STS 205: Intro to Research Methods - Honors Monday/Wednesday 10:00-11:20AM Honors College 210

Instructor: Emily Tancredi-Brice Agbenyega

Email: et279@njit.edu Office: Honors College 229 Office Hours: Tuesdays 1-3PM or by appointment Prerequisites: ENGL (HUM) 101 and 102 or equivalent.

Faculty Mentors:

<u>Shahriar Afkhami</u> (Mathematical Sciences) <u>Mike Ehrlich</u> (Finance) <u>Julia Hyland Bruno</u> (Cyberpsychology) <u>Mike Jaffe</u> (Biomedical Engineering) <u>Elisa Kallionemi</u> (Biomedical Engineering) <u>Philip Klobucar</u> (Communication and Media) <u>Jay Meegoda</u> (Civil and Environmental Engineering) <u>Burcak Ozludil</u> (Digital Humanities) <u>Erin Pellegrino</u> (Architecture and Design) <u>Petras Swissler</u> (Mechanical & Industrial Engineering) Emily Tancredi-Brice Agbenyega (ADHC)

Course Description:

This course is intended to give first- and second-year undergraduate honors students an understanding of what research is, what it is used for, how it is conducted, and how it is reported. It provides an overview of applying the scientific method to real-life research, including ethical concerns, qualitative and quantitative methods (and how and when they should be used), and how to critically evaluate published research findings. Students work with faculty mentors on research projects, while writing proposals for the support of future research.

Objectives:

By the end of this course students will be able to:

- Define science
- Identify a research problem
- Identify and mitigate ethical issues associated with a research project
- Conduct a thorough literature review and critique published research
- Develop research questions and hypotheses

- Determine which type of data (qualitative or quantitative) is most appropriate to answer the research questions

- Assess multiple formats for organizing, developing, and presenting research

- Develop a research network and understand how to communicate with faculty, graduate students, peers, etc. about research

Required Readings:

Excerpts from the following text:

- Dixon, Jeffrey, Singleton, Royce, and Straits, Bruce (2019). *The Process of Social Research*. New York: Oxford UP. **ISBN 9780190876654**
- Articles and/or book chapters assigned by faculty mentors
- Independent reading for research project

Course Requirements:

Research Project: 65%

- Faculty Mentor Reading Response 5%
- Literature Review Draft 5%
- Research sketch 5%
- Lab notebook 10%
- Peer Review 5%
- HIRF Poster and class presentation 20%
- Research Proposal 15%

Lab Practicum Faculty Mentor Evaluation: 15%

Course Participation / Attendance: 15%

CITI Responsible Conduct of Research course: 5%

Late Paper Submissions: Papers will lose one grade for every day late (A to A-, A- to B+). Papers will not be accepted more than 1 week late.

Paper Formatting: All papers should be typed, double-spaced, 12 pt standard font (Times, Helvetica, Arial, etc), 1" margins. For digital submission, only the following file types are accepted: pdf, doc, docx.

Grading Scale (for assignments only, course grades will not include: A+, A-, B-, C-, D+):

96-100	A+
93-95	Α
89-92	A-
86-88	B +
83-85	В
79-82	B-
76-78	C+
73-75	С
69-72	C-
66-68	D+
60-65	D
0-60	F

Academic Integrity:

Students are expected to follow the University Code on Academic Integrity. Plagiarism will not be tolerated. All cases of suspected plagiarism/cheating will be reported for investigation. For details, see: <u>http://www.njit.edu/academics/integrity.php</u>

Generative AI Use

Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities at the instructor's discretion. If and when students use AI in this course, the AI must be cited as is shown within the <u>NJIT Library AI citation page</u> for AI. If you have any questions or concerns about AI technology use in this class, please reach out to me prior to submitting any assignments.

Laptops and other technology rules:

Students may use laptops, tablets, cell phones, or other technology in this course for classrelated activities only. Using technology for other purposes during class interrupts the flow of discussion and distracts other students. Students are prohibited from using headphones. Please be present and prepared when you are in class.

Students with Disabilities or Special Needs:

Students who have disabilities or special needs should first contact NJIT's Student Disability Services to help procure accommodations in completing coursework. The center can be found at <u>http://www.njit.edu/counseling/services/disabilities.php</u>.

Land Acknowledgement

I acknowledge and honor that I am teaching on the ancestral homeland and territory of the Munsee Lenape peoples, communities, and nation and recognize the longstanding significance of this land for these nations past and present.

STS 205H: Introduction to Research Methods Fall 2024 Course Schedule

WK	DATE	TOPIC	READING	ASSIGNMENT	
	WEEKS 1-4: RESEARCH FOUNDATIONS				
1	*9/4	Introduction to research and class procedures		Create lab notebook	
2	*9/9	Research Questions and Qualitative Research	 Dixon, Singleton, and Straits, chapters 2 ("Science and Social Research") and 4 ("Research Designs") Bring any scientific article of your choice to class (paper or electronic copy) 		
	*9/11	Quantitative Research and Lit reviews	Dixon, Singleton, and Straits, chapter 5 ("Measurement")	Review the library's <u>Zotero</u> tutorial	
3	*9/16	 Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture 	Guest lecturer assigned readings	Reading Questions	
	*9/18	 Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture 	 Guest lecturer assigned readings Dixon, Singleton, and Straits, chapter 7 ("Experiments") 	Reading Questions	
	Research Sketch and 3-source lit review due 9/22 11:59PM				
4	*9/23	 Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture 	 Guest lecturer assigned readings Dixon, Singleton, and Straits, chapter 10 	Reading Questions	

		 Faculty Mentor Guest Lecture 	("Existing Data Analysis")	
	*9/25	 Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture Faculty Mentor Guest Lecture 	Guest lecturer assigned readings	Reading Questions
	<u>CITI</u> Course Completion Due 9/29 11:59PI			ue 9/29 11:59PM

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WEEKS 5-13: LAB PRACTICUM				
5	9/30	Lab Practicum		
	10/2	Lab Practicum		
		Faculty Mentor	Lab notebook: week 5 Article Reading Response due 1	log due 10/6 0/6 11:59PM
6	10/7	Lab Practicum		
	10/9	Lab Practicum		
	Lab notebook: week 6 log due 10/15			
7	10/14	Lab Practicum	Darrell Huff. <u>How to Lie with</u> <u>Statistics</u> . (New York: W.W. Norton & Co., 1954).	
	10/16	Lab Practicum		
	Lab notebook: week 7 log due 10/20			
8	*10/21	Research Proposal How-to's – Part 1 & Project check-ins	 <u>Sample Research Proposal 1</u> (with comments) "<u>Writing a Research</u> <u>Proposal.</u>" University of Southern California Libraries, Jun. 3, 2024. 	

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			• <u>"How To Prepare a Research Proposal."</u> Al-Riyami, <i>Oman Medical Journal</i> 2008 PMID: <u>22379539</u> .		
	*10/23	Research Proposal How- to's – Part 2 & Project check-ins			
		Revised Literature	Lab notebook: week 8 lo e Review & Proposal Intro due 10	og due 10/27 0/27 11:59PM	
9	10/28	Lab Practicum			
	10/30	Lab Practicum			
	Lab notebook: week 9 log due 11/3				
	*11/4	Peer Review – Rough Draft Workshop			
10	11/6	Lab Practicum		Proposal Draft Due 11/6 11:59PM	
	Lab notebook: week 10 log due 11/10				
11	*11/11	Research Ethics & Project Check- ins	 "Avoiding Plagiarism." Purdue Online Writing Lab Dixon, Singleton, and Straits, chapter 3 ("The Ethics and Politics of Research") 		
	11/13	Lab Practicum			
		-	Lab notebook: week 11	log due 11/17	
12	*11/18	Conference Poster			

		Workshop – Part 1		
	11/20	Lab Practicum		
			Lab notebook: week 12	log due 11/24
13	*11/25	Conference Poster Workshop – Part 2		
	11/27	No session – follows Friday schedule		
	Final Lab notebook: week 13 log due 12/1 Poster abstract due 12/1			log due 12/1 tract due 12/1

WEEKS 14-15: PROJECT PRESENTATIONS				
14	*12/2	Poster presentations – practice session Poster presentations at HIRF (Honors Interdisciplinary Research Forum)		Poster peer reviews
	*12/4			Poster (final) due
15	*12/9	In-class project showcase		
	*12/11	In-class project reflection celebration		
			Proposal (final) due Mon 12	/16 11:59pm

Helpful Links

• The NJIT Undergraduate Research and Innovation Program's website has information aimed at the undergraduate researcher. The research proposal assignment for this course will follow the formatting and content instructions for the NJIT Provost Summer Undergraduate Research and Innovation Program. Alternatively, with permission of the instructor, the proposal can follow the guidelines for the Undergraduate Research and Innovation Student Grant. http://centers.njit.edu/uri/programs/index.php

• To participate in research at NJIT, certain safety-related training courses offered by Environmental Health and Safety may be required. Students are encouraged to attend both the "Lab Safety Training" AND the "Biological Safety and BBP Training" at the beginning of the Spring 2020 semester. The course schedule can be found at the following link: http://www.njit.edu/environmentalsafety/training-0/

• NJIT offers the Collaborative Institutional Training Initiative (<u>CITI</u>) Program to provide online, interactive courses on topics related to research (administration, ethics, safety). The CITI course on the "Responsible Conduct of Research"

(https://about.citiprogram.org/en/series/responsible-conduct-of-research-rcr/) is required as a way of providing thorough training on research ethics.