

WAYNE STATE UNIVERSITY
COLLEGE OF EDUCATION

DIVISION: Kinesiology, Health and Sport Studies
www.kinesiology.wayne.edu

PROGRAM AREA: Exercise and Sport Science

COURSE: KIN 6310 – Physiology of Exercise II

COURSE REFERENCE NUMBER: 17258

COURSE CREDIT: 3 Credit Hours

PREREQUISITE: An appropriate university level introductory exercise physiology course (KIN 3570 or equivalent)

TERM/YEAR: Fall 2016

COURSE LOCATION: Room 1115 Old Main Building

TIME: Friday: 12:50pm-3:50pm

INSTRUCTOR: Hermann-J. Engels, Ph.D., FACSM

OFFICE LOCATION: 4512 APHS Bldg.

OFFICE EMAIL: Engels@wayne.edu

OFFICE PHONE: (313) 577-5896

OFFICE HOURS: Tuesdays and Thursdays 8:30am-10:30am
Fridays 11:00am - 12:00pm
and by individual appointment

COURSE DESCRIPTION: Metabolic, neuromuscular, cardiovascular, and respiratory adjustments to acute and chronic exercise in health and disease, including body composition and weight control, nutritional considerations, and the effects of different environments on exercise performance.

COURSE OUTCCOMES: At the conclusion of the course the student will be able to:

1. Demonstrate an understanding of fundamental physiological concepts related to cellular metabolism and the effects of acute and long-term exercise on bioenergetics responses.
2. Demonstrate an understanding of fundamental physiological concepts related to the acute and long-term response to exercise at the organ system level, including the respiratory, cardiovascular, and neuromuscular systems.
3. Discuss the role of exercise in the context of body composition and body weight control.
4. Demonstrate an understanding of selected nutritional factors and their potential effects on physiological responses and exercise performance.
5. Discuss how changes in environmental conditions can affect physiological responses and exercise performance.
6. Independently explore advanced research questions related to exercise physiology and exercise performance using primary research articles as the main source for information.
7. Prepare, present and lead discussions on selected research topics following a critical assessment of the pertinent research literature.
8. Actively participate as a discussant during presentations of selected exercise physiology topics in a research seminar-like atmosphere.
9. Show an advanced level of insight into the current research literature on exercise physiology and exercise performance.

REQUIRED TEXT:

- None

TEXTBOOKS AND OTHER RESOURCES USED:

McArdle, W. D., Katch, F. I., & Katch, V. L. (2015). *Exercise Physiology: Energy, Nutrition, and Human Performance* (8th ed.). Baltimore, MD: Lippincott Williams & Wilkins.

Powers, S.K. and Howley, E.T. (2012). *Exercise Physiology: Theory and Application to Fitness and Performance* (8th ed.). New York, NY: McGraw-Hill

Kenney, W.L., Wilmore, J.H., & Costill, D. L. (2015). *Physiology of Sport and Exercise* (6th ed.). Champaign, IL: Human Kinetics.

Brooks, G. A., Fahey, T. D., & Baldwin, K. M. (2005). *Exercise Physiology: Human Bioenergetics and its Applications* (4th ed.). Boston: McGraw-Hill.

Pandolf, K.B., Sawka, M.N., & Gonzalez, R.R. (1988). *Human Performance Physiology and Environmental Medicine in Terrestrial Extremes*. WCB Brown & Benchmark.

Wolinsky, I. (2001). *Nutritional Applications in Exercise and Sport* Boca Raton, FL: CRC Press.

Refereed Reviews, Original Research Articles, and Professional Pronouncements.

COURSE POLICIES:

This course uses a blend of traditional and “flipped classroom” model teaching methodologies. It includes fundamental lectures and student presentations, as well as in-classroom assignments designed to lead to higher-level topical discussions in a seminar-like course atmosphere. Students will not be merely receptors of information (as in a traditional classroom model) but also participants in their own learning processes by engaging in various student-centered classroom activities. These activities will be geared to learning how to conduct a literature review on a specific research question of interest, how to read and analyze original research articles, and how present these findings to a group of peers for discussion purposes. PowerPoint presentation slides of didactic lectures and PDF handouts of research articles on various exercise physiology topics will be made available online through the Blackboard course website. Students are asked to bring a laptop computer to be able to go online during class.

Course Assignments:

Students will be given regular assignments (research readings and presentations) throughout the course of the semester and are expected to complete them as indicated.

Academic Dishonesty, Plagiarism and Cheating:

The College of Education has a “zero tolerance” approach to plagiarism and other forms of academic dishonesty. (See Student Code of Conduct <http://doso.wayne.edu/assets/student-code-of-conduct-brochure.pdf>). Plagiarism includes copying material (any more than 5 consecutive words) from outside texts or presenting outside information as if it were your own by not crediting authors through citations. It can be deliberate or unintended. Specific examples of academic dishonesty, including what constitutes plagiarism, can be found in the University’s Undergraduate Bulletin (<http://bulletins.wayne.edu/ubk-output/index.html>) and Graduate Catalog (<http://www.bulletins.wayne.edu/gbk-output/index.html>) under the heading “Student Ethics.” These university policies are also included as a link on Blackboard within each course in which students are enrolled. It is every student’s responsibility to read these documents to be aware which actions are defined as plagiarism and academic dishonesty. Sanctions could include failure in the course involved, probation and expulsion, so students are advised to think carefully and thoroughly, ask for help from instructors if it is needed, and make smart decisions about their academic work.

Enrollment / Withdrawal Policy:

Students must add classes no later than the end of the first week of classes. This includes online classes. Students may continue to drop classes (with full tuition cancellation) through the first two weeks of the term.

Students who withdraw from a course after the end of the 4th week of class will receive a grade of WP, WF, or WN.

- WP will be awarded if the student is passing the course (based on work due to date) at the time the withdrawal is requested
- WF will be awarded if the student is failing the course (based on work due to date) at the time the withdrawal is requested
- WN will be awarded if no materials have been submitted, and so there is no basis for a grade

Students must submit their withdrawal request on-line through Pipeline /Academia. The faculty member must approve the withdrawal request before it becomes final, and students should continue to attend class until they receive notification via email that the withdrawal has been approved. The last day to withdraw from the course will be at the end of the 10th full week of classes (i.e., Sunday, November 13, 2016). Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at: http://reg.wayne.edu/Withdrawing_From_a_Course.php

Religious Observance Policy:

Because of the extraordinary variety of religious affiliations represented in the University student body and staff, the Wayne State University calendar makes no provision for religious holidays. It is University policy, however, to respect the faith and religious obligations of the individual. Students who find that their classes or examinations involve conflicts with their religious observances are expected to notify their instructors well in advance so that alternative arrangements as suitable as possible may be worked out.

Attention Students with Disabilities:

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The SDS office is located at 1600 Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-202-4216 (video phone). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at WSU. Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

“Undergraduate” Compared to “Graduate” Credit:

Wayne State University policy requires that a distinction in course expectations is made between graduate and undergraduate students who are enrolled in the same course. Thus, in the event that any undergraduate level students will be enrolled in this course this semester (which currently is not the case), graduate level students who are given graduate credit for the course will be required to satisfactorily complete an additional instructor-approved assignment. See Dr. Engels regarding the specific assignment details.

EVALUATION/
GRADING:

FINAL COURSE GRADES are determined based on a student's demonstrated performance in the following grading areas:

Grading Area	Possible Points	Percent of Total Grade
A. Written Tests:		
Written Exam I	60	20%
Written Exam II	60	20%
Written Exam III	60	20%
B. Successful completion of a total of three research assignments that are designed to provide contemporary answers to specific research questions related to: Exercise Bioenergetics, Respiratory Physiology, Cardiovascular Physiology, Neuromuscular Physiology, Body Composition/Weight Control, Nutritional Considerations, and/or Environmental Aspects of Exercise.		
Research Assignment I	30	10%
Research Assignment II	30	10%
Research Assignment III	30	10%
Attendance and in-class participation (i.e., level of engagement and contributions to discussions, etc.)	30	10%
Total	300	100%

Grades will be determined according to the following standard point system:

<u>Undergraduate Level</u>	<u>Graduate Level</u>
283 - 300 points = A	283 - 300 points = A
270 - 282 points = A-	270 - 282 points = A-
261 - 269 points = B+	261 - 269 points = B+
249 - 260 points = B	249 - 260 points = B
240 - 248 points = B-	240 - 248 points = B-
231 - 239 points = C+	231 - 239 points = C+
219 - 230 points = C	219 - 230 points = C
210 - 218 points = C-	Less than 219 points = F
201 - 209 points = D+	
189 - 200 points = D	
180 - 188 points = D-	
Less than 180 points = F	

CLASS SCHEDULE

DATES	TOPIC
9/02/16	Course Overview; Framework for Research in Exercise Physiology
9/09/16	Exercise Bioenergetics
9/16/16	Exercise Bioenergetics
9/23/16	Exercise Bioenergetics
9/30/16	Written Exam I
10/7/16	Respiratory Aspects of Exercise
10/14/16	Cardiovascular Aspects of Exercise
10/21/16	Neuromuscular Aspects of Exercise
10/28/16	Written Exam II
11/4/16	Body Composition/Weight Control
11/11/16	Nutritional Considerations
11/18/16	Environments Aspects of Exercise
11/25/16	Thanksgiving Holiday (no class)
12/2/16	Environments Aspects of Exercise
12/9/16	Written Exam III