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Course Description

This course provides an introduction to basic principles of research in psychology. You will primarily do psychology in this course, rather than simply read about it. Research is both exciting and exacting. We hope the course will give you an appreciation of both qualities.

The course is designed to help you master five major aspects of doing research:

1. Design of experiments
2. Execution of experiments
3. Scientific writing
4. Computer analysis of results
5. [Critique of research](#)

Critique of Research

This section of PSYC 3100 is participating in Clemson's [CT2 Quality Enhancement Plan](#), designed to enhance critical thinking in undergraduate education.

This CT2 component of PSYC 3100 is consistent with the long-established student learning goals for a course on research design in psychological science.

Critique of research involves multiple critical thinking skills and understandings, and is involved in each of the [main features of research methods](#):

- Design and execution of research requires critical thinking to anticipate and prevent alternative explanations.
 - Communication of research requires critical thinking to clearly identify, apply, and communicate features of research (e.g. research design) that anticipates critical review by others.
 - Statistical analysis of results requires critical thinking to select, apply and interpret the correct data analysis technique for a given research design.
- What are specific critical thinking skills in PSYC 310?

- Determine the relevance of information for evaluating claims made in a scientific study.
- Recognize and prevent flaws in scientific methods
- Evaluate competing causal explanations through experimental designs
- Evaluate hypotheses for consistency with scientific methods and results
- Evaluate the appropriateness of scientific procedures for investigating a question of causation
- Evaluate the appropriateness of statistical procedures for a given hypothesis and data set.
- Evaluate scientific results for consistency with established facts, hypotheses, or methods

Student Critical Thinking Learning Outcomes

- Explore and analyze alternative methodological designs for research questions
- Analyze methodologies and identify how they limit results and conclusions, e.g. quasi-experimental designs versus true experimental designs
- Apply research design concepts to novel contexts, e.g. identify measured versus experimental operational definitions in research reports
- Synthesize alternative solutions to multi-dimensional challenges, e.g. derive multiple hypotheses to evaluate psychological theory/explanations
- Communicate research projects effectively, e.g. apply APA guidelines to produce complete, precise, concise and compelling scientific reports and oral presentations

Teaching/Learning Strategies

- Use The Classroom Critical Incident Questionnaire to promote reflection. This technique asks you to “self-evaluate” your understanding of concepts discussed in class.

- Homework review: contrasting cases method will be used to identify and compare student critical thinking responses, assessment of knowledge integration, and identification of critical thinking skills
- Group experimental designs: contrasting cases method to compare problem solving processes and solutions
- Participation grade: students will demonstrate and identify critical thinking skills (e.g. application of concepts, identification of alternative explanation) in class discussions and activities as part of their daily participation grade
- Point-of-view activities for broad issues in research methods (e.g. “ways of knowing”; “value of critical thinking”) will be used to compare assumptions and implications of broad systems of inquiry.
- Modeling critical thinking and Socratic/discussion method for key concepts: e.g. application of concepts to novel situations
- In one of our group experiments, students will design an experiment to determine if instruction methods can enhance critical thinking skills. Teaching critical thinking to others may deepen students’ understanding of critical thinking skills.
- Student artifacts / Web site
 - Students will post all assignments on their course websites
 - Each assignment will require a “critical thinking” reflective statement, indicating how the assignment provides (or does not provide) an example of one (or more) of the student critical thinking skills and learning outcomes

You will take the Critical Thinking Assessment Test (CAT) at the beginning and end of the course. CAT scores will be used by the CT2 program to assess how well you learned to think critically (while you also learned material on psychological research methods). You will receive 10 HW assignment points for participating in each assessment.

Course requirements

Exams. There will be three in-class exams. All contain short answer and application items.

Papers. There will be three papers on each of the experiments. You will be learning the American Psychological Association style of scientific reports, which is the standard for journal articles in psychology. The three short papers will focus on subsections of a journal article, i.e. Methods, Results, Discussion. A final long paper will be a complete write-up of your independent project. An acceptable IRB proposal and at least two one-on-one individual meetings (by appointment - one with the TA and one with me) are required as pre-requisites for an acceptable final paper. Failure to meet these prerequisites will result in a grade of zero on the final paper.

Laboratory assignments. Each student must assist in designing and running a portion of the subjects in each experiment. Some of the experiments will be run in the scheduled lab, while the other labs will be scheduled more flexibly (e.g. whenever you can convince a friend to be in the experiment). You must complete your portion of the experiment on schedule, since the entire class will rely on your data. Laboratory sessions will meet in various places, as the equipment needs of the experiment dictate. The default laboratory meeting place is MARTIN E305.

Homework assignments. Homework will be assigned and graded on a regular basis to motivate you to keep-up with the reading.

Participation. I will track and evaluate participation by asking rounds of questions in class. Each student's daily participation will be scored as good (2), partial (1), or unacceptable (0).

Web File. Students are required to publish all papers and assignments to a web file using Google Sites or CD/DVD (with Seamonkey). Revisions to the postings should be based on class discussion and feedback.

Class attendance. As in most classes, new material will be presented in the classroom. Unlike most classes, we often will make decisions jointly about the design of experiments in

class. Your contribution is important, so come to class. Unexcused absences will result in a zero for all graded assignments associated with the date of the absence. (See Course Rules and Regs.)

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Grading.

The relative weights of the grade components are as follows:

Exam I	15%
Exam II	10%
Exam III	10%
Short papers	
Method	8%
Results	8%
Discussion	10%
Long paper	20%
Participation	10%
Oral Report	4%
Homework/Lab	5%

Rules and Regs.

This may be one of the more demanding courses in Psychology. The material can be conceptually difficult, and you must produce on a daily basis. Every day or so, something is due in this class. It would be a serious mistake to get behind in the work. Therefore, to motivate you to complete your work on time, the following policies are in effect, consistent with University guidelines.

Missed exams, late papers, missed labs, late homework and participation will result in a grade of zero unless the absence is documented and constitutes a University approved absence. (Documentation must be written, e.g. a doctors excuse, notice of jury duty, etc.) However, if you are sick, and you email or call by 7:00 a.m. the day of class illness, you do not need to have documentation in order to have the absence excused. This "email/phone" excuse may be used a maximum of three times. Subsequent absences will required written documentaiton.

Incomplete assignments are graded with a zero weight associated with the missing portions of the assignment.

Academic Integrity

“As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a ‘high seminary of learning.’ Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

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Course Reading

Research Methods, Statistics, and Applications by Kathryn A. Adams and Eva K. Lawrence.

In addition to this text, readings may be assigned as needed.

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[TA](#) - [Student Sites](#)

Course Calendar

Date	Topic in class	Read before class	Due: Posted to Website by 7:00 a.m. before Class	Lab: Due post website by end of lab period
1/8	Course overview	Demo	CH1 HW - Give an example of an IV and DV in a study about baseball 10 HW pts Create Web Archive	
1/13	Scientific Method	Ch 1 L.O.S.	HW CH 1 Define three terms. Give an example of how the terms could apply to a study about baseball (not IV or DV). (10 HW pts) CT Assessment scores: Overall score. Sub scales:	Design EX 1, Post Method Protocol (10 LAB pts)

			Analysis, Inference, Evaluation, Inductive, Deductive (10 HW pts)	
1/15	Validity, Reliability and Measurement	Ch 3 Want More Money ? full pdf report	HW Ch 3 Define three terms. Give an example of how the terms could apply to a study about baseball. (10 HW pts)	
1/20	Describing your sample	Ch5 DUI	HW CH 5 Define three terms. Give an example of how each could apply to a study about graduate school. (10 HW pts)	Data Collect, Post data file Practice data set tasks CH 3 https://statistics.laerd.com/spss-tutorials/cronbachs-alpha-using-spss-statistics.php Template (10 LAB pts)
1/22	Causal claims	Ch 8 DWT Shocking	CH 8 HW Define and give an example of how three terms	

			<p>could apply to the L.O.S. study. List another three terms that you are unclear about..(10 pts)</p> <p>Topic I (10 HW pts) Experimental Design e.g. LOS, Snakes</p>	
1/27	<p>Writing Beyond descriptives</p>	Ch 6 Appenix B	<p>HW CH 6 Define and give an example (not an example from the text) of three terms. List another three that you are unclear about..</p>	<p>Data Anal, Post Data analysis (10 LAB pts) https://statistics.laerd.com/spss-tutorials/independent-t-test-using-spss-statistics.php</p>
1/29	<p>Independent Groups Critique</p>	Ch 9 (up through p. 325)	<p>Review Ch 1,3,5,6,8,9 list 6 terms needing clarification</p>	
2/3	Exam I (10% grade)			<p>Lit Search (Topic II 10 LAB pts)</p>

2/ 5	Dependent Groups	CH 9 (p 325 -345) Ch 10 DSM5	Method Section LOS (10% grade due in class hard copy)	
2/ 10	Building a proposal Design Snake Lab	CH 2	HW CH 9 - 3 terms that are confusing HW CH 10- 3 terms that are confusing HW CH 2 - How three terms apply to your topic proposal: Define term, indicate how applies	Data Collect (10 LAB pts) Snake ppt hamster Overview Proposal Development
2/ 12	Descriptive research	Ch 4 Brains	HW Ch 4 - How three terms apply to your topic proposal: Define term, indicate how applies	
2/ 17	Writing Results	Appen dix B	HW For one of the main	Data Anal (10 LAB pts) Laerd Proposal

	Examples		results in Appendix B (p 551-552), prepare an excel graph depicting the result. Be sure to follow APA style Also include a figure caption page containing the figure caption.	development CITI
2/19	Review	Review 9 (p325-345), 10,2,4	HW: 3 terms shaky (10 pts) - What part of definition confusing?	
2/24	Exam II (10% grade)	CH 9 (p325-345), 10,2,4		Data Collect 10 LAB pts
2/26	Factorial Design	CH 11	Results section due (10% grade due in class hard copy)	
3/3	Factorial Design	CH 11	HW p 429 #1, 2 and 5	Data Anal (10 LAB pts) IRB Form , Info Letter

3/5	Correlational design Conclusions: Writing Discussion Overview results Lab III Outline	Ch 7 p 224 - 237	Post CITI certification (10 HW pts) HW Ch 7 p 265 #1, 2, 5, 6 (10 HW pts)	
3/10	Non-parametric	CH 12 p 431-450	Topic III (10HW pts)	Proposals (10HW pts)
3/12	Proposals (10HW pts)			
3/17	SB			
3/19	SB			
3/24	Generate final IRB proposals		Discussion section due (10% grade due in class hard copy)	Individual meetings
3/26	Writing Introduction Outline for Intro How to decide Cuddy Talk	Ch 14	HW p 490 Choosing designs: #1a-d, #2	
3/31	Review	CH 11,7,12,14, Proposal,	HW: Post to your website - three questions about	Individual meetings

		Cuddy Talk	concepts covered in class or in the text for the exam.	
4/2	Exam III (10% grade)			
4/7	Final Report Checklists and Appendix B p 547-555		Intro Draft due (10 pts)	Individual meetings
4/9	IM		Prelim Methods due (10 pts)	
4/14	IM		Prelim Results due (10 pts)	Individual meetings
4/16	CAT assessment (10 pts)		ppt draft due (10 pts)	
4/21	Final Presentations (4%)		final ppt due	
4/23	Final Presentations			Final Presentations
4/24			Final Report (20%)	

Office Hours and Contact

Contact

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Office Hours Spring 2015

TTH 8:30-9:30, 11:00-12:00

and by appointment

Portfolio: Demonstration of Distributed Competencies

See <http://www.clemson.edu/academics/programs/eportfolio/competency/>

This course helps you to meet some requirements for your distributed competencies, so you should be putting documents that satisfy these competencies in your general education portfolio. Please put the following documents in the following sections of your portfolio:

Ethical Judgment

-- Your IRB proposal with a rational statement explaining how your project exemplifies ethical judgement.

Reasoning, Critical Thinking, and Problem-Solving

-- Your research proposal and final research paper with a rational explaining how your project exemplifies critical thinking.

