

PSYCH 3100 & 3101: Advanced Experimental Psychology
Fall 2013: Tuesday and Thursday 12:30 PM to 1:45 PM

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About your Instructor: I am in my 6th year as an Assistant Professor of Psychology at Clemson University, prior to my appointment here I was an Assistant Professor at Texas A&M –Corpus Christi for 4 years, a post-doctoral fellow in Cognitive Psychopharmacology for 2 years at George Washington University. I completed my Ph.D. in Cognitive Psychology & Cognitive Neuroscience at Colorado State University in 2002. My areas of research include: the effects of nicotine withdrawal on cognition, oral contraceptive use and cognition in college age females, distinctiveness operations in memory, and relationships between reproductive hormone levels and cognition in post-menopausal women.

Course Overview and Objectives: PSYCH 310 surveys fundamental concepts and current issues in psychological research methods. Topics covered include the scientific method, ethics, observation, surveys, validity, reliability, experimental design and everyone's favorite - statistics. A primary goal of the course is to familiarize you with the basic concepts and some research findings in these areas, but we will also consider real-world examples and applications of the material in order to emphasize the relevance of the concepts to our daily lives, especially how to evaluate research reported in the popular media. As a result of learning about psychology research, you will gain a better understanding of such research and how it relates to mental health fields, clinical and medical diagnosis, education, marketing and advertising, and law, among other things. By the end of the semester each student should be able to:

- 1. Describe the basic characteristics of the science of psychology.**
- 2. Explain different research methods used by psychologists.**
 - a. Describe how various research designs address different types of questions and hypotheses*
 - b. Articulate strengths and limitations of various research designs, including distinguishing between qualitative and quantitative methods*
 - c. Distinguish the nature of designs that permit causal inferences from those that do not*
 - d. Describe how the values system of the researcher can influence research design and decision*
- 3. Evaluate the appropriateness of conclusions derived from psychological research.**
 - a. Interpret basic statistical results*
 - b. Distinguish between statistical significance and practical significance*
 - c. Describe effect size and confidence intervals*
 - d. Evaluate the validity of conclusions presented in research reports*
- 4. Design and conduct a basic study to address a psychological question using appropriate research methods.**
 - a. Locate and use relevant databases, research, and theory to plan, conduct, and interpret results of research studies*
 - b. Formulate testable research hypotheses, based on operational definitions of variables*
 - c. Use reliable and valid measures of variables of interest*
 - d. Select and apply appropriate methods to maximize internal and external validity and reduce the plausibility of alternative explanations*
 - e. Collect, analyze, interpret, and report data using appropriate statistical strategies to address different types of research questions and hypotheses*
 - f. Recognize that theoretical and sociocultural contexts as well as personal biases may shape research questions, design, data collection, analysis, and interpretation*
- 4. Follow the appropriate ethical guidelines in the treatment of human participants in psychological research.**
- 5. Accurately and clearly report the results of a psychological research study in both written and oral communications.**
 - a. Exercise caution in predicting behavior based on limitations of single studies*
 - b. Recognize the limitations of applying normative conclusions to individuals*
 - c. Acknowledge that research results may have unanticipated societal consequences*
 - d. Recognize that individual differences and sociocultural contexts may influence the applicability of research findings*

Course Format: PSYCH 310 will be taught at a level suitable for undergraduates. This course involves a great deal of independent work, which will require you to stay on top of assignments and keep track of a lot of material, I suggest purchasing a three-ring binder to hold all of your materials. The course includes both lecture and lab components, the lab component will consist almost entirely of assignments and activities geared towards an independent research project. Attendance in lab is mandatory, and attendance in lecture is highly suggested.

Course Material: The main textbooks for the course are *The Psychologist as a Detective, 6e* by Smith & Davis and *How to Think Straight About Psychology, 9e* by Stanovich. This textbook provides in-depth coverage of most major areas in research methods, and does so in an accessible fashion. Please feel free to let me know what you think of this text. In addition, to the main textbook you may want to purchase either the *Publication Manual of the American Psychological Association* or one of the style guides as the main component of your coursework will be writing a full APA style research report. There are also several websites which can help you with how to write an APA style paper. Finally, there will be a number of required readings from outside sources for both the lecture and lab portions of the course; these will be made available for you on blackboard.

Focus on Critical Thinking: This section of PSYCH 3100 is part of a larger, university wide effort to enhance the critical thinking skills of Clemson students – Clemson Thinks² (<http://www.clemson.edu/assessment/thinks2/>). As part of this effort, we are assessing how well the courses fulfill our goal of improving critical thinking so you will be taking the California Critical Thinking Skills Test during the lab both at the start of the semester (August 27) and at the end of the semester (December 3). While your scores on the skills tests will not affect your grade, you will be required to complete them as a laboratory assignment. You will need to bring your laptop and please make sure your browser and java are up-to-date <http://java.com/en/download/index.jsp>. Throughout the term we will spend time focusing on how to critically analyze and understand evidence – in psychological studies as well as other sources. You will write two “critical analysis” papers in which you will find a news item, or research study, or some other source of ‘information’ and conduct an analysis of the accuracy of the information. See further information later in the syllabus. As a result of this focus, I have some specific learning objectives for the semester, tied directly to critical thinking:

- 1. Use critical thinking effectively.**
 - a. Evaluate the quality of information, including differentiating empirical evidence from speculation and the probable from the improbable
 - b. Identify and evaluate the source, context, and credibility of behavioral claims
 - c. Challenge claims that arise from myth, stereotype, or untested assumptions
 - d. Use scientific principles and evidence to resolve conflicting claims
 - e. Recognize and defend against common fallacies in thinking
 - f. Avoid being swayed by appeals to emotion or authority
 - g. Evaluate popular media reports of psychological research
 - h. Demonstrate an attitude of critical thinking that includes persistence, open-mindedness, tolerance for ambiguity, and intellectual engagement
 - i. Make linkages or connections between diverse facts, theories, and observations
- 2. Engage in creative thinking.**
 - a. Intentionally pursue unusual approaches to problems
 - b. Recognize and encourage creative thinking and behaviors in others
 - c. Evaluate new ideas with an open but critical mind
- 3. Use reasoning to recognize, develop, defend, and criticize arguments and other persuasive appeals.**
 - a. Identify components of arguments (e.g., conclusions, premises/assumptions, gaps, counterarguments)
 - b. Distinguish among assumptions, emotional appeals, speculations, and defensible evidence
 - c. Weigh support for conclusions to determine how well reasons support conclusions
 - d. Identify weak, contradictory, and inappropriate assertions
 - e. Develop sound arguments based on reasoning and evidence
- 4. Approach problems effectively.**
 - a. Recognize ill-defined and well-defined problems
 - b. Articulate problems clearly
 - c. Generate multiple possible goals and solutions
 - d. Evaluate the quality of solutions and revise as needed
 - e. Select and carry out the best solution

Further Reading: All of the information you need to know for the class will be given in lecture or in the textbook, but if you would like additional information on a particular topic, I suggest that you consult one of the following textbooks: *Research Methods in Psychology*, G. M. Breakwell, S. Hammond, and C. Fife-Schaw, (Eds.) or *Research Methods: A Process of Inquiry*, by Graziano and Raulin, both of which are available from me to examine. Also the library has available a variety of texts including - *Research in Psychology : Methods and Design* by C. J. Goodwin; *Critical thinking about research : Psychology and Related Fields* by J. Meltzoff. You may also want to pick up a copy of the *Publication Manual of the American Psychological Association* if you plan on attending graduate school. For those of you working on APA style papers for other classes, I have a manual available for you to peruse should you need to.

Participating in Class: I encourage discussion, questions, and detours into topics where we can explore what we are learning in new ways, I want this to as interactive as possible so speak up! There will be several demonstrations throughout the term in which you will see the principles we are discussing in action and have been known to give extra credit for those, but you have to be here to get credit! Finally, I'm trying something new with twitter – if you have a question or comment about the class send a tweet either to me directly (@paulsmerritt) or tweet/follow using the hashtag #psyc3100, and feel free to comment to other student's tweets. All I ask is that you be respectful to one another, we are all here to learn and grow so let's keep it civil!

Evaluation: Grades will be determined using a straight scale (where 90%=A, 80%=B, 70%=C, 60%=D). There will be two exams worth 100 points each. None of the exams will be cumulative however the knowledge in this course is built on a foundation so you should make sure you see me if you have trouble on the first exam. Each test will consist of multiple choice questions, fill-in-the-blank, short answer and essay questions and will primarily test your *conceptual understanding* of the material rather than specific details like names and dates. Study guides will be provided before each exam. The bulk of your grade will be your final projects which includes a number of assignments (see below).

Make-up Policy: If you know in advance that you must miss an exam, let me know ahead of time and it will usually be possible to take the exam at another time. If you unexpectedly miss an exam, you may take a make-up only if you have a valid excuse (a note from a Doctor or the Dean's office may be required) *and* you contact me as soon as possible (i.e., the same or next day). Make-up exams may differ in format or content from those given at the scheduled time.

Course Policies

Late Professor Policy

If I'm 10 minutes late, you don't have to wait.

Late Assignment Policy

Late assignments will receive a 10% grade deduction for each day that the paper is late (including all lab assignments), beginning at the end of the class period that the assignment was due. No papers will be accepted after the final paper is due. Some assignments such as the poster presentation and the poster critiques require you to be in class on those days to earn credit. If you fail to show up on those days, you will receive a zero.

Laptop

You will need a laptop for this class. You will be taking an online critical thinking assessment at the beginning and end of the semester during the lab (the University is focusing on critical thinking skills and this course is one our department believes would be suited to developing these skills). You will also take your in-class exams online using your laptops.

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.

When, in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member shall make a formal written charge of academic dishonesty, including a description of the misconduct, to the Associate Dean for Curriculum in the Office of Undergraduate Studies. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.

Make-up Policy: I strongly discourage missing class, lab attendance is mandatory (assignments are due each week). If you miss an exam you must contact me either prior to the exam, or the day of the exam for unexpected circumstances.

Attendance: Classroom attendance will not be taken. Note, however, that if you wish to do well on the exams, it is imperative that you attend lectures regularly. As mentioned above, lectures will consist of a great deal of information that cannot be found in the textbook. In addition, there will be many opportunities to earn in-class extra credit, but you must be in class! So attendance is strongly, strongly encouraged—experience has shown that students have difficulty even passing this course if they do not attend regularly. Attendance in the lab is mandatory.

Accommodations for Students with Disabilities: Students with disabilities who need accommodations should make an appointment with Arlene Stewart, Director of Student Disability Services, to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disabilities Services when they meet with instructors. Student Disability Services is located in G-20 Redfern (phone 656-6848; email: sds-1@clemsun.edu). Please be aware that accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

General Education Competencies (E-Portfolios): Several assignments in this course will help you to fulfill the general education competencies required for your e-portfolios. My suggestion is to upload the appropriate assignment to your e-portfolio as soon as you complete each assignment. Here are some suggestions:

Ethical Judgment: Create a pdf copy of your IRB training certification and upload to show “Demonstrate an ability to identify, comprehend and deal with ethical problems and their ramifications in a systematic, thorough and responsible way.” You should also upload a copy of your completed IRB submission; both demonstrate your ability to deal with research participation in an ethical manner.

Social Sciences: Upload your final paper to demonstrate your knowledge of social science methodology, you will also critique the method of a couple of papers for lab, use those here as well.

Mathematics: Upload your final paper to demonstrate your knowledge of statistical methods.

Critical Thinking: Several lab assignments and exam questions will demonstrate your ability to think critically and to apply your knowledge outside of the classroom. You will also complete two critical analysis papers which will be graded based on your ability to take what you are learning in class and apply to a real world news item and show you can think critically about the information presented.

Critical Analysis Papers: You will write a 1-2 page, single spaced critical analysis of an item from the popular media (e.g. newspaper, cable news, news website) which describes or explains a research finding relevant to psychology. Your analysis should clearly demonstrate your ability to apply the material from the course to information you would gain from the popular press. Your paper should roughly be structured in the following way: a brief synopsis of the news item with an overview of the areas you are choosing to critique, followed by 2-3 paragraphs for each of the main points you outlined in your synopsis as areas you would critique, finally a summary paragraph in which you integrate all of your critiques into a cohesive summary of your analysis. There are numerous examples to look at, school funding and test scores, vaccines and autism, crime and gun ownership, drug abuse and marijuana legalization, underage drinking, gay marriage and adoption, does requiring and id limit voting behavior. Whatever you are interested in is what will likely make a more interesting paper.

Grades: Your grades will be determined by your performance on exams, assignments, final project and participation in lab. Your final project will constitute the bulk of your grade so you should plan on spending a great deal of time on your projects. You will design a study from start to finish, including submitting your projects for approval to the IRB, collection of data, data analysis, writing research report and presenting a poster at our very own mini-conference.

Exam 1	100 points
Exam 2	100 points
Critical Analysis 1	25 points
Critical Analysis 2	25 points
Lab Assignments	100 points
IRB Application	50 points (but, you will not be able to pass the course if you do not complete the application on time, no matter how good the rest of your stuff is)
Poster Presentation	50 points
Poster Critiques	50 points
Final Project Paper	200 points
TOTAL	700 Points

Grading Scale: 630 points = A; 560 = B; 490 = C; 420 = D, < 420 = F

Correspondence: Don't hesitate to contact me if you need help with the course. I strongly value my role as a teacher (as well as researcher) and will gladly provide help outside of class. I also have an open-door policy and do my best to make myself available. I almost always work in my office with my door open--if you come by and see my door open, that means you're welcome to drop in unannounced. If you want to make sure you catch me, you may come to my office hours or set up an appointment. To make an appointment for a different time, contact me after class, at my office phone number, or via e-mail. *I'm here to help, so definitely let me know if I can be of assistance!*

Best,

Paul S. Merritt

Schedule of Topics - Lecture

<i>Date</i>	<i>Topic</i>	<i>Smith & Davis</i>	<i>Stanovich Reading</i>
Aug 22	Introduction; <i>Focus on Critical Thinking - Research Topics: Effective Study Habits and Evidence Based Practices in the Classroom.</i>	Chapter 1	Chapters 1-3
Aug 27	Ethics	Chapter 2; <i>Outside Reading for Afternoon Labs</i>	
Aug 29	Science, Epistemology & Empiricism <i>Focus on Critical Thinking: Evaluating Sources of Knowledge</i>		
Sept 3	Replication and Behavioral Science <i>Focus on Critical Thinking: Spotting and evaluating bias in research</i>	Outside Readings	
Sept 5	Scientific Method	Chapter 5	
Sept 10	<i>Focus on Critical Thinking: Reasoning and Scientific Method: A users guide to rationalism and empiricism</i>		
Sept 12	Descriptive and Correlational Designs <i>Focus on Critical Thinking: Post hoc ergo propter hoc & the misapplication of correlational data.</i>	Chapter 4	Chapter 5
Sept 17	Experimental Methods <i>Focus on Critical Thinking: Logic and structure of experimental research</i>	Chapter 6	
Sept 19	Confounds & Experimental Control <i>Focus on Critical Thinking: Evaluating research designs</i>	Chapter 7	Chapter 6
Sept 24	EXAM 1	Chapters 1-8	Chapters 1-7
Sept 26	Internal & External Validity	Chapter 8	Chapter 7
Oct 1	Descriptive Stats	Chapter 9	Chapter 10
Oct 3	<i>Focus on Critical Thinking: Statistical Reasoning: Using inferential statistics in research</i>		Chapter 11
Oct 8	Two-Group Designs	Chapter 10	
Oct 10	IRB FORMS DUE! YOU MUST COMPLETE THIS ASSIGNMENT IN ORDER TO PASS THIS COURSE!		
Oct 15	Fall Break		
Oct 17	Multiple Group Designs	Chapter 11	
Oct 22	Factorial Designs & Interaction Effects	Chapter 12	Chapter 9
Oct 24	Single N & Quasi-Experimental Designs	Chapter 13	
Oct 29	<i>Focus on Critical Thinking: Case Studies & Testimonials – Evaluating Scientific Claims versus Emotional Appeals.</i>		
Oct 31	Exam 2	Chapters 9-12	Chapters 9-11
Nov 5	APA Style		
Nov 7	Data Collection		
Nov 12	Data Collection		
Nov 14	Project Meetings		
Nov 19	Project Meetings		
Nov 21	Posters – how to		
Nov 26	Final Project wrap up		
Nov 28	Thanksgiving Day!		Gobble Gobble!
Dec 3	Poster Session		
Dec 5	Poster Session		
Dec 11	Final Papers due to TURNITIN by NOON		

PSYCH 3101 LAB SCHEDULE – Fall 2013

<i>Date</i>	<i>Topic</i>	<i>Reading</i>	<i>Assignment Due</i>
Aug 27 – Bring your laptop!	California Critical Thinking Skills Test: How to conduct a lit review	Karpicke & Roediger (2008); Marsh et al (2007)	Article Reviews
Sept 3	Research Ethics Discussion	Middlemist et al (1976)	Lit Review Exercise
Sept 10	Research Topics Discussion		IRB Certification, Background and 3 Possible Questions
Sept 17	Development of Specific Research Questions		Project Summary and Hypothesis Statement
Sept 24	Writing a Method Section		Draft Methods Section
Oct 1	IRB Forms		Draft IRB Applications Due!!!
Oct 8	Descriptive Statistics		Final IRB Applications Due!!! Stimulus and Materials
Oct 22	Inferential Statistics		
Oct 29	Reporting Stats & Creating figures		Draft Introduction
Nov 5	Data Collection		Stats assignment
Nov 12	Data Collection		
Nov 19	Data Analysis		Scored & Raw Data
Nov 26	Posters		
Dec 3 - Bring your laptop!	California Critical Thinking Skills Test		

Lab Assignments:

California Critical Thinking Skills Test (Completed in lab August 27)	10 points
Article Reviews	10 points
Lit Review Exercise	10 points
IRB Certification	10 points
Background review and 3 possible research questions for final project	10 points
Project summary and hypothesis statement	10 points
Draft Methods section	10 points
Draft introduction	10 points
Statistical reasoning and analysis assignment	10 points
California Critical Thinking Skills Test (Completed in lab December 3)	10 points