

HP/W 312 Exercise Physiology – Spring 2019

School of Health Promotion and Human Development
University of Wisconsin – Stevens Point

Lecture: Tuesday & Thursday - 9:00 - 9:50 am; Location: College of Professional Studies (CPS) 116

Labs: (#1) Mon 11:00-12:50 pm, (#2) Wed 8:00-9:50 am, (#3) Wed 11:00-12:50 pm, (#4) Fri 8:00-9:50 am. All labs meet in HEC 033.

INSTRUCTOR INFORMATION:

Instructors:	Thomas Wetter, Ph.D.	Ethan Borchardt, teaching assistant
Office:	CPS 224	CPS 240D
Phone:	346-3659	tbd
Email:	twetter@uwsp.edu	Ethan.Borchardt@uwsp.edu
Office hours:	T & R 10:00-11:30 and by apt	by appointment

REQUIRED TEXT and MATERIALS:

⇒ Exercise Physiology, Theory and Application to Fitness and Performance, Powers and Howley, 10th ed., 2018.
(rental)

Additional resources will be placed into D2L.

COURSE DESCRIPTION:

This class will cover the physiological mechanisms involved in the acute response to exercise, in particular, the muscular, circulatory, respiratory, and endocrine systems and chronic **adaptations to training** for each. The health benefits of physical activity, the relationship between exercise and weight loss/maintenance, aerobic and muscular strength prescription, and the role of nutrition, age, gender and environmental factors will also be discussed. It is important for Athletic Trainers, Dieticians, and Health Science and Promotion professionals have a full understanding of the human body and its mechanisms of response to exercise.

GRADES:

2 In Class Exams and Final Cumulative Exam	400 points	(120 pts each for in class, 160 for final)
Lab Attendance and top 10 Reports	200 points	(20 pts each lab)
Top 10 D2L Quizzes (outside of class)	<u>100 points</u>	(10 pts each)
	700 points	

**A = 651-700 A- = 630-650 B+ = 609-629 B = 581-608 B- = 560-580 C+ = 539-559 C = 511-538
C- = 490-510 D+ = 469-489 D = 420-468 F = 419 and below**

(This works out to cutoffs for A-=90%; B-=80%; C-=70% and D=60%)

Please see us if you are having any difficulties in class. If you are not available during office hours, please set up an appointment time outside of those hours. We are more than happy to meet with students. If you need help, please ask!

READING AND PARTICIPATION:

- Participating in lecture and labs is an important aspect of this class! Each student brings a unique personality and life experience, so sharing and quality critical thinking make the class much more enjoyable. Students who participate in class and in lab generally do better than those who do not. At the end of the semester we may award bonus points to the top participators. Ways to participate include asking and answering questions, bringing in news articles or experiences that are relevant to the topic being discussed, and serving as a subject in labs.
- Assigned reading material from the text (or accessory material) is required! Optimally, you should do assigned readings prior to covering the material in class. Some exam and quiz questions will be drawn directly from the text. Therefore, reading the text will be essential in obtaining a high grade in the class.

ATTENDANCE:

- Attendance will be taken during the first week of classes and reported back to the University. Attending **lecture** is expected and is **strongly recommended**. Students who attend lecture typically score higher on exams and quizzes. Attendance and participation is **required for laboratory sessions**. Due to the nature of these labs they cannot be made up. If a conflict arises where you know you will miss your lab, you may be able to attend another lab section but only with **prior** permission. If you are absent, you will lose credit for work that is missed.
- What **NOT** to do if you miss lecture: Do not ask us “Did I miss anything important?” Do not come to office hours and expect a private lecture covering missed material.
- What **TO** do if you miss lecture: Make a friend of a classmate early in the semester. Have that person give you the notes and any other important information from the class. If after you have reviewed the notes and read your book to fill you in on the missed material, you still have questions; by all means make an appointment to come and talk to one of us.

FINAL EXAM:

- On the final, approximately 40 points will be allocated to general concepts covered on Exams 1 & 2..

HANDOUTS:

- Power Point presentations or lecture outlines, handouts, extra reading material, and assignments, will be in D2L. Occasionally we may hand out material in class or lab, if you miss that day get the material from another student.

DISABILITIES and RELIGIOUS BELIEFS:

- UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6th floor of Albertson Hall (library) as soon as possible. DATC can be reached at 715-346-3365 or DATC@uwsp.edu.
- Religious beliefs will be accommodated according to UWS 22.03 as long as you notify me within the first three weeks of the beginning of classes of the specific date(s) you request relief from an examination or academic requirement

ACADEMIC CONDUCT:

This course is part of the UW-Stevens Point academic community, an academic community that is bound together by the traditions and practice of scholarship. Honest intellectual work – on examinations and on written assignments is essential to the success of this community of scholars. Using classmates’ responses to answer exam questions or disguising words written by others as your own undermines the trust and respect on which our course depends. The work in this course is challenging and will demand a good deal from each of you. I have every confidence that each of you can succeed. Doing your own work will enhance your sense of accomplishment when the semester comes to a close.

Additionally, the classroom environment is a unique opportunity for students to share ideas, opinions, discuss classroom and course content. As each student is entitled to contribute in class, specific expectations are necessary to ensure a thriving classroom environment. Expectations include: arriving to class on time, being prepared for class, and keeping cell phones silenced or turned off and put away. Behaviors such as loud shouting, excessive side conversations, arriving to class under the influence of any alcohol or drugs, profane language, and verbal or physical threats, intimidation of any kind, or any other behavior that may be disruptive to the instructor or other students are considered unacceptable. If any of this behavior is exhibited, you may be asked to leave the class for the day. Any continued disruptive behavior may result in a referral to the Dean of Students Office.

For additional information, please refer to the statements on Academic Concerns as outlined by the Dean of Students <http://www.uwsp.edu/dos/Pages/Academic-Concerns%20for%20Students.aspx> You can read the full text of Chapter 14 on “Student Academic Standards & Disciplinary Procedures” at <http://www.uwsp.edu/dos/Documents/CommunityRights.pdf#page=11>

TENTATIVE COURSE SCHEDULE

<u>DATE</u>	<u>TOPIC</u>	<u>BOOK CHAPTER</u>
	(It helps to read the material prior to class lectures)	
Jan 22	Introduction: What are we going to learn about; how and why	--
24	The history and future of the field	0
29	Applying research to exercise and sport	(D2L Quiz #1 Due Jan 31) --
31	Control Systems, Energy Metabolism	2, 3
Feb 5	Energy Metabolism	(D2L Quiz #2 Due Feb 7) 3
7	Energy Metabolism	3, 4
12	Energy Metabolism	(D2L Quiz #3 Due Feb 14) 4
14	Skeletal muscle and nerves	7, 8
19	Skeletal muscle and nerves	(D2L Quiz #4 Due Feb 21) 7, 8
21	Muscle fiber type and health	7, 8
26	Exam #1	
28	Cardiovascular System	9
Mar 5	Cardiovascular System	(D2L Quiz #5 Due Mar 7) 9
7	Cardiovascular System	9
12	Respiratory System	(D2L Quiz #6 Due Mar 14) 10
14	Respiratory System	10
19, 21	<i>Spring Break</i>	
26	Acid Base Balance	(D2L Quiz #7 Due Mar 28) 11
28	Hormone response to Exercise	5
Apr 2	Immune function and exercise	(D2L Quiz #8 Due Apr 4) 6
4	Temperature Regulation: exercise in heat/cold	12
9	Exam #2	
11	Exercise and the Environment (altitude, heat/cold)	24
16	Guest/out of class assignment?	
18	Health Benefits of Physical Activity	14
23	PA and BodyWeight	(D2L Quiz #9 Due Apr 25) 18
25	Adaptations to Exercise Training	13
30	Aerobic Exercise Prescription	(D2L Quiz #10 Due May 2) 16, 21
May 2	Resistance Exercise Prescription	16, 21
7	Nutrition and Ergogenic Aids	(D2L Quiz #11 Due May 9) 23, 25
9	Catch up	
17	Final Exam Friday May 17, 8:00 -10:00 am	

Tentative Lab Schedule

WEEK	LAB	TOPIC	BOOK CHAPTER
Jan 21	-----	No LAB	-----
Jan 28	# 1	Introduction, Reports, Graphing (bring laptop if have one)	In Lab
Feb 4	# 2	Safety, Ergometry	1, pg 345-7
Feb 11	# 3	Metabolism and Fuel Use	1 (pg 21-3), 4
Feb 18	# 4	Anaerobic Power	20
Feb 25	-----	No LAB	-----
Mar 4	# 5	Electrocardiogram, Circulation, and Blood Pressure	9
Mar 11	# 6	Resting Lung Volumes and Exercise Ventilation	10
Mar 18	-----	SPRING BREAK	-----
Mar 25	#7	Predict Maximal Oxygen Consumption	15 & 20
Apr 1	# 8	Maximal Oxygen Consumption (VO ₂ max)	15 & 20
Apr 8	-----	No LAB	-----
Apr 15	# 9	Body Composition Testing	18 & 23
Apr 22	#10	Strength and Flexibility Testing	20
Apr 29	#11	Measurement of Daily Physical Activity	In Lab
May 6	-----	No LAB – Time to prepare for finals	-----

Labs: Each lab is designed to afford the student hands on experience of observation of techniques used in the discipline of exercise physiology. They will also aid in supplementing the lecture in class. It is advisable to read the appropriate lab handouts and chapters prior to the lab.

Lab Attendance: Attendance Is Mandatory to achieve any lab report points! **If you miss lab you will receive 0 points for that week's lab report.** If a conflict arises with your regular scheduled lab time you are responsible for contacting me (via e-mail) **prior** to missing your lab and arranging your schedule to attend one of the other lab times for the week.

Lab Times: Monday 11:00-12:50pm; Wednesdays 8:00-9:50; and 11:00-12:50 pm; and Friday 8:00-9:50am

Lab Participation: Many labs will require that each person be a subject (you will be performing cycling exercises, body composition measurements, strength tests, etc.). By completing these tests yourself, you can better understand the testing limitations and advantages, then simply reading about it. Your own personal fitness is unimportant. You will be sharing personal information such as age, weight, and height with others in the class. If you have any concerns about this, talk to me ahead of time.

Lab Attire: Be appropriately dressed for physical activity during each laboratory session. Those not prepared to participate in lab will receive no points for that lab. Those physically unable to participate should notify me at the beginning of the semester, or as soon as possible.

Lab Reports: Due dates are at the beginning of the next lab session or a specified date if lab is not meeting the following week. **All reports must be typed, and showing calculations is required for full credit.** Use of Microsoft Excel is required for all graphing. Your lowest lab report grade will be dropped; thus, your lab contribution for your final grade will be made of your top 10 lab scores. Late lab reports will receive a reduction of 2 points (10%) per day late.

Lab Rules

*** NO food or Drink (except water) allowed in the lab.**

***Please leave the room as you found it.**

***If you use any lab equipment or supplies, please clean and return them to their appropriate location before you leave.**

QUIZZES: Eleven, ten-point quizzes will be administered over D2L this semester. Due dates are listed in the syllabus; and quizzes need to be completed by **11:59 pm** on that day specified. These are **individual quizzes**, meaning you will submit your own thoughts and work. These are also typically a way for students who tend not to do as well on exams, to raise their grade. The best 10 quiz grades will be used, meaning you are able to drop your lowest quiz score or if you miss a quiz and get a zero you can drop that score.

There are several different questions for each quiz. D2L will randomly select which questions you receive; therefore, you may each receive different questions. Once you complete a page of a quiz, you will not be able to go back and change answers. You will have 60 minutes to complete each quiz, once you start a quiz the time starts (you cannot stop and restart later. Having your computer die during a quiz is not a valid excuse. Taking the quiz on a campus computer is the safest route to avoid problems.

Any changes to Quiz dates will be announced in class. Late quiz submissions are not available, no exceptions, plan ahead!

EXTRA CREDIT POINTS. There *may* be an opportunity to receive additional points by participating in activities (selectd by us) that will occur outside of class. We will announce these in class and they will be made available on a first come first serve basis (one advantage to sitting in the front of class). If your outside of class time is limited and you cannot participate in any of these opportunities, we are sorry but will not make special accomodations. The total number of extra credit points you may receive is limited to **20**.

BONUS POINTS. A small number of bonus points *may* be awarded at the end of the semester to the students who participate in class and in lab the most. These will be awarded at the discretion of the instructors.

LEARNING OBJECTIVES: Upon completion of the course, each student will

- 1) Demonstrate knowledge of Exercise Physiology. Specific Learning Objectives for the lecture material in class are listed at the beginning of each required chapter in the text.
- 2) Be aware of current issues in Fitness and Exercise Physiology and critically analyze and discuss them.
- 3) Be able to distinguish between reputable and suspect sources for information about health and fitness.
- 4) Be able to graph data accurately using Excel.
- 5) Demonstrate proficiency and knowledge of specific exercise physiology laboratory techniques including ergometry, muscular strength and anaerobic capacity testing, electrocardiography, blood pressure, lung volumes and exercise ventilation, body composition, submax and maximal VO₂ testing, and flexibility.
- 6) Be able to dispel expel myths surrounding exercise by using knowledge of scientific principles and mechanisms.
- 7) Demonstrate and ability to work in small groups and present findings and discussion to a larger audience.
- 8) Be able to develop an individualized, scientifically sound aerobic and resistance training program for sedentary and active people.
- 9) Diversity learning objective: Discuss how genes, race, culture, gender, environment, socioeconomic status, etc influence exercise performance. Discuss how these factors may impact the ability, access and importance of health behaviors like exercise. Examine the range of physiologic difference (as related to exercise) between groups as compared to within groups.

CONTRACT:

By enrolling in this course, you agree to the following rules:

- 1) Be respectful of other people in class. (not carrying on private conversations in class, participating in group discussions, etc)
- 2) Come dressed and ready for participation in each lab. Many of the labs involve exercise or the making of physical measurements. Each person, unless they notify me ahead of time and have a valid excuse, must come to lab prepared to be a subject. In most labs, everyone will participate. In a few labs, subjects will be selected in each lab group at the beginning of the semester.
- 3) You also agree to the late policy (-10% of points/day). If you forget to do or bring in a lab, you will turn it in when you can and accept the late policy.
- 4) Complete the D2L quizzes on your own.
- 5) Let the professor know when you don't understand something, have a different opinion, have additional material to add to the lectures, or can suggest ways that would improve the learning experience for yourself or others.
- 6) Take responsibility for your own learning and have fun.