

Spring 2022

Honors Seminar in Health Science: Research Principles and Methods

School of Arts and Sciences, Department of Kinesiology and Health

Undergraduate Course # 01:377:480; 3 credits

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.

Course information

Pre-requisites: Acceptance into a Rutgers Honors Program

Instructor information

Instructor: Jennifer Buckman, PhD

Required Course Materials

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

Course Description

Understanding how to critically evaluate the strengths and weaknesses of research is essential in today's culture that inundates us with science headlines. We know when shouldn't believe everything we read, and yet, as science has become pop culture, we have begun to spread single scientific observations as truth. This seminar will consider why good science and good "PR" are not the same things. It will ask: what is good research, and when is the evidence strong enough to warrant a news story? The course will be highly interactive, blending short lectures with long discussions, in an effort to create more "educated consumers" of science.

Course Objectives

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

1. Understand the principles of research quality
2. Critique research based on its concepts and completeness as well its design and the conclusions it draws
3. Identify and organize research materials
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 100.

- 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.
- 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: There is no assigned textbook for this class. Readings, podcasts, and videos are assigned for subsequent in-class discussions. Students are expected to come to the following class prepared to discuss all assigned materials. While watching/listening/reading assignments, take detailed notes (I will provide prompts to guide note taking). These assignments are the foundation of the midterm exam.

Participation (20% of the final grade): This class is designed to be interactive and attendance is critical to achieving the course objectives. The instructor will grade each student's participation at the end of each lecture. GRADING RUBRIC: 0 points will be given for absences, 0.5 point will be given for limited/generic participation, 1 point 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 the following rubric.

5 points	4 points	3 points	2 points	1 point
Excellent. Substantial detail and well-written. The answer is explained, contextualized, and well-described; is thoughtfully written and concise.	Above Average. Some details and well-written. The answer lacks originality and depth. A few writing errors.	Average. Few details but acceptably written. The answer is underdeveloped. More than a few writing errors.	Below Average. Lack of details OR poorly written. The answer is not elaborated and explained or an "average" answer that is hard to understand.	Poor. Lack of details AND poorly written. The answer is not developed and is hard to read.

Final project (50% of final grade): In the first half of the course, we will learn how to think broadly and deeply about a single topic; to go beyond the first link on Google or what a TikTok-length video will tell you. We will explore how to shape a question, research and develop a multidimensional answer, and build a comprehensive *and interesting* story. In the second half of the course, you will do the same using a topic of your choosing. You will identify a question and explore the question using 5 distinct perspectives/angles/research avenues. The project involves performing in-depth research, storyline development, and the creation of a 10-minute video pre-recorded presentation (Video, Powerpoint, YouTube, etc) that will be shared and discussed in class. **We will discuss this in class throughout the first half of the course and I will show you examples of "A" work.**

GRADING RUBRIC	5 points	4 points	3 points	2 points	1 point
TOPIC OVERVIEW	Ideas behind project are very well described and generate interest.	Ideas behind project are well described and generate interest.	Ideas behind project are described but do not generate interest.	Ideas behind project are poorly described .	Ideas behind project are not described .
THOROUGHNESS OF EACH PERSPECTIVE (X5)	The perspective is clearly defined and explained. The information is highly detailed .	The perspective is clearly defined and explained. The information is sufficiently detailed .	The perspective is somewhat defined and explained. The information is modestly detailed .	The perspective is poorly defined and explained. The information is superficial .	The perspective is not defined or explained.
COMPLETENESS OF THE PERSPECTIVES	5 perspectives are clearly defined AND create a sense of completeness .	5 perspectives are clearly defined BUT the story feels incomplete .	5 perspectives are present but not clearly defined .	Only 3-4 perspectives can be identified.	Only 1-2 perspectives can be identified.
CONCLUSION	All information is summarized AND the conclusion adds more to the story.	All information is summarized BUT the conclusion does not add more to the story.	Most information is summarized but the conclusion does not add much to the story.	Some information is summarized but the conclusion does not add much to the story.	The information is not summarized nor does the conclusion add to the story.
ORGANIZATION	The logical flow is excellent and the transition between components is seamless.	The logical flow is very good , but transitions are not uniformly straightforward.	The logical flow is acceptable , but transitions are awkward.	The logical flow is poor but some transitions between components work.	The logical flow is poor and the presentation feels disorganized .
VIDEO & PRESENTATION QUALITY	The images & audio are interesting, clear and both hold the audience's attention .	The images & audio are interesting, clear, and mostly hold the audience's attention .	The images & audio are acceptable but one doesn't hold the audience's attention .	The images & audio are acceptable but neither hold the audience's attention .	The images and/or audio are not acceptable .

Extra Credit: There are NO opportunities for extra credit.

Policies and Procedures

General Expectations:

- Access all online class material. Complete all assigned assignments on time. Follow the honor code.
- For 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 me directly at jbuckman@rutgers.edu, **NOT 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/
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

#	Date	Topic(s)		
1	1/20	Welcome <ul style="list-style-type: none"> • Introduction & syllabus review • Expectations and goals 		
2	1/24	<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%;"> How logic plays a role in: <ul style="list-style-type: none"> • Brainstorming • Organizing and building a story </td> </tr> </table>	What is research? <ul style="list-style-type: none"> • Science in every day • Science vs. what we call “research” 	How logic plays a role in: <ul style="list-style-type: none"> • Brainstorming • Organizing and building a story
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3	1/27	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Fact vs opinion <ul style="list-style-type: none"> • How do facts become a story? • Where do opinions hide? </td> <td style="width: 50%;"> Gist vs “the fine print” <ul style="list-style-type: none"> • Reading in detail • Noticing what missing </td> </tr> </table>	Fact vs opinion <ul style="list-style-type: none"> • How do facts become a story? • Where do opinions hide? 	Gist vs “the fine print” <ul style="list-style-type: none"> • Reading in detail • Noticing what missing
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HOMEWORK Read NY Times (2021) – The US is getting a crash course in scientific uncertainty				
4	1/31	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Rules vs exceptions <ul style="list-style-type: none"> • Piecemeal strategies & cherry-picking • When the pieces don't fit </td> <td style="width: 50%;"> What is good research? <ul style="list-style-type: none"> • Levels of evidence • Quantity vs quality </td> </tr> </table>	Rules vs exceptions <ul style="list-style-type: none"> • Piecemeal strategies & cherry-picking • When the pieces don't fit 	What is good research? <ul style="list-style-type: none"> • Levels of evidence • Quantity vs quality
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HOMEWORK Listen to Hidden Brain podcast (NPR) – When facts aren't enough				
5	2/3	Discussion: Podcast - When facts aren't enough <ul style="list-style-type: none"> • Using facts out of context • Selection bias of facts 		
HOMEWORK <i>Defining Depression</i> Assignment				
6	2/7	Discussion: What is depression versus grief, sadness, misery, unhappiness, hopelessness? <ul style="list-style-type: none"> • Deconstructing complex ideas • Logic gaps, missing facts, and misguided confidence 		
HOMEWORK Read: https://medium.com/swlh/depression-culture-behind-the-memes-34d36cdf7d55 Read: https://pubmed.ncbi.nlm.nih.gov/18453728/ [just the abstract] Read: Lehrer, Horwitz, & Wakefield, 2008: Is there really an epidemic of depression? Read: Bloomberg Opinion: An epidemic of depression and anxiety among young adults				
7	2/10	Discussion: What is the point of labeling and medicalizing depression? <ul style="list-style-type: none"> • What good has come of changing the 'frame' of mental health issues? • What unintended consequences have resulted? 		
HOMEWORK Listen to Hidden Brain podcast (NPR) – A dramatic cure				
8	2/14	Discussion: What is a placebo? (<i>Spoiler Alert: a lot more than you think!</i>)		
HOMEWORK Read Cipriani et al., 2018				
9	2/17	Discussion: Cipriani meta-analysis of antidepressant effectiveness		
HOMEWORK Read Munkholm et al., 2018				
10	2/21	Discussion: Munkholm meta-analysis of antidepressant effectiveness		

HOMEWORK Internet reconnaissance: Big Pharma		
11	2/24	Discussion: How the money, power, and influence of Big Pharma affect depression treatment
HOMEWORK Read The Atlantic (2020) – Reiki can't possibly work. So why does it?		
12	2/28	Discussion: Alternatives to pharmaceuticals – for whom, when, why?
13	3/3	MIDTERM
14	3/7	INTERIOR DESIGN: The inner workings of a research project
15	3/10	SPARKING JOY: Organizing research with outlines, hypotheses, plans of attack
SPRING BREAK		
16	3/21	FROM CONTEMPLATION TO ACTION: Deconstructing complex ideas into digestible tidbits
HOMEWORK Identifying a project topic & your 5 angles		
17	3/24	RESEARCHING, THE VERB: Search, sort, select, refine vs. Just because it is interesting ...
18	3/28	DETECTIVE WORK: Where (Who) is your information coming from? Biases and hidden agendas
HOMEWORK First level of research draft		
19	3/31	THE REPORTER IN YOU: Tricks to better writing
20	4/4	A PICTURE = 1000 WORDS? Graphing, and other bells and whistles
HOMEWORK Full project plan draft		
21	4/7	FROM ACTION TO COMTEMPLATION: Reconstructing tidbits into a complex idea, aka The art “big thinking”
22	4/11	THE LAW OF UNINTENDED CONSEQUENCES: Ethics, issues, and roadblocks (& intro to the IRB)
HOMEWORK Video plan draft		

23	4/14	PROVE IT: Quantify & test; groups vs. the individual
24	4/18	ROUND TABLE DISCUSSION OF YEAR OF RESEARCH with mentors
25	4/21	FINAL PRESENTATIONS
26	4/25	FINAL PRESENTATIONS
27	4/28	FINAL PRESENTATIONS
28	5/2	CLOSING ARGUMENTS: (a) Pros & cons of science popularity, (b) Ethics, Politics, & Drama, & (c) Stopping the flow of bad information