



Course Syllabus: Research & Design
EXPH 5003-180
Fall 2020, W 6-8:50 pm, CO223
Department of Athletic Training & Exercise Physiology

Contact Information

Instructor: Soon-Mi Choi, Ph.D.

Office: Ligon Hall Room 208

Office phone: (940) 397-4956

E-mail: soonmi.choi@msutexas.edu

Office hours: By appointment only. Please e-mail or call me to arrange a meeting regarding a question or concern.

Course Description

This course has been planned as a hybrid course for Fall 2020. Hybrid courses will use both face to face and online instruction through D2L. Students can attend virtually or in person, with technology tools expanding attendance options while allowing students to engage in the class in real-time. The class will meet in its regularly scheduled room but will utilize social distancing and an assigned seating chart. When the university transitions to fully online after Thanksgiving we will review during the last week of class and hold our finals virtually. I will use D2L for posting syllabi, course communication, course schedule, attendance, and gradebook. There will be some online office hours announced through D2L. You should regularly check D2L and the email hosted via D2L for important course information. In the event of increased incidence and risk of COVID-19 that results in the university moving back to a shelter-in-place mode, the course instruction will transition to fully online. More instructions will be given at that time.

An introduction to the basic principles of research methods in Exercise Physiology. A study of research designs, measurement theory, data collection methods, and scientific writing principles specific to health and human performance. This course focuses on the basic concepts of research in exercise science, examining the vocabulary of clinical research as well as theory and ethics in research, principles of objective measurement, validity and reliability, experimental design and overview of statistical procedures as they relate to data analysis in current sports and medical theory. Writing research proposals as well as reporting results, and identifying strengths and weaknesses of specific research reports will be also addressed. This course is intended to prepare students to complete a proposal of Master's thesis, or other actual research project.

Textbook & Instructional Materials

1. Armstrong L. E. and Kraemer W. J. ACSM's Research Methods, 1st edition, Wolters Kluwer

Course Objectives

Upon successful completion of this course, students will be able to:

1. Explain the importance of research as a means to solve problems in Exercise Physiology.
2. Explain the application of different research approaches in Exercise Physiology to solve problems in its professional field.
3. Identify threats to validity and reliability of a study and be able to design Exercise Physiology studies to minimize such threats.
4. Explain various aspects of research designs.
5. Develop research practitioners that critically utilize the scientific literature in Exercise Physiology.
6. Conduct a systematic analysis of the literature using hand and computer search techniques.
7. Write a research proposal in accordance with standards in Exercise Physiology.
8. Design an experiment in accordance with the appropriate research methodology.
9. Appreciate and understand ethical issues associated with research in Exercise Physiology.

Attendance

1. Attendance at class is compulsory not optional. Any student whose absence was caused by (1) personal illness (must bring a receipt or note from a doctor), (2) death in the immediate family, or (3) authorized participation in official school functions will be given an opportunity to rectify in a manner acceptable to the professor, any deficiencies which may have resulted from such absence. The professor has the prerogative of determining whether or not a student may rectify deficiencies occasioned by absences for other reasons.
2. **Only one absence will be permitted without penalty.** Each additional absence will lead to a 5 point deduction of your attendance points (100 pts). More than 4 absences will result in your dismissal from the class with a failing grade.
3. Arrive on time (grace period 3 min). We will start promptly. 2 times late = 1 absence.

Course Policies

1. Class preparation
Students are expected to Read assigned chapters prior to class.
Failure to do so will likely result in unsatisfactory performance
2. Use of electronic devices
 - a. Turn off your cell phones. If you are unable to for legitimate reasons, set them on vibration mode before the class starts. Failure to do so

the first time will lead to dismissal from the class and an absence as well as 1% point will be deducted. Each additional offense will lead to the loss of 3% points from the student's semester overall total grades.

- b. You may bring your tablet PC or laptop to have your classroom materials without internet access. Failure to do so the first time will lead to dismissal from the class and an absence as well as 1% point will be deducted. Each additional offense will lead to the loss of 3% points from the student's semester overall total grades.

3. Respect for instructor and classmates

- a. If you are talking when class starts and do not stop, instructor will ask you to leave.
- b. There is no savory smell food allowed in the classroom (in-person class only).

Assignments

1) Critical Analysis (5%): **due on Friday, 10/2 by 6 pm**

You will analyze given original scientific articles with critical views using by template form on D2L. There will be further information during the class at week 4.

2) Literature Review (10%): **due on Friday, 10/23 by 6 pm**

Literature review (Minimum of 20) will be Times New Roman, 12 fonts, double spaced, typed pages in length including references. **See the appendix for a format guide.**

3) Research Proposal (15%): **due on Friday, 11/13 by 6 pm**

The research proposal will be written into a formal proposal for his/her project. The proposal will be Times New Roman, 12 fonts, double spaced, typed pages in length including references and any appendices, and will outline the intended research questions, hypothesis (es), a thorough literature review, experimental design, procedures, and the means of analysis including statistical methods to be used. **See the appendix for a format guide.**

4) Proposal Presentation (15%): Peer-review

You will present an abbreviated version of your research proposal to the entire class using power point slides. A synopsis of the literature review will be included. The focus of your presentation will be your research hypothesis, your theoretical construct and the design of your experiment with description of your intended research protocol, and data analysis method. **You will only have 15 minutes (10 min presentation and 5 min Q&A)** to communicate this to your peers, so organization of your presentation is imperative. All presenters will get a question from each audience and must answer the question. **See the appendix for a presentation rubric.**

*****All in-course assignments must be submitted in an ELECTRONIC FORMAT ONLY through D2L (Assessments-> Assignments-> DropBox).**

***All written work is expected to be written at a graduate level and will be evaluated for both form and substance. All written and oral work will be evaluated with equally weighted attention to the extent to which the work is:

- Clear (how self-guiding, transparent, etc.)
- Comprehensive (how complete, thorough, etc.)
- Correct (how accurate and not misleading, etc.)
- Current (how up-to-date and modifiable, etc.)
- Contextual (how well it is placed theoretically, historically, culturally, socially, etc.)

Late Work

Late assignments will not be accepted.

Plagiarism: MSU Thesis Guidelines

Plagiarism carries stiff academic penalties. Students must carefully reference material gleaned from references, as this is the best defense against any possibility of plagiarism.

Exams

Take all two exams at the scheduled times and dates. No make-up exams will be given, except under medical/ family emergencies/ authorized participation in official school functions.

****Any form or sign of academic dishonesty during an exam will result in a zero for the exam grade.**

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

Grading

Course Grade - Grades will be based on your performance in the following areas:
Table 1: Percentages allocated to each assignment.

Assignments	%
Exam 1	20
Exam 2	30
Critical Analysis	5
Literature Review	10
Research Proposal	15
Proposal Presentation	15
Attendance	5
Total	100

Table 2: Total percentages for final grade.

Grade	%
A	90-100
B	80-89
C	70-79
D	60-69
F	< 60

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to <http://www.mwsu.edu/student-life/disability>.

College Policies

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Tentative Course Schedule:

This may very well change.

****Exam dates will be determined by class progress at least one week prior to giving the exam.*

Table 3: Course Schedule

Week	Date	Lecture topic	Reading
1	8/26	Lecture introduction & overview	
2	9/2	Introduction to Research Methods : What is a Research?	Ch1
3	9/9	The Importance of Research for Evidence-Based Practice : Writing a Research Manuscript/Thesis	Ch2/20
4	9/16	Choosing Your Research Project How to Get an Idea for Research Topic? Searching the Literature (Laptop) * Use of advanced databases Searching for the Scientific Literatures Literature Review -Critical analysis Literature Review -Clinical review sample/practice	Ch3 Ch4
5	9/23	Searching for the Scientific Literatures	Ch4
6	9/30	Methods: Study Design	Ch5
7	10/7	EXAM 1: Ch1-5, 20	In-person
8	10/14	<i>EXAM Review</i> Experimental Design	Ch7, 8 In-person
	10/15-16	The 1st IOHSC International Annual Conference (virtual meeting): https://www.iohsk.org/2020-conference	
9	10/21	Experimental Design	Ch7, 8
10	10/28	Validity/Reliability/Calibration	CH10, 15
11	11/4	Conducting a Study	Ch14
12	11/11	Ethical Issues in Research-IRB application (practice)	Ch12
13	11/18	EXAM 2: EXAM1 + Ch7-8, 10, 12, 14-15	In-person
14	11/25	Thanksgiving Holidays-No Class	
15	12/2	Research Proposal/Presentation part 1	Fully online
16	12/9	Research Proposal/Presentation part 2	Fully online

Appendix: Format Guide

1. Literature Review:

Article reference: Author Last Name, First Initial (year published). Title of the article. Journal of Publication, Vol. # (issue #): pages.

Summary: MUST include p value in the result

** 1-2 pages for each article*

2. Research Proposal:

The aforementioned experience will culminate in a paper written in thesis format and submitted with the following for evaluation:

- *Title Page (1 page): Title and your name*
- *Table of Contents (1 page): Each subtitle (Introduction, Literature Review, Methods, and References) with page number*
- *Introduction with purpose statement and hypothesis (2-3 pages)*
- *Literature review (5-7 pages)*
- *Detailed methodology with statistical analysis (2-3 pages):
Participants, Study design, Measurements/Analysis, Statistical analysis*
- *References (minimum of 20) (2-3 pages)*

3. Scoring Rubric for Oral Presentations: See Table 4

* The peer-review evaluation from classmates will be applied to overall grade in Oral presentation (30%).

Table 4: Scoring Rubric

Category	Scoring Criteria	Total Points	Score
Organization (20 points)	Information is presented in a logical sequence.	20	
Content (20 points)	Material included is relevant to the overall message/purpose.	10	
	Appropriate amount of material is prepared, and points made reflect well their relative importance.	10	
Presentation (60 points)	Speaker maintains good eye contact with the audience and is appropriately animated (e.g., gestures, moving around, etc.).	10	
	Speaker uses a clear, audible voice.	10	

	Delivery is poised, controlled, and smooth.	10	
	Visual aids are well prepared, informative, effective, and not distracting.	10	
	Length of presentation is within the assigned time limits.	10	
	Information is well communicated.	10	
Overall		100	