GEORGE MASON UNIVERSITY  
School of Recreation, Health and Tourism  

PHED 450-001 – Physiology of Exercise (4)  
Monday – Thursday 9:30 – 11:45 AM  

Professor: Dr. Jason Winchester  
Office: Room 208A Bull Run Hall (Prince William Campus)  
Office Hours: Monday - Thursday: 12:00 – 12:30 PM  
* See daily schedule for exceptions  
Email: jwinches@gmu.edu. Please do not attempt to e-mail me via Blackboard. Send all communication directly to my Mason e-mail account.  
Office Phone: (703) 993 – 3247. I have all office voicemails forwarded to my Mason e-mail so if you cannot get in touch with me, either leave a message or send an e-mail and I will respond asap.  

Class Location:  
Room 247 Bull Run Hall. Prince William Campus  

Prerequisites:  
BIOL 124, 125, or BIOL 103, 228; and PHED 300  

Course Description:  
This course is a demanding study in the theory of exercise physiology. Its purpose is to introduce students to the physiologic, neuroendocrine, and biochemical changes of the human body which are associated with either a single bout of exercise or chronic work.  

Objectives:  
Upon successful completion of this course, students will be able to:  
   1. Obtain a workable theoretical knowledge relative to the human's physiologic responses to and capacity for exercise  
   2. Apply the principles of exercise physiology to help themselves and others achieve optimum work performance  
   3. Provide intelligent and factual answers related to the effects of work on the human body  
   4. Attain knowledge toward understanding current topics in the practice of exercise physiology  
   5. Demonstrate the ability critically review current research and link findings with those discussed in the lab/seminars  

Course Overview:  
The material for the lecture portion of this class will be presented in lecture/discussion format. All class lectures are available in PDF format, and may be found on BLACKBOARD. Assessment for this course will include 4 unit examinations.  

Required Readings:  
No texts are required however, students who prefer to have a textbook or who feel that they learn better with one are encouraged to purchase one. I will be happy to make recommendations as to suitable texts which may work for you. Please come to office hours or make an appointment to see me and I will be happy to discuss this with you.
Class Policies:

✓ Attendance is not required for the lecture or the lab, but is imperative for success in this class. The student is responsible for any information presented, discussed and assigned in class regardless of whether or not the student was present. Make-up tests, quizzes, assignments, or other grades will be granted for excused absences only:

- serious illness (doctor’s note required)
- official university excused absences (with proper documentation and prior notification)
- extenuating circumstances (PRIOR approval should be obtained or direct contact made with the instructor within 24 hours of the event)
- Please be aware that any student who does not attend the lecture during the initial drop/add phase and has not communicated with me is subject to being administratively dropped from the roster. Roll will be taken up until the last day to add a class only and will not be used in grade calculation with the exception of possible extra credit which will be dealt with at the discretion of the instructor.

✓ When contacting the instructor in reference to class issues via e-mail (jwinches@gmu.edu) or other method (for example a note in my mail box or on my office door), if you do not receive confirmation that I have received your message, project, etc., within a reasonable time period (2 work days), then I did not get it! In other words, if you do not hear back from me, please follow up to make sure we are communicating effectively!

✓ I do not check or respond to my work e-mail on weekends, holidays, past close of business during the week. In other words, if you write me an e-mail on Friday night, don’t expect to hear back until sometime on Monday.

✓ Please check Blackboard e-mail account prior to coming to class. If I am ill or there is a change in the class location, materials required, or meeting time, I will send an e-mail out via blackboard to all of your Mason student accounts.

✓ Students are always encouraged to come to office hours in order to ask additional questions on the material or to gain a better understanding of grades on exams or assignments.

✓ All students are expected to conduct their work for this class as spelled out in the George Mason University Honor Code. All class projects are subject to evaluation under plagiarism detection software such as “Turn It In” or “SafeAssign”.

✓ Student employment does not take priority over academic obligations. I recognize that many students need to work in order to meet living expenses, however, there are distinct guidelines for students in terms of the number of credit hours which should be attempted based on how many hours per week a student has outside employment. For additional information on this subject, please see the GMU student handbook.

Evaluation:

EXAM REVIEWS:
As time allows in class and depending on class progress in each unit, a review may be offered before each exam. At that time, students can ask any content question that they would like. Students are not required to participate in the review, and can participate or leave as they choose. If there are no questions related to the content of the unit, the review session will be ended. Whether or not a review is conducted in class depends on class progress through the material for each unit and class participation in previous reviews. If there is no time to have a formal review or, if review sessions are not being utilized, students will need to come to office hours to address any questions on class material.
UNIT EXAMS:
There will be 4 unit exams worth 50 points each. Unit exams will be in multiple choice format. Students are required to bring a ScanTron sheet in order to sit for the exam. Including handing out of exams and any announcements, you will have the 60 minutes to complete examinations 1 – 3. Please return exams promptly when time is called. Students who give prior notification for a university excused absence will be allowed to complete an alternate version of the exam outside of class. Students who miss an exam for what would not be considered a university excused absence or who do not give prior notification of excused absences will not be allowed to take the exam at an alternate time. Exams one – three will be given during normal class times and exam four will be given during our final exam period.

EXAM/ASSIGNMENT PICKUP:
For privacy reason, students are not allowed to pick up exams or assignments for other students without my having prior written permission from the student who’s exam is being collected. If you have extenuating circumstances and wish to e-mail me permission prior to handing back materials, I will be more than happy to allow the person designated in your letter to pick up your work.

Students will have two class days to return exams to me following my handing them back. All students are encouraged to check the answer key to be sure that their exams are graded correctly. Any student who feels that a question could have been answered differently is encouraged to let me know so that we can talk about it. If the student can make a compelling case for why a particular question could have more than one correct answer, additional points may be awarded on a case by case and student by student basis. Students who do not turn in their exams to me within two class days will suffer a 10% grade reduction off of their total points for each day the exam is late unless the student has a university excused absence. For the unit four exam, office hours will be held so that students can evaluate their score and look at the answer key. Once those office hours are over unit 4 exam grades will be set and will not be altered.

EXAM QUESTION RELIABILITY:
Once I receive exams back from students and all grade disputes have been discussed and resolved, I will run statistical reliability tests on every question, for each unit exam. If any questions is found to be unreliable in the top 33% of the class by percentage grade, that question will be removed from grade calculation and all students who missed that particular question will be credited for those points. Students who got the question correct will not be credited any additional points. Students who need to take an alternate version of the exam will not have their exam questions tested for reliability due to small sample size.

GRADE CURVES:
Following assessment of question reliability, on each unit exam, a curve will be applied which consists of ½ of the difference between the class mean’s percent grade and 100%. For example, if the class mean for exam one is 50%, I will add points until the class mean equals 75%. If the class mean for exam two is 60%, I will add points until he class mean equals 80%. Regardless of class mean prior to application of a curve or the magnitude of curve applied, no student will be given a curve to the point that any exam or semester grade is over 100%. Any student who misses the exam without a university excused absence will not receive any curve that may be given to the remainder of the class.

POINTS POSSIBLE BREAKDOWN:
4 Unit Exams * 50 pts. each = 200 Points
**GRADING SCALE:**
Student’s letter grade is based on the individual point score converted into a percentage grade. Based upon the student’s class performance the following letter grades will be assigned:

98 – 100 % = A+
93 – 97.99 % = A
90 – 92.99% = A-
87 – 89.99 % = B+
83 – 86.99 % = B
80 – 82.99 % = B-
77 – 79.99 % = C+
73 – 76.99 % = C
70 – 72.99 % = C-
60 – 69.99 % = D
< 60 % = F

**GRADING CONCERNS:**
Students who feel there is a grading error or who wish to gain greater knowledge as to why a particular grade was earned have two class days following the date exams or papers are handed back to the class to express their concerns. Following the two class day period, all grades are set and will not be altered. Students are encouraged to come and look at their grade on exam four prior to submission of final grades via Patriot Web. Office hours will be announced in order to facilitate that process. After grade submission is complete, no grade alterations will be made so please come by during office hours if you have concerns.

NO STUDENT WILL BE THOUGH OF ANY DIFFERENTLY OR PUNISHED IN ANY WAY FOR BRINGING A POTENTIAL GRADE CONCERN TO MY ATTENTION. I want all students to walk away with an understanding of why you earned the grade that you did. In addition, I want to make sure that any potential mistakes in grading on my part are taken care of immediately. I encourage ALL students to take advantage of opportunities to discuss their grades with me throughout the semester. I cannot treat you 100% fairly if you do not let me know about problems as they arise. Please keep me in the loop and I will make every effort to return the favor.

**Assumption of risk:**
As with any activity there is an assumed risk while participating. We will do all we can to provide a safe environment; however, you are ultimately responsible for your well-being. The university will not be held liable for any injuries that occur.

Any student who has a documented medical condition, (e.g. Asthma, Hypertension, Cardiac Condition, etc.), or any injury that may preclude participation in a specific activity should inform the instructor immediately. Arrangements will be made with an alternate activity for your participation.

**Final comments:**
If a student does not understand an assignment, what is expected of him/her, or is having difficulty mastering the material/skills covered as a part of this class, I am available to help! I have an “open door” policy and students are always encouraged to call or e-mail me for an appointment, or to just come by my office at any time. I will be more than happy to assist any student whom is having difficulty and requests help, or who just wants to dig
deeper into the class material. Additional student help can be found at: www.mhhe.com/powers6e. Please let me know if you are having any difficulty at all and do not wait until you are past the point of no return to seek help. Many students in the past could have had better grades had they come and talked with me earlier rather than later upon recognition that there was a problem. *I can’t help you if I don’t know there is a problem!* 

The instructor reserves the right to make changes to the course syllabus and/or schedule at any time. Students will always be informed of any changes made.

**Tentative course outline - Lecture:**

**Unit #1: The Bioenergetics of Work and Exercise**
Topics: 1. Enzymatic energy systems  
2. Fuels for exercise  
3. Exercise recovery  
4. Adaptations and implications for training and performance

**Unit #2: The Endocrine System in Exercise and Performance**
Topics: 1. Basic structure and function of hormones and tissues  
2. Response of hormones to aerobic training  
3. Endocrine response to anaerobic training  
4. Implications for training  
5. The role of the endocrine system in substrate availability for work performance

**Unit #3: The Role of the Neuromuscular System in Work and Exercise**
Topics: 1. Nervous system  
2. Structure and function of skeletal muscle  
3. The cross-bridge cycle and power production  
4. Manipulating power  
5. Muscle soreness  
6. Adaptations to training

**Unit #4: The Role of the Cardiovascular and Respiratory systems in Work and Exercise**
Topics: 1. Respiration during exercise  
2. Acid-Base balance during exercise  
3. Circulatory adaptations to exercise  
4. Cardiac and smooth muscle physiology  
5. Factors controlling oxygen consumption  
6. Response to acute and chronic training
### Summer 2010 Daily Schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>17-May-10</th>
<th>18-May-10</th>
<th>19-May-10</th>
<th>20-May-10</th>
<th>24-May-10</th>
<th>25-May-10</th>
<th>26-May-10</th>
<th>27-May-10</th>
<th>31-May-10</th>
<th>1-Jun-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>syllabus</td>
<td>Met</td>
<td>Met</td>
<td>Exam 1</td>
<td>End</td>
<td>End</td>
<td>End</td>
<td>No Class</td>
<td>Exam 2</td>
<td></td>
</tr>
<tr>
<td>9:45</td>
<td>Met</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Rev 1</td>
<td>Break</td>
<td>Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>Met</td>
<td>Met</td>
<td>Met</td>
<td>End</td>
<td>End</td>
<td>End</td>
<td>Rev 2</td>
<td>NM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>2-Jun-10</th>
<th>3-Jun-10</th>
<th>7-Jun-10</th>
<th>8-Jun-10</th>
<th>9-Jun-10</th>
<th>10-Jun-10</th>
<th>14-Jun-10</th>
<th>15-Jun-10</th>
<th>16-Jun-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>NM</td>
<td>No Class</td>
<td>NM</td>
<td>NM</td>
<td>Exam 3</td>
<td>CR</td>
<td>CR</td>
<td>CR</td>
<td>CR</td>
</tr>
<tr>
<td>9:45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rev 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Break</td>
<td>break</td>
<td></td>
<td></td>
<td>Break</td>
<td>CR</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rev 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Unit Four Exam will be completed on June 17th from 10:30 AM – 12:30 PM
* There will be no office hours on May 31st, June 2nd, or June 3rd.

- All students are held to the standards of the George Mason University Honor Code [See http://www.gmu.edu/catalog/apolicies/#Anchor12]

- University policy states that all sound emitting devices shall be turned off during class unless otherwise authorized by the professor

- Students with disabilities who seek accommodations in a course must be registered with the Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester [See www.gmu.edu/student/drc]

- For additional School of Recreation, Health, and Tourism information, please visit the website at http://rht.gmu.edu