

Course Texts:  


Older editions of books can be made to work, but the student will be responsible for finding the material.

IMPORTANT: Most of the lectures are provided as power point lectures on OAKS. They are provided to you so that you will print them out and have them available to make notes. The lectures will be paced under the assumption that you have printed out the slides. That is, slides will often not appear long enough for you to copy everything. In addition, I will not honor
requests to back up or slow down from students who have not printed out the slides. Most importantly, you may do well in this class without printing out the slides; however, I guarantee your learning will be better if you do print out the slides (which should make your grade higher). If I pace the course to allow you to write down all the information on the slides, I cannot get through important concepts. I will deliver a few “old school” lectures while writing on the whiteboard and these will be paced accordingly.

Objective

Provide students with a variety of learning experiences and exercise physiology topics to increase their fluency in the discipline, as measured by tests, quizzes, written problem-solving assignments, and written laboratory reports.

Student Learning Outcomes:

Upon successful completion of the course, the student will be able to:

1. Identify key events in exercise physiology history and people who contributed significantly to the development of the field.
2. Understand the step-by-step process of muscle contraction, including energy provision, metabolite production, circulation, heat transfer, endocrine regulation, etc.
3. Describe training-induced changes in skeletal muscle, the dynamic function of muscle and the contribution of different muscle fiber types to exercise.
4. Describe the innervation of skeletal muscle, conduction of a motor nerve impulse and know how the nervous system regulates contraction during exercise.
5. Demonstrate a working knowledge of cellular energy production by each of the three energy systems.
6. Show their knowledge of cardiovascular anatomy, blood delivery and distribution during exercise, basic ECG and cardiovascular adaptations to training.
7. Describe and show a strong working knowledge of exercise prescription and methods of prescribing exercise intensity for aerobic and resistance exercise.
8. Understand acclimation and acclimatization to exercise performed in extreme environments.
9. Identify exercise responses of subjects in special populations (e.g., aging or chronic disease).
10. Demonstrate knowledge of the physiology of the immune system and how it responds to moderate and extreme exercise.
11. Understand the physiological responses and symptoms of overtraining syndrome, the potential benefits of tapered or reduced training, and the rapid deterioration in fitness with cessation of training.
12. Use class information, previous knowledge and outside research to solve problems in exercise physiology.

Tell me and I will forget, show me and I might remember... involve me and I will learn.
Chinese Proverb
Your instructor will make every effort to involve you in the learning process. This will include but will not be limited to, class warm-up topics, problem solving modules, putting students into small group discussions, calling on students for answers to questions posed, directing students to differences of opinion (e.g., instructor versus textbook), and encouraging students to ask questions or introduce information they bring from other sources. Please read chapter material in textbook before coming to class. There will be announced and unannounced quizzes during the semester.

**Evaluation:**
Quizzes/Mini Problems 60 Announced and unannounced *(no make ups allowed for quizzes)*.
Online quizzes 60 (must be taken within required time frame)
Exam 1 100
Exam 2 100
Problem-Based learning assignment 50
Final 100
Lab 160
Total 650

Online quizzes will be available on OAKS for selected dates. The online quizzes will primarily test your knowledge of basic physiology. The quiz time is set for 20 minutes, with a five minute grace period. You will only get one chance to take the quizzes. Therefore, it is necessary for you to review the chapter material prior to signing on for the quiz.

Problem Solving—You will be assigned to small groups, at random. You will work in these groups to find information to solve the problem.

For the mini-problem: You will present your work as a group, but each person will have their work identified and will be graded accordingly.

For problem-based learning: You will give a group presentation, with each person responsible for a sub-section of the presentation. You will be graded on your individual presentation. There will be clear instructions and a rubric for each assignment. Generally speaking, students who follow instructions perform better on these assignments.

**Exams** will be multi format… Multiple choice, true/false, short answer or short essay. The final exam will be comprehensive.

**Grading Scale:**
93+ A
90-92 A-
87-89 B+
84-86 B
80-83 B-
77-79 C+
74-76 C
70-73 C
Lab - The lab portion of the class is worth 180 points (~25%). The lab portion of your grade will be assigned by your lab instructor. Lab assignments and questions will be graded on standardized grading criteria posted on OAKS. Assignments are due at the start of lab. Late assignments will be penalized 10 points per day late.

You are required to attend every lab period, while wearing appropriate clothing (i.e. exercise clothing with athletic shoes). If you are not dressed appropriately, you will be counted as absent. If you participate in a College activity (athletics, attend a conference, etc) that will result in your missing lab, see your lab instructor at the start of the semester to make arrangements. If there are personal or medical reasons several classes are missed, the Dean of Students should be notified and the lab instructor should be informed. Your full participation in all labs is expected and required (medical conditions will be excused with proper notification).

If you have a problem with the lab, please address it with the lab instructor first. If that problem is not resolved, you may speak with the lecture instructor.

Make up policy - In class quizzes cannot be made up for any reason. If you are late for class, you will not receive extra time for the quiz. Quizzes may be announced one week in advance or could be unannounced. Online lecture quizzes must be taken within the assigned time.

Exams - If you have a conflict or if you are ill, you will be allowed to schedule a make-up exam, but the make-up exam will be more difficult than the regular exam.

If you miss a class you are responsible for getting the material from another student. The instructor will not provide handouts or lecture information for those who are absent.

Attendance - Attendance will be taken daily. If you are late, you will be marked absent. Students are expected to attend class. Two points will be deducted from your final grade for each absence after three. More than five absences will result in a WF (for excessive absences). No excuses will be considered for absences.

Seating - To expedite the attendance process and improve my ability to get to know student names, students will be assigned to seats. Please check the seating chart, on the second day of class, for your seat assignment.

Policies

College of Charleston Student Handbook: This is a guide to your responsibilities and rights as a student. If you are not familiar with this document, please take the time to review the information contained within the handbook.
College of Charleston Honor Code and Academic Integrity

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration—working together without permission— is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance.

Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php

Classroom Behavior- Students at the College of Charleston are expected to be at all times in compliance with the Honor Code. Failure to abide with this code will not be tolerated in this course. Examples of inappropriate classroom behavior include behaviors that disrupt instruction by the professor and/or learning of classmates and behaviors that threaten, harass, or discriminate against others. Students who engage in inappropriate classroom behavior will be asked to leave the classroom, will receive no credit for attendance and in-class activities for that day, and must meet with the instructor prior to returning to the next class meeting. Severe cases of inappropriate behavior will be referred to the Dean of Students for appropriate disciplinary action.
Students leaving and returning to the classroom can be disrupting.  
Please take a moment to use the bathroom before the start of class.

Electronic Device Policy- Please set your phones to silent during class. Calculators will be allowed during class and tests, but only non-programmable calculators will be allowed during tests (please purchase an inexpensive calculator for this purpose). You may not use your cell phone as a calculator. Texting is not permitted in class. Students caught texting will be warned (first time), dismissed and marked absent (second time), or receive a 10 point reduction on their final grade (third time). Lap tops are NOT permitted during regular class. There will be times when you are allowed to use your laptops or phones for class projects (e.g., problem solving), but phones and laptops should be stowed and set to silent all other times.

Disability- If there is a student in this class who has a documented disability and has been approved to receive accommodations through the Center for Disability Services/SNAP (Students Needing Access Parity), please come and discuss this with me after class or during my office hours.

This College abides by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services/SNAP, (843) 953-1431) or me so that such accommodation may be arranged.

Tentative Class Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter (pages)</th>
<th>Topics</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>0</td>
<td>Intro and Historical Perspective</td>
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<td>Week 2</td>
<td>0</td>
<td>Historical perspective (cont.)</td>
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<td></td>
<td>8</td>
<td>Muscle structure and contraction</td>
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<td>Week 3</td>
<td>8</td>
<td>Muscle contraction (cont.)</td>
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<td>(179-184)</td>
<td>Muscle action/dynamic function/fiber type</td>
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<td></td>
<td>(293-298)</td>
<td>Muscle signaling</td>
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<td><strong>Mini Problem: Assigned in Week 3. Due two weeks after instructions given</strong></td>
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<td>Week 4</td>
<td>7</td>
<td>Neurological Control and exercise regulation</td>
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<td>Week 5</td>
<td>use index</td>
<td>Neuromuscular adaptation to physical stress</td>
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<td>Week 6</td>
<td>3</td>
<td>Bioenergetics</td>
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<td><strong>Exam 1 February 22 or 23</strong></td>
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<tr>
<td>Week 7</td>
<td>3</td>
<td>Bioenergetics (cont.) Energy Systems</td>
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<tr>
<td>Week 8</td>
<td>3/4</td>
<td>Energy System (Glycolytic/Oxidative System</td>
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4 Energy Systems (Oxidative, VO$_2$ max, EPOC)

Week 9 6 Exercise Immunology

Week 10 9 Cardiac Cycle and ECG

Week 11 9 Hemodynamics, blood flow during exercise

Week 12 9 Cardiovascular Adaptations to Training

Exam 2 April 5 or 6

Week 13 20 Laboratory assessment of Human Performance

21 Quantifying training

Week 14 16 Exercise Prescription

24 Environmental Stress—Heat, cold and altitude

Week 15 Problem-based learning presentations

Presentations given the last two class meetings

Final Exam Section 1 (M-W 2:30-3:15) May 1, 1 p.m.-3 p.m.
Final exam section 02 (T-R 9:25-10:40) May 4, 9 a.m.-11 a.m.

You may not switch exam times. Please do not make plans to leave campus before your final exam.