Dr. Ben Stephens Psych 310-Advanced Experimental Psychology Fall 2014

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T.A.

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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](http://people.clemson.edu/~bstephe/310/CT2%20in%20PSYC%203100.htm)

Critique of Research

This section of PSYC 3100 is participating in Clemson’s [CT2 Quality Enhancement Plan](http://www.clemson.edu/assessment/thinks2/QEP-report.pdf), designed to inhance 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](http://people.clemson.edu/~bstephe/310/Course%20Description.htm):

* Design and execution of research requires critical thinking to anticipant 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.

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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 absenses will required written documentaiton.

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

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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 Kathrynn A. Adams and Eva K. Lawrence.

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

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TA - [Student Sites](http://people.clemson.edu/~bstephe/310/310Websites2014Fall.htm)

Course Calendar

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| --- | --- | --- | --- | --- |
| 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 |
|  |  |  |  |  |
| 8/21 | Course overview | [Demo](http://www.michaelbach.de/ot/mot_rotsnake/index.html)    <http://www.ted.com/talks/ben_goldacre_battling_bad_science> | CH1 HW - Give an example of an IV and DV in a study about baseball 10 HW pts | [Create Web Archive](https://support.google.com/sites/?hl=en#topic=1689606)  CT Assessment  10 HW pts |
|  |  |  |  |  |
| 8/26 | [Scientific Method](http://people.clemson.edu/~bstephe/310/01%20Powerpoint%20for%20chapter%201.pptx) | Ch 1 | HW CH 1 Define and give an example of three terms. Pick another three that you are unclear about.. (10 HW pts) |  |
| 8/28 | [Validity, Reliability and Measurement](http://people.clemson.edu/~bstephe/310/03%20Powerpoint%20for%20chapter%203.pptx)  [NYT Crit Think](http://people.clemson.edu/~bstephe/310/StoneOpEdCritThink.docx) | Ch 3 [L.O.S.](http://people.clemson.edu/%7Ebstephe/310/LOS%20.htm)  [Want More Money?](http://www.nytimes.com/2013/01/15/education/parents-financial-support-linked-to-college-grades.html?hp&_r=0) [full pdf report](http://people.clemson.edu/~bstephe/310/American%20Sociological%20Review-2013-Hamilton-0003122412472680.pdf) | HW Ch 3 Define and give an example of three terms. Pick another three that you are unclear about.. (10 HW pts) | Design EX 1, Post [Method Protocol](http://people.clemson.edu/%7Ebstephe/310/Lab%20I%20Protocol.htm) (10 HW pts)  2) [Practice data set tasks CH 3](http://people.clemson.edu/~bstephe/310/Calculate%20Cronbach.htm)   <https://statistics.laerd.com/spss-tutorials/cronbachs-alpha-using-spss-statistics.php> |
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| 9/2 | [Describing your sample](http://people.clemson.edu/~bstephe/310/05%20ppt%20lecture%20for%20chapter%205.pptx) | Ch5 [DUI](http://www.nytimes.com/2013/05/15/us/legal-limit-drunken-driving-safety-board.html?_r=0) | HW CH 5 Define and give an example of three terms. Pick another three that you are unclear about.. (10 HW pts) |  |
| 9/4 | [Causal claims](http://people.clemson.edu/~bstephe/310/08%20Powerpoint%20for%20chapter%208.pptx) | Ch 8  [DWT](http://www.washingtonpost.com/local/crime/texting-while-driving-law-and-virginia-legislature-criticized-by-fairfax-judge/2012/09/01/b80088e4-f1ff-11e1-a612-3cfc842a6d89_story.html?hpid=z3) [Shocking](http://www.guardian.co.uk/science/2013/may/16/electric-shocks-brain-maths-scientists) | CH 8 HW  Define and give an example of three terms. Pick another three that you are unclear about..(10 pts)  [Topic I](http://people.clemson.edu/~bstephe/310/TOPIC1Fall%202012.html) (10 HW pts) Experimental Design e.g. [LOS](http://people.clemson.edu/%7Ebstephe/310/LOS%20.htm), [Snakes](http://www.michaelbach.de/ot/mot_rotsnake/index.html) | Data Collect, Post data file (10 HW pts)  [Template](http://people.clemson.edu/~bstephe/310/LOS%20Data%20Log%20Template.xlsx) |
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| 9/9 | [Writing](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm) [Beyond descriptives](http://people.clemson.edu/~bstephe/310/06%20Powerpoint%20for%20chapter%206.pptx) | Ch 6 [Appendix B](http://people.clemson.edu/~bstephe/310/AppBmethods.pptx) (Methods section) | HW CH 6  Define and give an example of three terms. Pick another three that you are unclear about.. |  |
| 9/11 | [Independent Groups](http://people.clemson.edu/~bstephe/310/09%20Powerpoint%20for%20chapter%209.pptx)  [Lab1spssout](http://people.clemson.edu/~bstephe/310/3100Lab12spssout.pptx)  [Lab2spssout](http://people.clemson.edu/~bstephe/310/3100Lab2spssout.pptx)  [Critique](http://people.clemson.edu/~bstephe/310/310application.pptx) | Ch 9 (up through p. 325) | Review Ch 1,3,5,6,8,9  list 6 terms needing clarification | Data Anal, Post Data analysis (10 HW pts) <https://statistics.laerd.com/spss-tutorials/independent-t-test-using-spss-statistics.php> |
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| 9/16 | Exam I (10% grade) |  |  |  |
| 9/18 | [Dependent Groups](http://people.clemson.edu/~bstephe/310/10%20Powerpoint%20for%20chapter%2010.pptx) | CH 9 (p 325 -345) Ch 10  [DSM5](http://www.nytimes.com/2013/05/28/opinion/brooks-heroes-of-uncertainty.html?ref=opinion&_r=0) | Method Section LOS (10% grade due in class hard copy) | Lit Search ( [Topic II](http://people.clemson.edu/%7Ebstephe/310/TOPIC2.html) 10 HW pts) |
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| 9/23 | [Building a proposal](http://people.clemson.edu/~bstephe/310/02%20Powerpoint%20for%20chapter%202.pptx) Design [Snake](http://www.michaelbach.de/ot/mot_rotsnake/index.html) Lab | CH 2 | HW CH 9 p 347 # 8 and 9 HW CH 10 p 387 # 1 and 3 HW CH 2 - 3 shaky terms [sample responses](http://people.clemson.edu/~bstephe/310/Responses%20to%20HW%2023%20Sept.pptx) |  |
| 9/25 | [Descriptive research](http://people.clemson.edu/~bstephe/310/04%20ppt%20lecture%20for%20chapter%204%20final.pptx) | Ch 4  [Brains](http://www.nytimes.com/2014/05/28/science/stronger-brains-weaker-bodies.html?hpw&rref=science&_r=0) | HW p. 137 #1 and #2 and 3 shaky terms [sample responses](http://people.clemson.edu/~bstephe/310/sample%20responses%20CH%204.pptx) | Data Collect (10 HW pts) [Snake ppt](http://people.clemson.edu/~bstephe/310/snake.pptx) [hamster](http://www.animateit.net/details.php?image_id=2932) [Overview](http://people.clemson.edu/~bstephe/310/Snake%20Lab%20Overview.pptx)  Proposal Development |
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| 9/30 | [Writing Results](http://people.clemson.edu/%7Ebstephe/310/ResultsSection.html)  [Dependent ANOVA](http://people.clemson.edu/~bstephe/310/snakeoutput.pptx) |  | [lab12snake](http://people.clemson.edu/~bstephe/310/snakelab12.xlsx)  [lab2snake](http://people.clemson.edu/~bstephe/310/snakelab2.xlsx)  [Raw data](http://people.clemson.edu/~bstephe/310/Snake%20Illusion%20Results.xlsx) |  |
| 10/2 | Review | Review 9 (p325-345),10,2,4 [Shaky terms](http://people.clemson.edu/~bstephe/310/Exam%20II%20Shaky%20Terms.pptx) | HW: 3 terms shaky (10 pts) - What part of definition confusing? | Data Anal (10 HW pts) [Laerd](https://statistics.laerd.com/spss-tutorials/one-way-anova-repeated-measures-using-spss-statistics.php) Proposal development [CITI](http://www.clemson.edu/research/compliance/citi.html) |
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| 10/7 | Exam II (10% grade) | CH 9 (p325-345), 10,2,4 |  |  |
| 10/9 | [Factorial Design](file:///U:\public.www\310\11%20Powerpoint%20for%20chapter%2011.pptx) | CH 11 | [Results section due](file:///U:\public.www\310\ResultsSection.html) (10% grade due in class hard copy) | Data Collect  10 HW pts |
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| 10/14 | [Factorial Design](http://people.clemson.edu/~bstephe/310/11%20Powerpoint%20for%20chapter%2011.pptx) | CH 11 | HW p 429 #1, 2 and 5 [example](http://people.clemson.edu/~bstephe/310/CH11HWexample.pptx) |  |
| 10/16 | [Correlational design](http://people.clemson.edu/~bstephe/310/07%20Powerpoint%20for%20chapter%207.pptx) Conclusions: Writing [Discussion](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm#IIDa)  Overview results Lab III  [Outline](http://people.clemson.edu/~bstephe/310/DiscussionOutlineFall2014.docx) | Ch 7 p 224 - 237 | Post CITI certification (10 pts)  HW Ch 7 p 265 #1, 2, 5, 6 | Data Anal (10 HW pts) [IRB Form](http://people.clemson.edu/%7Ebstephe/310/Psych_310_application__120904.doc), [Info Letter](http://people.clemson.edu/%7Ebstephe/310/Psych_310_Sample_Info_Letter__120904.doc) |
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| 10/21 | [Non-parametric](http://people.clemson.edu/~bstephe/310/12%20Powerpoint%20for%20chapter%2012.pptx) | CH 12 p 431-450 | [Topic III](http://people.clemson.edu/~bstephe/310/TOPIC3.htm) (10HW pts) |  |
| 10/23 | [Proposals](http://people.clemson.edu/~bstephe/310/Proposal.html) (10HW pts) |  |  | Proposals |
|  |  |  |  |  |
| 10/28 | Generate final IRB proposals |  | [Discussion section due](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm) (10% grade due in class hard copy) |  |
| 10/30 | Writing [Introduction](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm)  [How to decide](http://people.clemson.edu/~bstephe/310/14Powerpointforchapter14.pptx)  [Cuddy Talk](http://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are.html) | [Ch 14](file:///U:\public.www\310\Ch%209%20Part%20II.htm) | HW p 502 Choosing designs: #3, #4, #5 | Individual meetings |
|  |  |  |  |  |
| 11/4 | Fall Break |  |  |  |
| 11/6 | Review | CH 11,7,12,14, Proposal, Cuddy Talk | HW: 3 terms shaky (10 pts) - What part of definition confusing? | Individual meetings |
|  |  |  |  |  |
| 11/11 | Exam III (10% grade) |  |  |  |
| 11/13 | [Final Report](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm) |  | [Intro Draft due](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm) (10 pts) | Individual meetings |
|  |  |  |  |  |
| 11/18 | IM |  | Prelim Methods due (10 pts) | Individual meetings |
| 11/20 | IM |  | Prelim Results due (10 pts) |  |
|  |  |  |  |  |
| 11/25 | CAT assessment (10 pts) |  | ppt draft due (10 pts) | Individual meetings |
| 11/27 | Thanksgiving |  |  |  |
|  |  |  |  |  |
| 12/2 | Final Presentations (4%) |  | final ppt due |  |
| 12/4 | Final Presentations |  |  | Final Presentations |
| 12/5 |  |  | [Final Report (20%)](http://www4.uwsp.edu/psych/mp/APA/apa4b.htm) |  |
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##### Office Hours and Contact Contact Ben Stephens bstephe@clemson.edu Brackett 312L 656-4982 Office Hours Fall 2014 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 statementexplaining 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.