Psyc 316: Non-Experimental Research Methods
William Breland, Ph.D.
Syllabus Spring 2012

Contact Information: Office: SGM 529; e-mail: wbreland@usc.edu
Office hours: Monday & Wednesday – 12:30 to 1:30 pm and Tuesday – 10 to 11:30 am

Course Prerequisites
Psyc 314 Research Methods: Experimental Designs must be completed (grade of C- or better) prior to enrollment in this class. Note: you may not take Psyc 314 and Psyc 316 concurrently. After taking Psyc 314, students are expected to have a clear understanding of the philosophy of the scientific method, the basic concepts and terms associated with experimental research design, and the Code of Ethics adopted by the American Psychology Association (APA) regarding research with human and animal participants. Students are also expected to be able to write up scientific studies according to the formatting standards set by the APA.

Objectives
Students learn the fundamentals of non-experimental research and how to critically evaluate published articles that are concerned with that type research. The primary emphasis of the course will be on non-experimental research design and on the analysis and interpretation of data collected for those types of designs. A secondary emphasis will be to encourage each student to identify the areas of psychological research that he/she finds most interesting and to begin building a strong research concept about those areas – especially as regards the application of non-experimental observational research designs.

Required Readings
1) Readings will be assigned and provided – either via handouts in class or by digital documents on the USC Electronic Blackboard or ARES.

Bonus-Preps
“Bonus-preps” will be scheduled throughout the semester as preparation for the exams. The bonus-preps are presented in a multiple choice and short answer format. These preps very closely approximate what students can expect to see on the mid-term exams. The Bonus Preps are provided as practice for the mid-term exams. In addition to this, they provide an opportunity for students to earn bonus points to supplement and improve their subsequent mid-term exam scores. The better a student performs on the bonus-preps, the more bonus points he or she will earn toward improving his or her mid-term exam raw score. Furthermore, by keeping up with the readings, by completing and studying the weekly “think-tanks” (these are the course study guides), and by participating in the class discussions and bonus-preps, students should be well prepared for the exams – they should not need to schedule intense study-time (i.e. cram) for the exams.

Journal Article Critical Evaluation
One of the best ways to learn about research design is to read and critically evaluate research articles. Eight research articles (downloadable from ARES – electronic reserves) have been selected (each student will choose one pre-matched pair of articles) – to critique and present in class as part of a student group project. The articles are listed below and the dates for their discussion are indicated in the course schedule (see p.6 of this syllabus).

The presentations will be led by groups of students with the guidelines attached to this syllabus. Presentations will be 10 minutes in length.

Each student should utilize the “Groups” link on blackboard to self-select a group. If you wish to work as a group with other specific students, you should sign up at the same time wherever a group has enough available slots. The groups will have a “cap” on how many members will be allowed. Size of the groups will depend on class enrollment, but will most likely be no larger than five members. Grades for this assignment will be based partly on group performance and partly on individual performance. It you believe you would like to work with other specific students, you should select your group members carefully based on working style as well as compatibilities of your schedules.

Each presenting group must provide a one-page presentation-summary to all in attendance at the time of your presentation. Your presentations will be assessed on clarity, accuracy, and professionalism (see p. 7-8 of syllabus). The use of PowerPoint is required. You may supplement the presentation with other visual aids (e.g., posters, blackboard, whiteboard, video, or overhead) if you wish. Each presentation group has also been assigned a date on which its members are to pose questions to one of the other presentation groups (see course schedule). Each group member must ask (in class, verbally – not written) at least one question of the other group. The questions should address issues related to the design and will be evaluated as part of your group grade (see page 5-6 of syllabus).
Articles for Critical Evaluation (downloadable from PsychInfo)


Examinations

Three examinations will be given (see course schedule for dates). The examinations will test your understanding of the major concepts in the course, and will focus on both the details and “the big picture”. All examinations are based on the lecture material, class discussions, textbook, student oral presentations, video-presentations, assignments, and handouts. The “Think-Tank” study guides and the “Bonus-Preps” are the best representation of what you can expect on the examinations. The exams may consist of multiple-choice questions, matching, and short essays. The final examination is comprehensive and will include questions assessing your ability to apply your knowledge of research design to critiques of experimental, non-experimental, and quasi-experimental studies.

Class Exercises, Internet Tasks, and Participation Points

Prior to each week’s lectures - reading the assigned material, engaging the tasks that are identified on the course Blog, and working on the “Think Tank” study guides provide a foundation for understanding the lecture topics and for participating in the discussions. Various participation point questions will be asked during lecture for which a response will be expected (on paper) – class discussions will be based on these questions. Exercises may occasionally be assigned on the course blog or during class lecture in order to help you think about research issues and better understand the course material. The tasks on the course Blog and the class exercises will provide you the opportunity to earn bonus points that can be applied to your examination scores.

The Course Lab and Research Reports

The lab assignments are designed for you to gain experience in applied aspects of research methodology, such as the conceiving of a topic for investigation, conducting literature searches, writing APA-style research reports, managing databases, and analyzing data using statistical software. For this course, you are required to write two APA-style research reports (see due dates in course schedule). During the lab you will complete assignments that help you to write the reports. Each student is expected to submit their own unique reports. The reports are expected to approximate a publishable quality paper, suitable for submission to a peer-reviewed research journal. Each report should adhere to APA format requirements with an abstract, an introduction section, a methods section, a results section, and a discussion section that interprets the findings. Each of the two research reports should include a statistical analysis printout as an appendix. Students are encouraged to identify research topics that are based in their particular area of interest; but the topics must be approved by the lab TA. Specific guidelines for each report will be provided in lab and on blackboard. The first report will be directed at quantitative non-experimental design (multiple regression) and the second report will be directed at qualitative non-experimental designs.
**Evaluation Criteria**

Grades for this course are based on several components. Each component will be assessed on the basis of 100 points. However, the proportionally weighted importance of each component on your final grade will be as follows:

- Mid-term examinations I and II (12.5 % each) ................................................….......…….. 25 %
- Final examination (comprehensive) .................................................................................................. 15 %
- Attendance and participation (participation points, responsiveness in discussion) ………. 10 %
- Lab assignments .................................................................................................……………. 15 %
- Group grade – article critique – presentation and questions combined .................. 10 %
- Research reports (12.5% each).................................................................................. 25 %

In percentages your letter grade will be assigned as follows:

- A = 92.5 (and above), A- = 89.5 to 92.4,
- B+ = 86.5 to 89.4, B = 82.5 to 86.4, B- = 79.5 to 82.4,
- C+ = 76.5 to 79.4, C = 72.5 to 76.4, C- = 69.5 to 72.4
- D = 60 to 69.4, F = below 60.

**Missed assignments and/or examinations**

Missed exercises and examinations cannot be made up and will result in a grade of zero. Students who experience medical emergencies preventing them from attending class on days where class exercises, quizzes, or examinations are scheduled are required to provide original documentation from their physicians within one week explaining their absence. USC athletes should meet with me by the end of the second week regarding their scheduled athletic events that may conflict with course requirements. Students who miss class due to religious holidays will be allowed to make up examinations and/or participation points, it is each student’s responsibility to inform the professor when such religious observances will occur and to request alternate tasks that can be completed outside of the classroom.

**Tardy policy**

There is a large amount of material to cover in this course. Tardy students (more than 5 minutes late) are disruptive to the class, and significantly retard the flow of information. After a second time where a student is late for class, his/her class grade will be dropped by 1% on the final grade.

**Cell Phone and Electronic Device Policy**

Cell phones should be turned off during class. Computers may be used for note taking purposes only.

**Course Participation**

You are expected to be prepared for class by completing the required readings or exercises BEFORE class, and should be prepared for discussion of the assignments (and participation point questions).

**Academic Integrity**

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. *Scampus*, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: [http://www.usc.edu/dept/publications/SCAMPUS/gov/](http://www.usc.edu/dept/publications/SCAMPUS/gov/) Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: [http://www.usc.edu/student-affairs/SJACS/](http://www.usc.edu/student-affairs/SJACS/)

**Students with disabilities and/or special needs**

Any students with special needs should be registered through the University Disability Services and Programs (DSP) and should meet with me regarding the arrangements approved through the DSP within the first week of the course. Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776
Additional Notes

1. This course is challenging and 100% attendance is expected of all students. It is clear that students who attend class regularly, stay up with the readings, complete the assignments with full effort, and who do not leave studying until the last moment typically find that they enjoy the course more and achieve at least a C or better in this course. As in any course, work of a significantly high caliber in each of the components of this course is considered to be B (good) or A (exceptional) work. It is especially important that you be on time for class, have completed your reading assignments prior to class-time, and that you are prepared for discussion of these materials in class.

2. All assignments in this course are expected to be word-processed and graphs/tables should be computer-generated.

3. All assignments should be completed using APA-style, including the use of a title page. They are due at the beginning of class on the due date. Word-processing and data management are available in several computer labs on campus. You should consult your APA publication manual for all writing assignments.

4. All students are expected to have access to the student computer network. It is your responsibility to ensure that your access is up-to-date during the semester.

5. Tutors are available for this course and as regards improvement in your writing through the USC Center for Academic Support (http://sait.usc.edu/academicsupport//centerservices/tutorlearning.html). If you should find that you are not doing as well in this course as you would like, please see me immediately. I will help you as best I can. But be aware that you can arrange short-term or long-term tutoring through the USC Center for Academic Support.
Journal Article Critical Evaluation Guidelines
For the journal article you are presenting, answer each of the following questions in the order listed. You will be graded on your ability to correctly address each question, the clarity and professionalism of your presentation and your ability to answer questions from your colleagues following your presentation. Visual aids to facilitate understanding of the paper that you are analyzing are required, as is a one-page summary of the critical evaluation (1 page maximum) to be given to your instructor and your classmates at the beginning of your presentation (PowerPoint is mandatory; plus any other visual aids if desired). All members of the group are expected to participate equally in the presentation. Your presentation should be 10 minutes in length; presentations that are too long and too short will be penalized. Your group presentation grade will comprise 70% of the article critique grade. You will also receive a grade for the questions that you ask of the group whose article you are scheduled to question (see p.6 for the group you should prepare to question); your questions will contribute 30% of your article critique grade. The questions will likely generate another 10 minutes of discussion for each group. For studies with more than one experiment, highlight differences where relevant; it is not necessary to answer all 13 questions for each experiment in a multiple experiment article.

Journal Article Critical Questions (Revised Locke 12-step + 1)
1. Cite the full reference (APA form)
2. What was the general purpose of the study and what questions does it raise (brief summation of your understanding)?
   - Describe what this research is all about (research question). What is/are the hypothesis(es)?
3. How does the study add something new to what is already known (if replication, why is it important) – (Introduction/lit review part should argue this)?
   - What have others working in the area found? (From the introduction) Why does this research address this question?
4. Sketch a sequential order of the major steps in executing the study:
   - Provide a diagram that visually depicts design of study. Discuss design aspects with respect to this diagram.
5. What kind of study was it (e.g. experiment, quasi-experiment, qualitative interview, etc.)?
   - What was the design type? (Experimental, quasi-experimental, non-experimental; if experimental or quasi-experimental, was it a single factor or factorial design and was it within-subjects, between-subjects or mixed? If quasi-experimental, was it a combined design? If non-experimental, was the design descriptive or correlational?) Clearly explain your reasons for classifying the design this way.
6. Who or what was studied (what is the entity or observation unit, number of units/subjects, gender mix, ethnicity, etc – likely found in beginning of methods section)?
   - Describe and critically evaluate the sample and the sampling techniques used to obtain the sample.
7. What data was recorded and used in the analysis (variables, instruments, operations of measurement)?
   - What were the major variables (not control) in this study? Identify whether they were independent, quasi-independent, dependent, predictor or criterion variables, and clearly explain your reasons for classifying them this way.
   - How did the author operationally define each of the variables? Critically evaluate these operational definitions in terms of reliability and validity.
   - Describe and critically evaluate any control variables utilized in this study (Note: usually, there are some control variables; you should select the most important ones to highlight).
8. What kind of analysis was executed (ANOVA – analysis of variance, MANCOVA – multivariate analysis of covariance, SEM – structure equation modeling, Regression, Cluster Analysis, etc.)?
   - How was the data analyzed? Describe the statistical techniques and evaluate their appropriateness for this design.
9. What were the results (how does the collected data address the issues of the hypotheses) – (likely summed up at the beginning of the results section – or at the end)?:
   What were the results of the statistical analyses? Explain the results clearly with respect to the hypothesis/es.

10. What does the author conclude (in the conclusions or discussion section)?:
   How did the author interpret the data and what conclusions were drawn about the hypothesis(es)?

11. What cautions are raised by the author and what reservations do you have?:
   Given the design type, nature of the variables, and scale the researchers were using, what were the major concerns the author(s) needed to address with regard to threats to internal validity? Critically evaluate whether/how the author(s) dealt with these concerns.

12. What did you find particularly interesting about the study?:
   Discuss the ideas that you found most intriguing or that was most applicable to your research or thinking.

13. Critically evaluate the conclusions. Do you agree with the conclusions? Why?

NOTE TO PRESENTERS (be sure to check the date of your presentation): A major learning objective of the critical evaluations is to give you experience with critical evaluation of research design. Thus it is not sufficient to merely describe the design features if you are the presenter, or to ask basic questions about research design, if you are asking questions. A major proportion of your grade is based on your ability to critically evaluate principles of research design.

Summary of grade components:
Correct and clear answers to each of the 13 questions above ........................................ 50 %
Professionalism and effective use of visual aids ................................................................. 25 %
Appropriateness of answers to questions posed by your colleagues ................................. 25 %

NOTE TO QUESTIONERS (be sure to check the date and article of your questioning period): There are a number of appropriate questions that may arise as the presentation proceeds. You are expected to vocalize your questions; orally ask the questions of the presenters during the questioning period that follows their presentation. The major learning objective is as above – to critically evaluate the presentation itself. If any of the 13 questions are not sufficiently addressed, you should ask questions that bring clarity to those issues. Other possible concerns may include questions about reliability and validity given your reading of other studies in the area of research; ways to extend the findings of this study or to fill in gaps in the literature (be specific); what would you expect to find with certain modifications (be specific), etc. You might introduce specific questions about the appropriateness of operational definitions, statistical techniques, interpretation of findings, etc., and/or choices the researchers may have faced in their design decisions.

Summary of grade components:
Appropriateness of questions .......................................................... 50 %
The clarity with which the question is raised ............................................................. 25 %
Uniqueness of issue raised .......................................................... 25 %

NOTE ON THE TOTAL ARTICLE CRITIQUE GRADE: The group presentation (of the primary article) is the part of the article critique grade that will be the same for each member of the group. This will account for 70% of each member’s total article critique grade. The asked-questions that you ask (regarding the second article) are the part of the article critique grade that may vary for each member of the group. This will account for 30% of each member’s total article critique grade.
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<thead>
<tr>
<th>Wk #</th>
<th>Date</th>
<th>Lectures</th>
<th>Labs</th>
<th>Assigned Readings (on ARES)</th>
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<tbody>
<tr>
<td>1</td>
<td>1/9</td>
<td>Introduction to class</td>
<td>No Lab</td>
<td>Reference: *Brief review of important terms and statistical and experimental concepts, Breland</td>
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<td>Brief review of Psyc 274 &amp; 314</td>
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<td>2</td>
<td>1/16</td>
<td>Monday – University Holiday – MLK B-Day</td>
<td>Review SPSS, Download R characterizing distributions review of data set characteristics/ export/ import</td>
<td>Reference: *Theory Construction and Model Building Skills, Jaccard &amp; Jacoby, as excerpted from pp 39-91</td>
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<td>Choosing a line of research; Methods for building theory in non-experimental research</td>
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<td>3</td>
<td>1/23</td>
<td>Continued discussion of Theory Construction; Correlation and covariances; Measures of relatedness; Simple regression and multiple regression; Prediction and accounting for variance; Preparation for first research report; *BonusPrep #1 – second lecture</td>
<td>Introduction to R Comparing SPSS &amp; R; Literature search for first research topic; Specifying research questions as hypotheses</td>
<td>Reference: *Regression Basics 2nd edition, Kahane, as excerpted from pp 1-36, 59-77</td>
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<td>4</td>
<td>1/30</td>
<td>Measurement theory and constructing scales; Investigations via surveys; Sampling issues; Psychometrics; Scale types; Reliability; Validity</td>
<td>Regression analyses and constructing scales; Writing introductions to research reports</td>
<td>Reference: *Test Theory: A Unified Treatment, R. McDonald, as excerpted from pp 55 - 75</td>
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<td>5</td>
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<td>Introduction to Factor Analysis in Research; Confirming dimensions in a system; Inter-item reliability; Review for Mid-Term Exam #1; *BonusPrep #2 – first lecture</td>
<td>Factor Analysis and construct validity; *Rough draft of Intro &amp; Midh Research Report due</td>
<td>Reference: *An Easy Guide to Factor Analysis, P. Kline, as excerpted from pp 1-56</td>
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<td>6</td>
<td>2/13</td>
<td>Introduction to Structural Equation Model Designs; Path Analyses vs. Latent Factor analyses; Confirmatory factor analysis and invariance analysis; *Mid-Term Exam #1 – first lecture</td>
<td>Introduction to MX structural equation software</td>
<td>Reference: *Latent Variable Models: An Introduction to factor, path, and structural equation models, John C. Loehlin, as excerpted from pp. 1-26; 78-100</td>
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<td>7</td>
<td>1/20</td>
<td>SEM growth model designs; Developmental designs; Investigating a system of interrelated factors</td>
<td>Analyses of research report data; Introduction to SEM growth models;</td>
<td>Article: *Latent growth curve analysis of accelerating decline in cognitive abilities in late adulthood, Finkel, Reynolds, McArdle, and Gatz.</td>
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<td>8</td>
<td>2/27</td>
<td>Introduction to qualitative designs; Preparation for the 2nd research report; Quantitative vs. Qualitative debate; Focus Groups; *BonusPrep #3 – first lecture</td>
<td>Introduction to qualitative analyses; Choosing a topic for the second research report; *1st research report due</td>
<td>Reference: *Qualitative research methods, B. Berg, as excerpted from pp. 32-48; 101-152; 159-186</td>
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<td>Reference: *Focus Groups, R. Krueger, as excerpted from pp. 32-48; 101-152; 159-186</td>
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<td>9</td>
<td>3/5</td>
<td>Continued discussion regarding qualitative designs; Mixed Method Designs</td>
<td>Continued work with qualitative analyses</td>
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<td>10</td>
<td>3/12</td>
<td>SPRING BREAK</td>
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| 11   | 3/19 | Bayesian designs; Introduction to basic Bayesian concepts  
* BonusPrep #4 – last lecture | Analyses of Bayesian models | Reference: Bayesian model selection in SEM, (Raftery) in Bollen and Long’s Testing Structural Equation Models, as excerpted from pp. 163-181 |
| 12   | 3/26 | Review for Mid-Term Exam #2  
* Mid-Term Exam #2 – last lecture | Analyses of data for 2nd research report | No assigned reading |
| 14   | 4/9  | Reconsidering experimental vs. non-experimental designs; Preparing for critical evaluations  
* BonusPrep #5 – last lecture | Discussion and comparison of SPSS, R, SAS, and MX software | Published articles as assigned to groups (see page 2 of syllabus) |
| 15   | 4/16 | Journal Article Critiques  
Group 1 (questions from group 5); Group 2 (questions from group 6); Group 3 (questions from group 7); Group 4 (questions from group 8) | No Lab | Published articles as assigned to groups (see page 2 of syllabus) |
| 16   | 4/23 | Journal Article Critiques  
Group 5 (questions from group 2); Group 6 (questions from group 1); Group 7 (questions from group 4); Group 8 (questions from group 3)  
* Final course review * | * 2nd research report due | Published articles as assigned to groups (see page 2 of syllabus) |
| Final Exams | 5/7  | Lecture Section 52570 (MW 2:00 pm)  
Exam on Monday 5/7 at 2:00 pm | No Lab | Cumulative Exam |