

HP/W 312 Exercise Physiology – Spring 2021

School of Health Sciences and Wellness
University of Wisconsin – Stevens Point

Lecture: Tuesday & Thursday - 9:00 - 9:50 am; Location: online via Zoom

Labs: (#1) Mon 11:00-12:50 pm, (#2) Tue 10:00-11:50 am, (#3) Wed 8:00-9:50 am, (#4) Wed 11:00-12:50 pm, (#5) online section time TBD, (#6) Thur 10:00-11:50 am. Meet in Marshfield Clinic Champions Hall (MCCH) room 33: Health and Human Performance Lab.

INSTRUCTOR INFORMATION:

Instructor: Thomas Wetter, Ph.D.
Office: CPS 224
Phone: 346-3659
Email: twetter@uwsp.edu
Office hours: T 1:00-2:00 & W 1:30-3:00 and by apt (zoom or in-person)

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 Canvas.

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:

3 Exams (2 during course and 1 Final Exam)	370 points	(120 pts x 2, 130 pts for final)
Lab Reports (lowest score dropped)	180 points	(20 pts each lab)
Top 15 Quizzes (3 lowest scores dropped)	<u>150 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 me if you are having any difficulties in class. You can ask question after class, come to office hours, send me a Zoom invite for a meeting, or you can also email or phone. If you are not available during office hours, please set up an appointment time outside of those hours. I am 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 I may award bonus points to the top participants. Ways to participate include asking and answering questions, bringing in or sending me news articles or experiences that are relevant to the topic being discussed, and serving as a subject in labs.
- While most of the course content will be covered in class during lectures, 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. Attendance for zoom lectures will NOT be taken. I would hope that attending lectures will be useful and allow you to ask questions. **Points are awarded for attendance and participation** for the **in-person 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.

EXAMS:

- Exams will be available in Canvas on the day listed in the schedule. You will have ~90 minutes (may adjust this) to complete the exam. Once you start the exam in Canvas you must complete it within the allocated time. Make sure your computer is charged or take the exam on a campus computer. The final exam will include a few MAJOR concepts from the material covered on the first 2 exams.

CLASS MATERIALS:

- Power Point presentations, handouts, extra reading material, lab materials and report questions will be in Canvas.
Lecture materials and recordings for HPW 312 are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

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 Student Handbook <https://www.uwsp.edu/dos/Pages/handbook.aspx>

TENTATIVE COURSE SCHEDULE

Lecture Date	Topic	Book Reading (Chapter)	Quiz#/Due
Jan 26	Introduction	--	
Jan 28	History and future of exercise science	0	
Feb 2	Research in exercise and sport/Control systems	--, 2	Quiz 1: Feb 4
Feb 4	Bioenergetics	3	
Feb 9	Bioenergetics	3	Quiz 2: Feb 11
Feb 11	Exercise metabolism	4	
Feb 16	Exercise metabolism	4	Quiz 3: Feb 18
Feb 18	Skeletal muscle and nerves	7, 8	
Feb 23	Skeletal muscle and nerves	7, 8	Quiz 4: Feb 25
Feb 25	Muscle fiber type and health	--	
Mar 2	Online Exam 1		
Mar 4	Cardiovascular system	9	
Mar 9	CV system cont.	9	
Mar 11	CV system cont.	9	Quiz 5: Mar 16
Mar 16	Respiratory system	10	
Mar 18	Respiratory system	10	Quiz 6: Mar 30
	Spring break		
Mar 30	Acid Base Balance	11	Quiz 7: Apr 1
Apr 1	Hormone response to exercise	5	Quiz 8: Apr 6
Apr 6	Immune function and exercise	6	Quiz 9: Apr 8
Apr 8	Online Exam 2		
Apr 13	Adaptations to exercise training	13	Quiz 10: Apr 15
Apr 15	Temperature regulation	12	Quiz 11: Apr 20
Apr 20	Exercise and the environment	24	Quiz 12: Apr 22
Apr 22	Health benefits of physical activity	14	Quiz 13: Apr 27
Apr 27	Physical activity and body weight	18	Quiz 14: Apr 29
Apr 29	Aerobic exercise prescription	16, 21	Quiz 15: May 4
May 4	Resistance exercise prescription	16, 21	Quiz 16: May 6
May 6	Sports nutrition & Ergogenic aids	23, 25	Quiz 17: May 11
May 11	Exercise and training in special populations	17, 22	Quiz 18: May 13
May 13	Final thoughts/Fun day		
May 17	Final Exam (8:00-10:00 am)		

Tentative Lab Schedule

Week	Lab #	Topic	Reference chapter in Book	Report due
Jan 25		No labs		
Feb 1	1	Introduction, Reports, Graphing		Feb 11
Feb 8	2	Safety, Ergometry	CH 1 & pg 345-7	Feb 18
Feb 15	3	Metabolism and Fuel Use	CH 1 and 4	Feb 25
Feb 22	4	Anaerobic Power	CH 20	Mar 4
Mar 1		no labs		
Mar 8	5	Electrocardiogram, Circulation, and Blood Pressure	CH 9	Mar 18
Mar 15	6	Resting Lung Volumes and Exercise Ventilation	CH 10	Mar 25
Mar 22		Spring break		
Mar 29	7	Predict Maximal Oxygen Consumption	CH 15 & 20	Apr 8
Apr 5		no labs		
Apr 12	8	Maximal Oxygen Consumption (VO ₂ max)	CH 15 & 20	Apr 22
Apr 19	9	Body Composition Testing	CH 18 & 23	Apr 29
Apr 26	10	Strength and Flexibility Testing	CH 20	May 6

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. You should read the appropriate lab handouts and chapters prior to the lab. You need to come prepared with a copy of the lab handout and report (or have access to it on your own laptop that you bring to class.

Lab Attendance: Attending lab in-person will provide you with a better experience and allow you to gain health/fitness assessment skills that you will not be able to do online. For those attending lab in person, 10 of the 20 points for the lab reports will be given for attendance and participation. Each report question will be worth 1 point. For those not attending labs in person, each report question will be worth 2 points.

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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: During some of the labs you will be more comfortable is you are appropriately dressed for physical activity during the laboratory session.

Lab Reports: Lab reports will be submitted to Canvas by 11:59 pm on the day they are due **All lab reports must be typed (no handwriting). When answering lab questions, you need to use complete sentences with correct spelling and proper grammar. You must embed graphs into the report (not at the end of the report and not using a separate document). You need to show your calculations including the units if you want 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: Eighteen, ten-point quizzes will be administered in Canvas 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 15 quiz grades will be used, meaning you are able to drop your lowest 3 quiz scores or if you miss a quiz or 3 and get a zero you can drop those scores. Because you are allowed to drop so many, please do not ask me if you can make up a quiz (plan to take the quizzes before the deadline to avoid any unforeseen circumstances such as “my grandmother called at 11:30 and I needed to talk with her”)

There are several different questions for each quiz. Canvas 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 (selected by me) that will occur outside of class. I will announce these in class (or via email) and they will be made available on a first come first serve basis. If your outside of class time is limited and you cannot participate in any of these opportunities, I am sorry, but I cannot make special accommodations. 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/or in lab the most. These will be awarded at the discretion of the instructor.

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. 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 upload a lab, do it when you can and accept the late policy.
- 4) Complete the 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.

COVID related information:

Here is the information that the University wanted me to provide to you:

Face Coverings:

- At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the [Disability and Assistive Technology Center](#) to discuss accommodations in classes. Please note that by university policy unless everyone is wearing a face covering, in-person classes cannot take place. Failure to adhere to this requirement could result in formal withdrawal from the course.

Other Guidance:

- Please monitor your own health each day using [this screening tool](#). If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service.
 - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please keep these same healthy practices in mind outside the classroom.