

Spring 2021

Honors Seminar in Exercise Science: Research Methods

School of Arts and Sciences, Department of Kinesiology and Health

Undergraduate Course # 01:377:480; 3 credits

Course information

Pre-requisites: Acceptance into the Department Honors in Research Program

Online learning site: Canvas <https://canvas.rutgers.edu/>

Online format: SYNCHRONOUS

T & F 10:55am – 12:15am

Class lectures will be provided LIVE via Zoom

Technology requirements for this course:

- Computer capable of watching videos, reading PDFs and documents, and completing exams.
- Device capable of recording a video to share with the class.

Instructor information

Instructor: Jennifer Buckman, PhD

jbuckman@rutgers.edu

Virtual Office Hours: TUESDAYS 9:30-10:30 and THURSDAYS 1:30-2:30pm

Virtual Office Hours Format: Phone or Zoom

Canvas email will be used for all information/communication related to this course.

Required Course Materials

No textbook required. All readings will be available within Canvas under the Files module.

Course Description

Not all research is created equally, and no research is perfect. Understanding how to critically evaluate the strengths and weaknesses of existing research is essential in today's culture that inundates us with science headlines. This course focuses on research methods, or the tools and strategies employed by scientists to ask and answer specific questions. Even for individuals not seeking a research career, it is useful to walk through the steps of how to ask questions, select methods that are most likely to answer these questions, and tell an honest story from the findings. The course will blend lectures, activities, and class projects to understand how to critically evaluate and rigorously design research. Specific attention is paid to the necessity for precision in scientific writing and speaking.

Course Objectives

Upon completing this course, each student will be able to:

1. Critique scientific research based on its introduction, study design, quantitative strategies, results, and discussion
2. Perform and organize a literature review
3. Design a research study with a testable research question and hypothesis
4. Summarize research in writing and through oral presentation

Grading Policy

This class uses a points-based system to calculate grades. The total numbers points for this class are 300.

- Points per assignment is described below.
- Assignment due dates and times are listed on the Schedule at the end of this syllabus.
- Assignments turned in late will receive 0 points unless the student communicates with the instructor BEFORE the due date and receives written approval of an extension. **I will NOT make exceptions. Do not ask.**
- Concerns about a graded assignment must be brought to the instructor within seven days of receiving the grade. Assignment grades are finalized after this seven day period.
- Grades on Canvas will be updated regularly; if you notice any discrepancies or have questions, please do not wait until the end of the semester – let your instructor know right away.

Letter Grade	Percent	Points Needed
4.0 (A)	90% or greater	90-100
3.5 (B+)	85 - 89.9%	85-89
3.0 (B)	80 - 84.9%	80-84
2.5 (C+)	75 - 79.9%	75-79
2.0 (C)	70 - 74.9%	70-74
1.0 (D)	60 - 69.9%	60-69
0.0 (F)	0 - 59.9%	0-59

Assignments and points

Readings, Podcasts, & Videos: Readings, podcasts, and videos will be assigned to provide foundational content for in-class lectures. Students are expected to come to the following class prepared to discuss all assigned materials.

Attendance at and participation in lectures (20% of the final grade): There is no assigned textbook for this class. This class is designed to be interactive and attendance is critical to achieving the course objectives. Attendance will be taken at each class and the instructor will grade each student's participation at the end of each lecture. GRADING RUBRIC: 0 points will be given for absences, 1 point will be given for limited/generic participation, 2 points will be given for thoughtful/focused participation. The top 20 participation scores will be counted towards the final grade.

Exam (30% of final grade): There will be a midterm exam that will be based on in-class discussions and homework assignments. The exam will be a **written paper**, no more than 2 pages (1" MARGIN, 12PT TIMES, DOUBLE SPACED). There will be six (6) specific prompts, each graded using GRADING RUBRIC: 5 points=Excellent; 4 points=Very good; 3 points= Average; 2 points=Below Average; 1 point=Poor. *Make-up exams* will only be offered in the event of an *authorized* university absence and for individuals who speak with me >24h prior to the scheduled exam. There will be no exceptions.

Homework(50% of final grade): Students must submit 5 progress reports on their individual research project. Specific information and due dates are detailed in Course Calendar Outline. Each progress report is worth 10 points: GRADING RUBRIC: 5 points=Excellent; 4 points=Very good; 3 points= Average; 2 points=Below Average; 1 point=Poor for (a) content and (b) writing. 0 points will be given for late or missing assignments. **NO LATE PROGRESS REPORTS WILL BE ACCEPTED.**

Extra Credit: There are NO opportunities for extra credit.

The Department of Kinesiology and Health supports an inclusive learning environment wherein diversity and authenticity are valued. We are committed to creating a culture of equality that respects the diverse voices of our students, faculty and staff. We will continuously strive to create a curriculum and academic environment to reflect the community we serve, and drive innovation, social responsibility and excellence. Our diversity in thought, skill, and academic discipline is a resource and strength, which stands to benefit the whole and positively contribute to University and global reach.

Policies and Procedures

General Expectations:

- Access all online class material. Complete all assigned assignments on time. Follow the honor code. Most of your life, people will not take the time to teach you things. Learn while you can.
- Ask questions. Email me. Use my office hours. I want you to understand what I am teaching.
- **Check your email and Canvas announcements regularly.** I guarantee there will be updates. There are always glitches, missing items, confusing instruction sentences. Try as I might, I am not perfect.

Email Etiquette: When emailing, please use your Rutgers e-mail address or email directly through the Canvas site. Students are expected to use appropriate email etiquette. Please make your emails brief and to the point. Maintain reasonable expectations for responses. I will respond to emails within 1-2 business days.

Academic Integrity: As an academic community dedicated to the creation, dissemination, and application of knowledge, Rutgers University is committed to fostering an intellectual and ethical environment based on the principles of academic integrity. Academic integrity is essential to the success of the University's educational and research missions, and violations of academic integrity constitute serious offenses against the entire academic community. Students are responsible for becoming familiar with the definitions, procedures and sanctions outlined in Rutgers University Academic Integrity Policy before submitting any assignment or exam. The policy can be found at: <http://academicintegrity.rutgers.edu/academic-integrity-policy/>.

All students should conduct themselves with the highest standards of academic honesty. Examples of academic dishonesty include: copying others' written work, not citing sources, and submitting the same assignments/papers multiple times in different courses. All incidences of questionable academic integrity are a serious matter and may result in a no grade (0.0) for the assignment or course. Academic dishonesty will not be tolerated and will be treated in accordance with Rutgers University Academic Integrity Policy.

Cheating and Plagiarism: Cheating on tests or plagiarizing materials in your papers deprives you of the educational benefits of college. It is dishonest and unfair. I take cheating very seriously. By enrolling in this course, you are indicating implicitly that you have read, understood, and accepted Rutgers University's policies and procedures regarding academic integrity and dishonesty. Plagiarism and cheating will not be tolerated and all University policies apply. Specifically, if plagiarism or cheating is suspected, the student(s) will be asked to meet with the instructor. If the instructor concludes that an instance of plagiarism or cheating has occurred, the student(s) will be subject to an appropriate sanction or penalty outlined in Rutgers University Academic Integrity Policy.

Please note that plagiarism is using the ideas or writings of another as one's own. It varies in degree and severity. The most severe is the use of another's entire paper word-for-word. Less severe is the use of another's sentence, paragraph, or ideas without giving credit to that individual (i.e., without providing a reference). Students often assume that because information is available on the Web it is public information, does not need to be formally referenced, and can be used without attribution. This is a mistake. All information and ideas that you derive from other sources, whether written, spoken, or electronic, must be attributed to their original source.

Make-up Policy

No make-ups or extensions will be offered for missed assignments except in one of the following situations, provided that the instructor is notified in advance:

- Athletic or other Rutgers sponsored trips: Travel dates and times accompanied by a signed memo from the group's advisor/coach must be presented to the instructor prior to travel dates.
- Religious observances.
- Extenuating circumstances: This includes (but is not limited to) family emergencies, severe illnesses, accidents, etc. It will be up to the prerogative of the instructor whether or not the student will be allowed to take the make-up or receive an extension.

University Services

Although many of these offices remain closed to in-person visits, all remain accessible virtually. We encourage students to continue to use these resources during this semester of remote learning.

Service	Description	Contact Information
Student Accommodations	If you are a student in need of accommodations, please register with the Office of Disability Services in order to initiate the accommodations process. Please present your letter of accommodation to your instructor during the first week of the semester. Please note that accommodations are not retroactive.	(848) 445-6800 Lucy Stone Hall, Suite A 145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 https://ods.rutgers.edu/
Just In Case Web App	Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.	http://codu.co/cee05e

Counseling, ADAP & Psychiatric Services (CAPS)	CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.	(848) 932-7884 17 Senior Street, New Brunswick, NJ 08901 www.rhscaps.rutgers.edu/ Medical Services: http://health.rutgers.edu/medical-counseling-services/medical/ Counseling Services: http://health.rutgers.edu/medical-counseling-services/counseling/
Violence Prevention & Victim Assistance (VPVA)	The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.	(848) 932-1181 3 Bartlett Street New Brunswick, NJ 08901 www.vpva.rutgers.edu/
Scarlet Listeners	Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.	(732) 247-5555 https://rutgers.campuslabs.com/engage/organization/scarletlisteners
Academic Support	School of Arts and Sciences Academic Advising for personal, career, and educational goals. Department of Kinesiology & Health Academic Advising for questions about Exercise Science or Sport Management major/minor requirements.	SAS: https://sasundergrad.rutgers.edu/ Dept. of Kinesiology & Health: Daria Gonzalez Loree Gym, Room 110 Email: Daria.Gonzalez@rutgers.edu https://kines.rutgers.edu/academics/academic-advising

COURSE CALENDAR OUTLINE (*dates are tentative*)

#	Date	Topic(s)		
1	1/19	Welcome <ul style="list-style-type: none"> • Introduction & syllabus review • Expectations and goals 		
2	1/22	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> What is research? <ul style="list-style-type: none"> • Science in every day • Science vs. what we call "research" </td> <td style="width: 50%;"> Introduction to my laboratory (as an example) <ul style="list-style-type: none"> • Lab concepts and interests • Specific projects & trainee roles </td> </tr> </table>	What is research? <ul style="list-style-type: none"> • Science in every day • Science vs. what we call "research" 	Introduction to my laboratory (as an example) <ul style="list-style-type: none"> • Lab concepts and interests • Specific projects & trainee roles
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3	1/26	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Levels of evidence <ul style="list-style-type: none"> • Fact vs opinion • What is good research? </td> <td style="width: 50%;"> Logic vs science <ul style="list-style-type: none"> • Brainstorming • Organizing and building a story </td> </tr> </table>	Levels of evidence <ul style="list-style-type: none"> • Fact vs opinion • What is good research? 	Logic vs science <ul style="list-style-type: none"> • Brainstorming • Organizing and building a story
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4	1/29	ROUND-TABLE DISCUSSION WITH CURRENT HONORS STUDENTS – working in lab, learning experiences		
HOMEWORK Listen to Hidden Brain podcast (NPR) – When facts aren't enough				
5	2/2	Discussion: Podcast - When facts aren't enough <ul style="list-style-type: none"> • Where do opinions hide in facts? • Concussion reporting 		

HOMEWORK Elevator speech		
6	2/5	Introduction to students' honorsplans <ul style="list-style-type: none"> Labs, Project Ideas& Mentors Career Goals
HOMEWORK Read Pontzer, 2017		
7	2/9	Discussion: Pontzer article <ul style="list-style-type: none"> Fact or opinion? New marketing messages?
8	2/12	INTRODUCTION TO RESEARCH THINKING: <i>Do antidepressants work? (Pre-quiz)</i>
HOMEWORK Defining Depression Assignment		
9	2/16	Discussion: What is depression?
HOMEWORK Read Cipriani et al., 2018		
10	2/19	Discussion: Cipriani meta-analysis of antidepressant effectiveness
HOMEWORK Read Munkholm et al., 2018		
11	2/23	Discussion: Munkholm meta-analysis of antidepressant effectiveness
HOMEWORK Read https://www.scientificamerican.com/article/really-an-epidemic-of-depression		
12	2/26	Discussion: What is the point of labeling and medicalizing depression?
HOMEWORK Big Pharma reconnaissance		
13	3/2	Discussion: How the money, power, and influence of Big Pharma affect treatment
HOMEWORK Google search: Evidence for non-drug treatments		
14	3/5	Discussion: Alternatives to pharmaceuticals – for whom, when, why?
HOMEWORK Listen to Hidden Brain podcast (NPR) – A dramatic cure		
15	3/9	Discussion: What is a placebo?
16	3/12	MIDTERM

SPRING BREAK			
17	3/23	Deconstructing a research project <ul style="list-style-type: none"> The concept The data 	Planning a research project <ul style="list-style-type: none"> Quantified and testable Gap, Premise and significance
18	3/26	WRITING TUTORIAL – sentence and paragraph structure, the <i>art</i> of science writing.	
HOMEWORK PROGRESS REPORT #1: Initial project topic outline			
19	3/30	Performing a literature search <ul style="list-style-type: none"> Search, sort, select, refine Just because it is interesting ... 	Creating a literature review spreadsheet <ul style="list-style-type: none"> Comparison elements Constructing an argument (SWOT)
20	4/2	Questions vs. constructs <ul style="list-style-type: none"> Minutia vs Storyline Questions vs constructs 	WRITER'S WORKSHOP
HOMEWORK PROGRESS REPORT #2: Literature review spreadsheet			
21	4/6	Ethics in research <ul style="list-style-type: none"> Preparing an ethical study Reporting ethically 	WRITER'S WORKSHOP
22	4/9	Introduction to the IRB <ul style="list-style-type: none"> Who are they What do they do 	WRITER'S WORKSHOP
HOMEWORK PROGRESS REPORT #3: First draft of introduction/background			
23	4/13	ROUND TABLE DISCUSSION WITH GRAD STUDENTS (research, clinical, SM) – what is grad school really like	
24	4/16	Professionalism <ul style="list-style-type: none"> in words (written/verbal), in tone, in person Confidence vs cockiness 	WRITER'S WORKSHOP
HOMEWORK Due 3/30 - PROGRESS REPORT #4: First draft of Method			
25	4/20	Introduction to Excel <ul style="list-style-type: none"> Graphs Tables 	WRITER'S WORKSHOP
26	4/23	Playing with PowerPoint <ul style="list-style-type: none"> Slide presentation Poster presentation 	What if nothing works?
HOMEWORK Due 4/6 - PROGRESS REPORT #5: First draft of Expected outcomes & timeline			
27	4/27	Discussion: "Big Picture": Pros & cons of science popularity	
28	4/30	Discussion: "Big Picture": Ethics, Politics, & Drama	

Final drafts of the Project Proposal, approved by your individual mentors, are due to the Honors Program Committee by May 31st.