

COLL C104, Fall 2020

Opinions, Beliefs, and Truth: The Challenges of Psychology and Neuroscience – Syllabus

CLASS TIME AND PLACE

[Lecture Section #35165](#)

Asynchronous Lectures MW through [Canvas](#)

Synchronous Discussion Sections on Friday:

Section #35166, 10:00am – 10:50am via Zoom

Section #35167 11:15am – 12:05pm via Zoom

INSTRUCTOR INFORMATION Instructor: Rick Hullinger Office: PY-A300B Online only this semester Office Hours via Zoom : Tuesday 11:00 AM – 1:00 PM Wednesday 12:00 PM – 2:00 PM Or by appointment Office Telephone: 812-856-6854 Email Address: rahullin@iu.edu	TA INFORMATION TA: Eleanor Schille-Hudson Office Hours via Zoom by Appointment Email Address: erbrower@iu.edu
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COURSE GOALS

This course will introduce students to key elements of scientific research: observation and experimentation. We will start with general discussions about what observations and experiments are, how they are used to test ideas, and how they vary across different scientific fields. We will examine some classic experiments in psychology and neuroscience to illustrate important aspects of observation and experimentation that are relevant in the experimental sciences today. By exploring techniques and methods, we will wrestle with ideas about what experiments and observations can (and can't) ascertain and how and what can be learned from them. We will also take a critical look at the scientific process and explore issues of validity and control, ethics, replication, negative results, risk, and failure.

In this course, successful students will be able to:

- Demonstrate the ways psychologists and neuroscientists seek answers, solve problems, and organize ideas or the merits of viewing a problem from an interdisciplinary or a multidisciplinary perspective
- Seek out information from various sources, evaluate the validity of that information, and construct arguments.
- Think critically about the scientific enterprise and debate which parts of the scientific process are working well and which may be in need of revision.
- Recognize and compare different research designs and techniques and select an appropriate research design to evaluate competing hypotheses
- Generate hypotheses and design a research study to address these hypotheses
- Explain the key components of human and animal research ethics and be able to design an experiment that adheres to ethical standards.

TEXTBOOK & COURSE MATERIALS

We will not be using a textbook for this course. All of the readings for the class will be provided for you on Canvas. These readings include a range of articles, research reports, book chapters, and tutorials.

LECTURE/READING QUIZZES

Whenever readings are listed on the schedule, they should be completed before the associated lecture or discussion. In order to help you learn and process the readings, short quizzes over the content of the readings will be posted via Canvas. These reading quizzes must be completed by 11:59 PM ET (Indiana time) the night before class (Sunday night, Tuesday night, or Thursday night, respectively). Your three lowest reading quiz scores will be dropped.

LECTURE PARTICIPATION

Monday's and Wednesday's lectures will be presented as pre-recorded videos via Canvas. You are expected to watch these videos each week on Monday and Wednesday. Along with the videos, short lecture participation quizzes will be posted on Canvas. The quiz questions will be similar to the questions posed in the videos and all answers will be available in the lecture materials. You must complete these quizzes by 11:59 PM ET (Indiana time) on the day of the lecture and your score on these quizzes will make up your lecture participation score.

You will have your four lowest lecture participation scores dropped. Because you get four dropped scores, I do not make a distinction between excused and unexcused absences. If you miss lecture due to illness, travel, emergency, or do not complete a lecture participation quiz for any reason, participation for that lecture will be recorded as a zero.

If you need accommodations for observance of religious holidays, please contact me as indicated in the [academic bulletin](#). All requests for accommodations must be made before Monday, Sept 21st.

FRIDAY DISCUSSIONS

Friday's discussion sections will be held synchronously via Zoom from 10am – 10:55am (Section #35166) and from 11:15am – 12:05pm (Section #35167) ET (Indiana time). The discussion sections will adopt a variety of formats including class discussions, group work, guest speakers, and tutorials, all focused on diving deeper into the week's material. I will use clickers (IU's Top Hat response system) to promote engagement and participation in these discussions, with a handful of clicker questions presented each Friday. To answer these questions, you will be required to set up a Top Hat account. Your responses to the clicker questions will make up a portion of your discussion participation credit.

There will be 12 of these Friday morning discussions and you will have your two lowest discussion participation scores dropped. As with the lecture participation, there is no distinction between excused and unexcused absences from the discussions.

HOMEWORK

After most discussion sections, you will have access to a homework assignment that will reinforce the ideas presented and discussed that week. You must complete each homework assignment on your own (no collaborating with classmates) and submit your work by 11:59 PM on Tuesday following the discussion. Your lowest homework score will be dropped. Late homework will not be accepted.

EXAMS

There will be two exams this semester during your Friday discussion section (see the course schedule for dates). The exams will be open-note but closed-classmate and will assess what you have learned from the lectures, readings, and discussions.

FINAL PROJECT

At the end of the semester, you will work in small groups to generate a novel research hypothesis and design a study aimed at testing that hypothesis. This project should give you a chance to explore a topic in psychological and brain sciences that you find interesting while demonstrating what you've learned about the scientific enterprise and research methods.

If you have a scheduling conflict that will interfere with a discussion section, turning in a homework assignment, or taking an exam at the scheduled time, you must let me know as soon as possible. With the exception of extreme and unforeseen circumstances, contacting me the day (or even worse, after) an assignment or exam is due will be considered an unexcused absence and will result in a zero on the late work.

Your final grade is computed using the following formula:

Lecture Participation:	10%
Discussion Participation:	10%
Reading Quizzes:	10%
Homework:	20%
Average of your two exams:	30%
Final Project:	20%
	100%

Grading Scale:

A+: 97.0%-100%;	A: 93.0%-96.99%;	A-: 90.0%-92.99%
B+: 87.0%-89.99%;	B: 83.0%-86.99%;	B-: 80.0%-82.99%
C+: 77.0%-79.99%;	C: 73.0%-76.99%;	C-: 70.0%-72.99%
D+: 67.0%-69.99%;	D: 63.0%-66.99%;	D-: 60.0%-62.99%
F: Below 60%		

STUDENT RESPONSIBILITY

It is your responsibility to double-check your assignment and exam grades – both that the papers themselves were correctly graded and that the scores posted on Canvas match your actual grades. You have two weeks from the time an assignment or exam is returned to the class to address any grading issues. After that, the grades posted on Canvas will be considered final.

EXTRA CREDIT?

Nope.

EMAIL

I expect you to be checking your IU email account (not just Canvas messages) no less than once a day. I will send frequent messages to the class with announcements, clarifications, instructions, and/or updates. You are responsible for the content of these messages exactly as if the material had been presented in class. Saying “I didn’t read that e-mail” or “I haven’t checked my e-mail for a few days” will not be considered a valid excuse for missing information. All class-wide messages will be sent using the Canvas Announcement tool, so archived messages can always be found on the Canvas sites.

FEEDBACK

Do not wait until the end of the semester course evaluations to let me know that I could be doing something better. Tell me as soon as possible so that I can make the class valuable and relevant as we go along. If you have any feedback, good or bad, about the course or how it’s being taught, please feel free to send it to me *anonymously* using [this link](#).

PIAZZA

This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. Find our class signup link [here](#).

ACADEMIC HONESTY

This course is conducted under the University's Ethics Code. Specifically, it is considered cheating if you obtain any kind of information about answers and solutions to the assignments in this course – exams and homework – from any non-intended source or conversely transfer such information to others. It is also considered cheating if you lie to me about an absence relating to a homework or an exam, or misrepresent your presence in the lectures or workshops. The punishment for academic dishonesty will be no less than a zero on the assignment or exam and will likely be **failure of the course**. As per university policy, *all* incidents of academic misconduct must be reported to the Dean of Students office.

CLASS RECORDINGS

I will post the Monday and Wednesday lecture recordings to Canvas and I will upload a recording of one of the Friday discussion sections after class on Fridays. You may watch any of the recordings online or download them for off-line viewing on your computer, smartphone, or media player. These recordings are copyrighted by me and provided by me and the University for your personal use. You may not share them, in whole or in part, without my prior written permission. Please see the copyright statement below for the full terms of use.

STATEMENT FOR STUDENTS WITH DISABILITIES

Every attempt will be made to accommodate qualified students with disabilities (e.g. mental health, learning, chronic health, physical, hearing, vision neurological, etc.) You must have established your eligibility for support services through the appropriate office that services students with disabilities. Note that services are confidential, may take time to put into place and are not retroactive; Captions and alternate media for print materials may take three or more weeks to get produced. Please contact [Disability Services for Students](#) at iubdss@indiana.edu or 812-855-7578 as soon as possible if accommodations are needed. The office is located on the third floor, west tower, of the Wells Library, Room W302. Walk-ins are welcome 8 AM to 5 PM, Monday through Friday. You can also locate a variety of campus resources for students and visitors that need assistance at: <http://www.iu.edu/~ada/index.shtml>

SEXUAL MISCONDUCT AND TITLE IX POLICY

As your instructor, one of my responsibilities is to create a positive learning environment for all students. Title IX and IU's Sexual Misconduct Policy prohibit sexual misconduct in any form, including sexual harassment, sexual assault, stalking, and dating and domestic violence. If you have experienced sexual misconduct, or know someone who has, the University can help.

If you are seeking help and would like to speak to someone confidentially, you can make an appointment with:

- The Sexual Assault Crisis Services (SACS) at (812) 855-8900 (counseling services)
- Confidential Victim Advocates (CVA) at (812) 856-2469 (advocacy and advice services)
- IU Health Center at (812) 855-4011 (health and medical services)

It is also important that you know that Title IX and University policy require me to share any information brought to my attention about potential sexual misconduct, with the campus Deputy Title IX Coordinator or IU's Title IX Coordinator. In that event, those individuals will work to ensure that appropriate measures are taken and resources are made available. Protecting student privacy is of utmost concern, and information will only be shared with those that need to know to ensure the University can respond and assist.

I encourage you to visit stopsexualviolence.iu.edu to learn more.

BIAS-BASED INCIDENT REPORTING

Bias-based incident reports can be made by students, faculty and staff. Any act of discrimination or harassment based on race, ethnicity, religious affiliation, gender, gender identity, sexual orientation or disability can be reported through any of the options:

- 1) email biasincident@indiana.edu or incident@indiana.edu;
- 2) call the Dean of Students Office at (812) 855-8188 or
- 3) use the IU mobile App (m.iu.edu ([Links to an external site.](#))).

Reports can be made anonymously.

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DISCLAIMER

This syllabus is an outline of the course and its policies, which may be changed for reasonable purposes during the semester at the instructor's discretion. You will be notified in class and / or via email if any changes are made to this syllabus, and an updated syllabus will be provided on Canvas.

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Opinions, Beliefs, and Truth – Schedule

Week		Date	Description	Pre-Class Reading & Quiz
1	M	Aug 24	Introductions	
	W	Aug 26	Is Psychology a Science?	Readings for Aug 26th
	F	Aug 28	Introductions	
2	M	Aug 31	Ignorance: The Driving Force of Science	Readings for Aug 31st
	W	Sep 02	How to Find Knowledge at IU	
	F	Sep 04	Amy Minix, IU Libraries Presentation	
3	M	Sep 07	How to Find Knowledge Online	
	W	Sep 09	Processing Popular Sources	Readings for Sept 9th
	F	Sep 11	Debunking Online Claims	
4	M	Sep 14	Processing Academic Sources, Part I	Readings for Sept 14th
	W	Sep 16	Processing Academic Sources, Part II	
	F	Sep 18	QuALMRI	
5	M	Sep 21	Cultivating Curiosity: Basic vs Applied Science	Readings for Sept 21st
	W	Sep 23	Knowable and Unknowable Things	
	F	Sep 25	Exam 1	
6	M	Sep 28	Generating A Great Research Question	Readings for Sept 28th
	W	Sep 30	Generarating A Great Research Program	
	F	Oct 02	Thinking about Measurement and Results	Readings for Oct 2nd
7	M	Oct 05	A Continuum of Failures	Readings for Oct 5th
	W	Oct 07	Analyzing Failures to Fail Better	Readings for Oct 7th
	F	Oct 09	Dr. Barwich Guest Visit	
8	M	Oct 12	Case Studies and Surveys	Readings for Oct 12th
	W	Oct 14	Research Ethics	Readings for Oct 14th
	F	Oct 16	Final Project Brainstorming	
9	M	Oct 19	Correlational Designs, Part I	Readings for Oct 19th
	W	Oct 21	Correlational Designs, Part II	Readings for Oct 21st
	F	Oct 23	Correlation vs. Causation	
10	M	Oct 26	Experimental Designs, Part I	Readings for Oct 26th
	W	Oct 28	Experimental and Quasi-Experimental Designs	
	F	Oct 30	Exam 2	
11	M	Nov 02	Cutting-Edge vs. "Settled" Science, Part I	Readings for Nov 2nd
	W	Nov 04	Cutting-Edge vs. "Settled" Science, Part II	
	F	Nov 06	Dr. Bunner Guest Visit	
12	M	Nov 09	Science and pseudoscience	Readings for Nov 9th
	W	Nov 11	Science-denial	Readings for Nov 11th
	F	Nov 13	Dr. Busey Guest Visit	
13	M	Nov 16	Statistical Analysis, Part I	Readings for Nov 16th
	W	Nov 18	Statistical Analysis, Part II	
	F	Nov 20	Final Project Mini-Presentations	

Week		Date	Description	Pre-Class Reading & Quiz
14	M	Nov 23	No Classes, Thanksgiving Break	
	W	Nov 25		
	F	Nov 27		
15	M	Nov 30	Replication and Meta-Analysis	
	W	Dec 02	P-Hacking and Pre-Registration	Readings for Dec 2nd
	F	Dec 04	Final Project Check-ups	
16	M	Dec 07	No Classes, Final Project Work	
	W	Dec 09	No Classes, Final Project Work	
	F	Dec 11	No Labs, Final Project Work	
	M	Dec 14th	Final Project Due 12pm	