

Foundations of Research PSYC 6334
Fall 2022 CRN 14410
Syllabus

Course Information

Meets Tuesdays and Thursdays
From 3:00 to 4:50 pm
In Hudspeth Hall Room 213

Instructor

Craig Field, PhD, MPH
cfield@utep.edu
(915) 747-8539
Appointments by Request

Textbook

Goodwin, K. A., & Goodwin, C. J. (2016). *Research in Psychology: Methods and design* (8th ed.). Wiley.

Urban, J. B., & Van Eeden-Moorefield, B. M. (2018). *Designing and proposing your research project* (Ser. Concise Guides to Conducting Behavioral, Health, and Social Science Research). American Psychological Association.

Journal Article Readings to Prepare for Journal Club

Greenhalgh, T. (1997). How to read a paper : Getting your bearings (deciding what the paper is about). *BMJ*, *315*(7102), 243–246. <https://doi.org/10.1136/bmj.315.7102.243>

Greenhalgh, T. (1997). How to read a paper: Assessing the methodological quality of published papers. *BMJ*, *315*(7103), 305–308. <https://doi.org/10.1136/bmj.315.7103.305>

Greenhalgh, T. (1997). How to read a paper: Statistics for the non-statistician. II: "significant" relations and their pitfalls. *BMJ*, *315*(7105), 422–425. <https://doi.org/10.1136/bmj.315.7105.422>

Greenhalgh, T. (1997). How to read a paper: Statistics for the non-statistician. I: Different types of data need different statistical tests. *BMJ*, *315*(7104), 364–366. <https://doi.org/10.1136/bmj.315.7104.364>

Appelbaum, M., Cooper, H., Kline, R. B., Mayo-Wilson, E., Nezu, A. M., & Rao, S. M. (2018). Journal article reporting standards for quantitative research in psychology: The APA Publications and Communications Board task force report. *American Psychologist*, *73*(1), 3–25. <https://doi.org/10.1037/amp0000191>

Course Objectives

Foundations of Research is a graduate level course. While there will be short lectures, you are largely expected to master the reading material on your own. Class time will be dedicated to in depth discussion and application of the principles presented in the textbook. As graduate students, the quality and value of the course largely depends on your contributions and active engagement on a consistent basis.

The primary course objectives include:

1. Students will be able to describe the most important elements of the scientific method and their historical and philosophical roots.
2. Students will be able to describe the philosophical foundations of causal inference and explain how these foundations are related to experimental and quasi-experimental methodology.
3. Students will be able to explain the four types of validity involved in causal inference, describe the threats to each of these types of validity, and identify these threats in actual studies.
4. Students will be able to describe the research designs most commonly used to explore causal relationships and their strengths and weaknesses. Students will be able to identify the most important elements of experimental design and explain how each element strengthens causal inference.
5. Students will be able to describe the problems commonly encountered by researchers using experiments and quasi-experiments, in both laboratory and field settings, and how these problems can be dealt with.
6. Students will be able to describe the ethical considerations that are relevant to experiments and quasi-experiments and be able to explain how researchers and institutions can ensure that research is carried out in an ethical manner.
7. Students will be able to design studies that are methodologically sound, practical, and ethical.
8. Students will be able to offer intelligent, helpful critique of studies designed by other researchers and be able to identify ways that these studies can be made more methodologically sound, practical, and ethical.
9. Students will understand the "replication crisis" in psychology and medicine and the advent of Open Science.
10. Students will increase their proficiency in making written and oral presentation of research proposals.

Instructional Approach

There are four primary components to the course including quizzes and exams, designing an experimental study and journal club.

Designing An Experimental Research Study

The primary project for the course is to develop independent experimental research related to your primary research interest. It must be an experiment. It should be something you think of and design *entirely independently through the process of participating in this class.*

You should not use:

- (a) Prior research you have conducted or been a part of
- (b) Your first year project, thesis or dissertation
- (c) A paper or idea that you are using or have used for another class,

- (d) An idea that another student or faculty member suggested to you,
- (c) An idea or design that you have ever discussed (even briefly) with another person.

This should all be a novel research concept based on your own thinking during this course and feedback from the instructors and students in this class provided through the constraints of this class including:

- (a) feedback on your presentation
- (b) feedback on your first two draft from the instructor
- (c) feedback on your paper by at least three classmates
- (d) and feedback provided during your poster presentation.

It should be unlike anything you or your research collaborators have ever done or talked about before. It must also be *practical* -- something you could reasonably and practically carry out on a budget of no more than \$150,000 for personnel costs and equipment.

The project is broken into five steps to allow for development and refinement of your proposal.

- 1) You will submit a 5 page draft of your research (largely introduction) to the instructor for comment
- 2) You will submit a second 10 page draft of your research (Introduction and methods) to the instructor for comment
- 3) You will present your research concept in a class presentation.
- 4) You will share your draft with at least three peers assigned to review your proposed study who will provide guidance about strengths and limitations of your proposed research and how to improve it.
- 5) You will present a poster to the class, your peers and psychology department faculty to help you refine your thinking and obtain additional feedback and suggestions.
- 6) Finally, you will submit a completed study protocol for your course paper.

This process is intended to mirror the development of scientific research and leverages the benefits of team science. In addition, it engages you in every aspect of scientific citizenship.

You should begin to start thinking now about what topic you want to explore and develop this project and the paper associated with it immediately and throughout the semester.

Quizzes & Exams

The purpose of the quizzes is to ensure that you come to class prepared to engage in discussions. The purpose of exams is to ensure that you have mastered the material to apply to your own research endeavors after completing the course. While the textbook for this course is an undergraduate textbook, as a graduate student this material must be mastered to the extent you can apply it in your scientific careers.

While taking quizzes and the midterm exams, students may not consult the book, their notes, another person, or any other source of information. Using these sources is a form of academic dishonesty and, more importantly, will reduce the amount that you learn from this course.

Quizzes and exams often use questions that were previously used when this course was offered in earlier semesters. You should not use earlier quizzes or tests from previous years to prepare for this course. Any use of quizzes or tests from prior years constitutes academic dishonesty and, more importantly, will reduce the amount that you learn from this course.

Journal Club

Journal Club is a key activity that is central to the development and maintenance of scientific expertise. However, graduate students do not receive much training or experience with conducting a journal club or journal club participation. Active participation in journal clubs leads to:

- Improvement of reading habits.
- Promotion of critical thinking.
- Acquisition of critical appraisal of research design, biostatistics, and evidence quality.
- Improvement of group participation and communication skills.
- Develops leadership and presentation skills.
- Promotes collaborative learning.
- Strengthening of interprofessional and collegial relationships.
- Development of professional identity.
- Development of research, writing, and publishing skills.
- Facilitates maintenance of knowledge regarding the state of the science in psychology.
- Encourages lifelong learning.
- Inspires new research studies.

To refine your skills in evaluating published research related to your primary research interest, you will be required to moderate a journal club. The intent of this component of the course is to help you transition from being a consumer of research to being a creator of research actively engaged in the scientific process.

Course Requirements

Research Paper

The core component of the course is the research paper. The research paper will include the introduction, methods and discussion (not conclusions) sections of an experimental study related to your research of interest. Three drafts of the paper will be submitted prior to the final paper being submitted to the instructor at the end of the semester. The first draft will focus on the background and rationale as well as study purpose. The second draft will include the introduction and methods both of which will be taken into consideration during grading. The first and second drafts will be reviewed and graded by the instructor. The third draft will also be distributed to a small group of your classmates. You will receive thorough review and detailed written and oral feedback from at least three of your classmates to help you improve upon the final research proposal.

All course activities are intended to contribute to the final paper. Thus, there will be very high standards in terms of conceptualization, rigor, novelty, contribution to science, potential impact, practice implications and scientific communication including grammar. The final paper will be submitted to the instructor by the Tuesday at 11:59 PM to the instructor's email address during the week of final exams.

All documents should be submitted in a Word document. The paper should adhere to the publication standards in the most recently published edition of the American Psychological Associations' Publication Manual.

Quizzes and Exams

Quizzes: There will be quizzes on required chapter readings from *Research in Psychology* by Goodwin and Goodwin. *Designing and Proposing Your Research Project* by Brown-Urban and van Eeden-Moorefield will not be covered on quizzes. As a result, there will be ten chapter quizzes throughout the semester. The quizzes will include 10 to 20 questions. The ten quizzes count toward a total of 20% of your final grade.

The quizzes will be made up of exclusively multiple-choice questions. Quizzes will be completed at the end of the first-class period in which the chapter is discussed, and 15 minutes will be allotted for its completion unless documentation from The Center for Accommodations and Support Services is provided. Completing the quiz at the end of the class period provides you an opportunity to ask relevant questions about the chapter during the lecture portion of the class. If you have questions about the readings, you can email the instructor on any day prior to the day of the quiz. However, the instructor will not answer questions on the day of a quiz.

Exams: There will be two exams covering the material in the textbook entitled *Research in Psychology* by Goodwin and Goodwin. *Designing and Proposing Your Research Project* by Brown-Urban and van Eeden-Moorefield will not be covered on exams. The first exam will cover chapters one through five. The second exam will cover chapters five through nine and eleven. This is a graduate level course and you are expected to independently master the textbook material. There will not be a class dedicated to a review. Students are encouraged to ask questions about each chapter during the class time dedicated to the review of that chapter material.

Both exams will be made up of multiple choice, matching and fill in the blank. The tests will be approximately 50 questions in length. Unless documentation from the Center for Accommodation and Support Services is provided, students must complete the exam within the class period (i.e., 1 hour and 20 minutes). Each exam will contribute toward 10% of your final grade or a total of 20% of your final grade.

Journal Club

Prior to the first Journal Club you will be assigned readings to introduce you to basic skills associated with moderating and participating in a Journal Club. This includes a cursory introduction to statistics which you are expected to understand at a basic level. You will be provided a worksheet covering key features of a scientific article that are typically discussed during a journal club. However, a Journal Club is not a presentation. While you are expected to be intimately familiar with the experimental research you select, you are moderating a discussion about the article and the state of the science. Correspondingly, participants in a journal club are not audience members. They are expected to actively participate in the discussion with relevant comments and questions.

Each person will be assigned to moderate one Journal Club discussion. Two Journal Club discussions will be scheduled most Thursdays. Forty minutes will be dedicated to each article discussed in Journal Club. Two weeks prior to the Journal Club you moderate you must submit the article for pre-approval by the instructor. One week prior to the Journal Club, you must submit the article in pdf format to your classmates and the instructor via email.

You may either select a classic study from the field of psychology or a key experimental study from your research area of interest. You will be able to choose from a list of classic studies in psychology with pre-approval by the instructor two weeks prior to the Journal Club you will moderate. Preferably, you would choose a key article related to your research of interest which may be directly related to your proposed research or outside research. Regardless of what you decide when selecting the article for the Journal Club you moderate you must select an experiment (i.e., a study with an experimental manipulation and randomization). In addition, you should give high priority to articles appearing in highly ranked, high impact (based on impact factor and h index etc.), peer reviewed journals by recognized experts in their field of study which are highly cited, innovative and central to your research activities.

Presentations

As part of the process of designing your experimental research study, you will present a PowerPoint to the class outlining the introduction and methods. All members of the class are expected to attend these online presentations and participate in the question-and-answer periods. In addition, you will present a scientific conference poster at the end of the semester based on your experimental research study during the scheduled final exam. Additional instructions regarding the PowerPoint and Poster Presentation will be provided.

Participation

This is a graduate level course. As a result, you are expected to be actively engaged in the dialogue during class. The integrity and value of the course depend upon everyone's active and thoughtful engagement. As a result, class participation is a substantial component of the final grade. Your class participation will make up 15% of your final grade and be evaluated based on the following criteria:

- a) The frequency of your contribution,
- b) The added value of your contribution and
- c) The sophistication, appropriateness and uniqueness of your contribution to the class discussion

Your participation grade will also take into account the written feedback you provide on the three study proposals you are required to review as part of the small group activity. You will be assigned to review three proposals submitted by your classmates. In each review, you should identify shortcomings in the original proposals, and suggest helpful ways of dealing with these shortcomings. You should approach this review with the same level of rigor for reviewing a peer reviewed journal article for publication or a grant application submitted for review. You will provide oral feedback in

person during class and written feedback via email to the author and instructor. The purpose of this exercise is to give you practice in writing reviews and providing helpful professional advice to your colleagues.

Summary of Grading for Course

Paper	25%
Exams	20%
Quizzes	20%
Participation	15%
Journal Club	10%
Poster	5%
Presentation	5%

A = 90% - 100%

B = 80% - 89%

C = 70% - 79%

F = < 70%

Course Schedule

August

Tuesday, 23 rd	Syllabus and Introduction	
Thursday, 25 th	Introduction to Journal Club	Journal Club Readings
Tuesday, 30 th	Scientific Thinking in Psychology (G&G) Introduction (U&E)	Chapter 1 Quiz

September

Thursday, 1 st	Journal Club	Manal Aboargob Claudia Cota
Tuesday, 6 th *	Ethics in Psychological Research (G&G) Choosing Your Research Question & Hypotheses (U&E)	Chapter 2 Quiz
Thursday, 8 th	Journal Club	Veronika Espinoza Rebeca Fierro-Perez
Tuesday, 13 th	Developing Ideas for Research in Psychology (G&G) Choosing Your Study's Purpose (U&E)	Chapter 3 Quiz
Thursday, 15 th	Journal Club	Miguel Garcia Ethan Gibeaut

September Continued

Tuesday, 20 th	Sampling, Measurement & Hypothesis Testing (G&G) Understanding Terms for Quantitative Studies (U&E)	Chapter 4 Quiz
Thursday, 22 nd	Journal Club	Priscilla Giner Betel Hernandez
Tuesday, 27 th	Journal Club	Sarah Najera Sebastian Ortegon
Thursday, 29th	Exam 1	Chapters 1 - 4
Friday, 30th by 11:59 PM	Research Paper 1 Due	Submitted to Instructor by email

October

Tuesday, 4 th	Introduction to Experimental Research (G&G) Choosing Your Design (U&E)	Chapter 5 Quiz
Thursday, 6 th	Journal Club	Perla Perez Erin Portillo
Tuesday, 11 th	Methodological Control in Psychological Research (G&G) Choosing Your Sample (U&E)	Chapter 6 Quiz
Thursday, 13 th	Journal Club	Minerva Rodriguez Aitiana Sanchez
Tuesday, 18 th	Experimental Design: Single Factor Design (G&G) Planning Your Measurement Strategy... (U&E)	Chapter 7 Quiz
Thursday, 20 th	Presentations	Manal Aboargob Claudia Cota Veronika Espinoza
Tuesday, 25 th	Experimental Design II: Factorial Design (G&G) Establishing Validity for Quantitative Studies (U&E)	Chapter 8 Quiz
Thursday, 27 th **	Presentations	Rebeca Fierro-Perez Miguel Garcia Ethan Gibeaut
October 31st by 11:59 PM	Research Paper 2 Due	Submitted to Instructor by email

November

Tuesday, 1 st	Presentations	Priscilla Giner Betel Hernandez Sarah Najera
Thursday, 3 rd	Presentations	Sebastian Ortegon Perla Perez Erin Portillo
Tuesday, 8 th	Non-Experimental Design I: Survey Research (G&G) Conclusions (U&E)	Chapter 9 Quiz
Thursday, 10 th	Presentations	Minerva Rodriguez Aitiana Sanchez
Tuesday, 15 th	Quasi-Experimental Design and Applied Research (G&G)	Chapter 11 Quiz
Thursday, 17 nd	Papers & Posters	
Tuesday, 22th Wednesday, 23rd by 11:59 PM	Exam 2 Research Paper 3 due to Group Members	Chapters 5-9 & 11 Submitted to Group & Instructor by email

Thursday, 24th *Thanksgiving Holiday*

Tuesday, 29th Small Group

December

Thursday, 1st	Small Group	Written Feedback to Author & Instructor by email at 11:59 PM
Friday, 2nd by 11:59 PM	Draft Poster Due	Submitted to Instructor by email
Tuesday, 6th by 11:59 PM	4:00 PM to 6:45 PM Final Paper & Poster Due	Poster Session Submitted by e-mail

* September 7th is Census Day. This is the last day to register for the class.

** October 28th is the Fall Drop/Withdrawal Deadline. Student-initiated drops are permitted after this date, but the student is not guaranteed a grade of W. The faculty member of record will issue a grade of either W or F.