

COLL C104, Fall 2021

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

CLASS TIME AND PLACE

Lectures on Monday and Wednesday:

[Section #20976](#), 8:45 AM – 9:35 AM in PY 109

Discussion Sections on Friday:

Section #40461, 8:45 AM – 9:35 AM in PY 115

Section #40462 10:00 AM – 10:50 AM in PY 115

INSTRUCTOR INFORMATION	TA INFORMATION
Instructor: Rick Hullinger Office: PY-A300B Online only this semester Office Hours via Zoom : Monday 10:00 AM – 12:00 PM Tuesday 1:00 PM – 3:00 PM Or by appointment Office Telephone: 812-856-6854 Email Address: rahullin@iu.edu	TA: Jack Avery Office Hours via Zoom , by appointment. Email Address: averjo@iu.edu

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 need 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 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 pre-lecture 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

Clickers ([IU's Top Hat response system](#)) will be used in this class, and you are required to have a Top Hat account and a compatible device (a web-enabled smartphone, tablet, or laptop computer.) If access to such a device is a problem for you, please contact me as soon as possible so that I can help.

Clicker questions will be presented in most lectures. On days with clicker questions, you must submit responses to at least half of the clicker questions asked to earn full credit for the day's participation. Your participation in the clicker questions is a key way to improve your learning during the lectures and to provide me with feedback about what you understand. Clickers are used as formative assessment so there is no penalty for incorrect answers, but students who are answering thoughtlessly may not receive participation credit.

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 from the lectures. If you miss a lecture due to illness, travel, emergency, or do not answer the clicker questions for any reason, participation for that lecture will be recorded as a zero.

Clicker misconduct (e.g., responding for anyone other than yourself, answering any clicker question while not physically in the classroom, etc.) will be considered academic misconduct, and will result in significant grade reductions or failure of C104 as well as other university sanctions.

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 at least two weeks before the religious observance begins.

FRIDAY DISCUSSIONS

Friday's discussion sections will adopt a variety of formats including class discussions, group work, and tutorials, all focused on diving deeper into the week's material. Your engagement in the discussions, contribution to group projects, and submission of in-class work will all factor into your discussion participation grade.

There will be 11 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 and submit your work by 11:59 PM on Wednesday 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 a mix of short answer and essay questions 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 – that all work was submitted correctly, 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.

HEALTH AND SAFETY

IU is following recommended public health guidance in response to the pandemic. In recognition of all IU community members owe to each other, we expect every member of the IU community will adhere to all current policies and practices. For current information on that guidance see <https://covid.iu.edu>. Students are expected to follow the university directives and the classroom policies established by their instructors. Willful non-compliance with campus or instructor policies will be considered personal misconduct and will be handled following the procedures outlined in the [Student Code of Conduct](#).

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 email" or "I haven't checked my email 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 our Canvas site.

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](#).

ACADEMIC HONESTY

This course is conducted under the [University's Code of Conduct & Policies](#). 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 misconduct if you lie to me about an absence or extension 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. Most of the discussion section activities will not lend themselves well to recording, so Friday recordings will rarely be available. 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. (<https://studentaffairs.indiana.edu/student-support/disability-services>) 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: <https://ada.sitehost.iu.edu/>

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) 855-5711 (counseling services)

A Confidential Victim Advocates (CVA) at (812) 856-2469 or cva@indiana.edu

IU Health Center at (812) 855-4011 (health and medical services)

It is also important that you know that University policy requires me to share certain information brought to my attention about potential sexual misconduct, with the campus Deputy Sexual Misconduct & Title IX Coordinator or the University Sexual Misconduct & 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).

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 23	Introductions	
	W	Aug 25	Is Psychology a Science?	Readings for Aug 25th
	F	Aug 27	Discussion Sections: Introductions	
2	M	Aug 30	Ignorance: The Driving Force of Science	Readings for Aug 30th
	W	Sep 01	How to Find Knowledge at IU	
	F	Sep 03	Discussion Sections: Amy Minix, IU Libraries Presentation	
3	M	Sep 06	How to Find Knowledge Online	
	W	Sep 08	Processing Popular Sources	Readings for Sept 8th
	F	Sep 10	Discussion Sections: Evaluating Online Claims	
4	M	Sep 13	Processing Academic Sources, Part I	Readings for Sept 13th
	W	Sep 15	Processing Academic Sources, Part II	
	F	Sep 17	Discussion Sections: QALMRI	
5	M	Sep 20	Knowable and Unknowable Things	Readings for Sept 20th
	W	Sep 22	Cultivating Curiosity: Basic vs Applied Science	Readings for Sept 22nd
	F	Sep 24	Discussion Sections: Exam 1	
6	M	Sep 27	Failure, Part I: A Continuum of Failures	Readings for Sept 27th
	W	Sep 29	Failure, Part II: Failing Better	Readings for Sept 29th
	F	Oct 01	Discussion Sections: Learning from Failure	
7	M	Oct 04	Guest Visit: Dr. Ramsden	TBD
	W	Oct 06	Guest Visit: Dr. Barwich	TBD
	F	Oct 08	No Discussion Sections, Fall Break	
8	M	Oct 11	Experimental Designs	Readings for Oct 11th
	W	Oct 13	Quasi-Experimental and Factorial Designs	Readings for Oct 13th
	F	Oct 15	Discussion Sections: Measurement & Results	Readings for Oct 15th
9	M	Oct 18	Case Studies and Surveys	Readings for Oct 18th
	W	Oct 20	Research Ethics	Readings for Oct 20th
	F	Oct 22	Discussion Sections: Surveys and Ethics	
10	M	Oct 25	The Importance of Diversity in Science	Readings for Oct 25th
	W	Oct 27	Correlations	Readings for Oct 27th
	F	Oct 29	Discussion Sections: Correlation vs. Causation	
11	M	Nov 01	Generating A Great Research Question	Readings for Nov 1st
	W	Nov 03	Generating A Great Research Program	
	F	Nov 05	Discussion Sections: Final Project Brainstorming	
12	M	Nov 08	Statistical Analysis, Part I	Readings for Nov 8th
	W	Nov 10	Statistical Analysis, Part II	
	F	Nov 12	Discussion Sections: Exam 2	
13	M	Nov 15	Replication and Meta-Analysis	
	W	Nov 17	P-Hacking and Pre-Registration	Readings for Nov 17th
	F	Nov 19	Discussion Sections: Final Project Mini-Presentations	

Week		Date	Description	
14	M	Nov 22	No Classes, Thanksgiving Break	
	W	Nov 24		
	F	Nov 26		
15	M	Nov 29	Cutting-Edge vs. "Settled" Science	Readings for Nov 29th
	W	Dec 01	Dr. Bunner Guest Visit	TBD
	F	Dec 03	Discussion Sections: Final Project Check-ups	
16	M	Dec 06	Dr. Busey Guest Visit	Readings for Dec 6th
	W	Dec 08	Science, Pseudoscience, and Science Denial	Readings for Dec 8th
	F	Dec 10	No Discussion Sections	
	W	Dec 15	Final Projects Due at 12:00 pm (noon)	