



Scientific Reasoning & Research Design

FYC 6800, Fall 2023

Wed., 9:35 AM – 10:25 AM; Fri., 9:35 AM – 11:30 AM

Instructors:

Xiaoya Zhang, PhD

xiaoyazhang@ufl.edu

3028 McCarty Hall D

Office Hours: 10:45 AM – 11:45 AM Wednesdays

Larry Forthun, PhD

lforthun@ufl.edu

3014 McCarty Hall D

Office Hours: by appointment

Course Description: Scientific reasoning, scientific method, and quantitative and qualitative research design.

Course Goals

- Improve your ability to apply research findings in your professional work
- Enhance your ability to evaluate science-based claims to make decisions in your personal and professional life
- Foster your skills in evaluating, designing, and conducting scientific research to address social problems and provide evidence-based solutions

Course Objectives -- After completing this course, you will be able to:

- Understand and comprehend the research cycle and various approaches of designing and conducting research
- Interpret research findings, assessing implications and conclusions of scientific work based on the strengths and limitations of research design and methodologies
- Apply appropriate research design to address questions in social science, ensuring both scientific rigor and ethical integrity
- Evaluate the empirical evidence and conclusions reached in research about social problems, issues and needs with an emphasis on internal and external validity and explanatory power
- Assess the strengths and weaknesses of research designs in the research literature that we use to inform practice and select appropriate designs based on the nature of the research question
- Develop plans and written proposal using appropriate design for your own research

Materials

*Babbie, Earl. (2021) *The practice of social research* (15th Ed.). Cengage Learning Custom Publishing. ISBN: 978-0-357-36076-7

Additional readings will be assigned and available on Canvas.

*We recommend purchasing a paperback copy of the textbook to keep on your bookshelf. This book will be a valuable resource when conducting research and preparing for qualifying examinations.

Policies for Submissions

- Assignments and all other required are due before 11:59 PM on the date indicated on Canvas.
- Submit all materials through e-learning – do **not** submit through e-mail.
- If you have a valid reason to believe you will be late with a submission, contact the instructors by e-mail to discuss your options.
- Late submissions (assignments, postings, etc.) will result in a reduction of 10 points per day to the assignment score and after 48 hours, a score of 0 (zero) will be submitted for the assignment.

Policies for AI Generative Tools

Given the nature of the course, students are not allowed to use advanced automated tools (artificial intelligence or machine learning tools such as ChatGPT or Dall-E 2) on assignments in this course.

Consultation Policy: We will be available for individual or team consultations from 10:45 to 11:45 on Wednesday of each week or by appointment -- *in person, or through video conference*. Please request an appointment meeting by e-mail.

Class Participation

Everyone in the classroom is expected to be an active and regular participant in class discussions. Students are expected to come to class prepared to discuss the assigned readings and their own research interests and to ask questions related to course topics. Students are also expected to facilitate the engagement of classmates and engage in active listening.

Assessments

Component of Grade	Possible Points
Class Participation	100

Assignment 1: One-page research topic	100
Assignment 2: Proof of Completion of CITI Training	50
Assignment 3: Identify three studies relevant to your proposal, and write 1-2 pages annotated bibliography for each of the study	150
Assignment 4: Design of your own research	100
Assignment 5: Peer review of research design	100
Assignment 6: Presentation	200
Assignment 7: Final Proposal	200
Weekly Activity (10 @ 20 points each)	200
TOTAL	1200

Assignment Guidelines

Assignment 1: One-page research topic (Total 100 points max)

This course highlights your learning and practice of research design. The first step is to choose a research topic you are interested in. For this assignment, you will identify a problem to address and form research questions you would like to focus on throughout the course. The research questions should be testable, and the variables should be clearly defined. Later, you will design a study to test the research questions. This is the first step for the research proposal that you will develop throughout the semester.

Assignment 2: Proof of Completion of IRB and CITI training (Total 50 points max)

- If you are involved in research with human subjects, you must complete a mandatory training offered via MyTraining at UF. Follow the instructions for course number IRB803: <https://irb.ufl.edu/index/requiredtraining.html>. You are required to complete the training and submit the certificate of completion to Canvas by 9/20.
- Responsible conduct of research is increasingly viewed as an essential component of research training. To complete the CITI training, follow the instructions here: <https://research.ufl.edu/rcr/rcr-training/citi-rcr-training/>. You are required to complete the training for Social/Behavioral Research Investigators and Key Personnel through the institution and submit the certificate of completion to Canvas by 9/20.

Assignment 3: Annotated Bibliography (Total 150 points max)

You should learn about the literature related to your study and the gaps/unknowns of existing research. This assignment is designed to facilitate the search and selection of individual journal articles related to the research topic. You are required to summarize 3 articles in annotation format (see handouts on Canvas) with each annotation approximately 1-2 pages typed. For each study, you should summarize the research question, guiding theory, hypothesis, design (including sampling, validity, reliability), data analysis and findings. Each of the AB is worth 50 points. Later, you could consolidate the information into the introduction section of your proposal (You may not need so many details for your proposal. Use as needed to make your point).

Assignment 4: Design of your own research (Total 100 points max)

After learning about a variety of research design, you should be able to choose a design to test your research questions. For this assignment, highlight the reasoning of why you choose the design, the strengths and potential limitations of the design, and how to increase the validity and reliability of the study.

Assignment 5: Peer review (Total 100 points max)

Peer review is an important process in academia and being able to provide constructive review for other's work is a critical skill as a researcher. This assignment is designed to provide an opportunity to practice peer review. You need to submit a 1-page report to identify the strengths and limitations of the study to help improve the quality of research proposal you read.

Assignment 6: Final proposal (Total 200 points max)

Building on the assignments you've already completed for this course as well as the feedback from peer review and the instructors, you will write a final proposal with an introduction to the research study (e.g., problem, purpose, background literature, rationale, and research questions) and a description of the study design (e.g., design, strengths/weaknesses, reliability/validity).

Assignment 7: Presentation (Total 200 points max)

Students will prepare a draft presentation in PowerPoint and will do a proposal presentation to their fellow classmates for feedback in a constructive environment. The slides are worth 100 points and the presentation is worth 100 points. The slides should be uploaded to Canvas by 11/29. Suggested length: 10-12 slides; 15-minute presentation, 5-minute Q&A.

Weekly In-Class Activity (Total 200 points max)

The purpose of the weekly in-class activity is to help you to critically evaluate and/or apply your understanding of the material in a real-world research context. Activities will vary but may include article reviews, analysis and interpretation, application to research through case study, critical evaluation of specific course content, etc. Activities will generally be completed in small groups.

Grading Scale

A	93.5-100%
A-	89.5-93.4%
B+	86.5-89.4%
B	82.5-86.4%
B-	79.5-82.4%
C+	76.5-79.4%
C	72.5-76.4%
C-	69.5-72.4%
D	59.5-69.4%

E	≤59.4%
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Course Schedule

Week	Date	Topic	Readings	Assignment Dues
1	8/23	Introduction, Course expectations & Syllabus review		
	8/25	Intro to social science research	Chapter 1	
2	8/30	Reading productively; literature review online		Weekly Activity
	9/1	Paradigms, theory, and research	Chapter 2; reading	
3	9/6	Research question & Overview of design types	Chapter 4	
	9/8	Research proposal/report		Weekly Activity
4	9/13	Research ethics	Chapter 3	Assignment 1
	9/15	Codes of ethics, plagiarism, and AI	Readings	Weekly Activity
5	9/20	Key concept in sampling	Chapter 7	Assignment 2
	9/22	Sampling principles & types of samples		Weekly Activity
6	9/27	Validity & reliability	Chapter 5	
	9/29	Experimental design	Chapter 8	Weekly Activity
7	10/4	Online experimental design		Assignment 3: first AB
	10/6	Homecoming		
8	10/11	Cross-sectional design	Readings	Assignment 3: Second AB
	10/13			Weekly Activity
9	10/18	Longitudinal design	Readings	Assignment 3: Third AB
	10/20			Weekly Activity
10	10/25	Survey	Chapter 9	
	10/27			Weekly Activity
11	11/1	Qualitative studies	Chapter 10	
	11/3			Weekly Activity

12	11/8	Case study design		
	11/10	Veterans Day		
13	11/15	Conducting research using secondary data	Readings	Assignment 4
	11/17			Weekly Activity
14	11/22	Thanksgiving		Assignment 5
	11/24	Thanksgiving		
15	11/29	Presentation		Assignment 6
	12/1	Presentation		
16	12/6	Last day of class		Assignment 7

University Policies

More information on UF grading policy may be found at:

[UF Graduate Catalog](#)

[Grades and Grading Policies](#)

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. [Click here for guidance on how to give feedback in a professional and respectful manner](#). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. [Summaries of course evaluation results are available to students here](#).

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” [The Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate

personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the [Notification to Students of FERPA Rights](#).

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or police.ufl.edu.

Academic Resources

[E-learning technical support](#), 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

[Career Resource Center](#), Reitz Union, 392-1601. Career assistance and counseling.

[Library Support](#), Various ways to receive assistance with respect to using the libraries or finding resources.

[Teaching Center](#), Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

[Writing Studio](#), 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

[Student Complaints Campus](#)

[On-Line Students Complaints](#)

University Policy on In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Other Course Policies

Rules for Class Discussion

Respect others. This course covers a variety of sensitive issues, and students in the class come from a variety of backgrounds. We expect a class atmosphere of tolerance and respect for every individual and their opinion. If anyone feels they have been harmed or misrepresented—by the instructor or any individual in the class—I urge you to speak with me so that the problem can be dealt with immediately. Please do not let feelings build up and interfere with your experience in this course.

Expectations Of Confidentiality

Respect for confidentiality of personal information shared by your classmates is an absolute must. Do not talk to others about personal information your classmates share in discussions. Likewise, if you choose to share personal information or use a friend or family member as a case example, please refrain from using their names and/or identifying information.

Religious Observance

Please check your calendars against the course schedule. Any student having a conflict in the class schedule due to religious observances should contact the instructor as soon as possible so that they can make necessary arrangements.

Note that the instructor reserves the right to adjust the syllabus as needed.