RESEARCH PROBLEMS IN CLINICAL PSYCHOLOGY

PSYC 5423

Spring Semester, 2013

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Schedule: Tuesday 11:30 - 2:00; Muenzinger D318

Website: http://psych.colorado.edu/~willcutt/res_meth/index.htm

COURSE DESCRIPTION

Course Goals:
Psyc 5423 is an intensive, upper-level graduate course that provides a survey of research design, research criticism, and proposal writing. The overarching goal of the course is to facilitate the development of research design. The first primary aim of the course is to enable students to become proficient with the fundamentals of research design. Primary topics will include methods for systematic literature reviews, hypothesis formulation and operationalization, inference testing, advantages and disadvantages of design alternatives, measurement and assessment strategies for clinical research, and selection and implementation of appropriate statistical procedures. The second overarching goal of the course is to facilitate the development of writing skills that will enable students to write empirical papers and research proposals that will be selected for publication or external funding.

Course Format:
To accomplish these objectives, students will be exposed to information through class lectures, assigned readings, and class discussion. These sources of information are designed to complement one another. The readings will broadly cover topics related to research design. The content of the lectures will overlap with the readings to a certain extent, but will also provide specific context and applied examples which will facilitate the learning process. The course will focus heavily on the application of research design and will emphasize class discussion.

Readings:
There is no textbook. The reading list is maintained online at http://psych.colorado.edu/~willcutt/resmeth_schedule.htm, and the website also includes a link to the version of each paper. For most class sessions there will be 3 - 5 required readings. In addition, the list also includes a number of supplemental readings for each major content area (the supplemental readings will be clearly indicated bold headers on the reading list).

The supplemental readings are not required for the course. One of my primary goals for this course is to provide you with a list of resources regarding different aspects of research design that you will be useful to you later in graduate school and in your future career as an independent researcher. Therefore, for each topic we cover the reading list includes a range of "classic" papers that provide useful overviews or different perspectives, along with papers that provide a useful discussion of more specific topics that are only relevant for some specific study designs. On a related note, I am always looking for useful new articles to add to the list, so if you find any articles that are especially helpful during the course or later in your training, please forward them to me.
COURSE REQUIREMENTS

I. Class attendance and participation:

I.A. Overall attendance and participation (20% of final grade): Although the content of the course requires much of our time to be devoted to presentation of information by lecture (especially early in the semester), I have structured the course to emphasize discussion as much as possible. Students are expected to read the assigned materials prior to class and to be prepared to discuss those materials during class. In addition, you will complete several (very) brief assignments to help you to consolidate the information presented in class. These will be announced during class.

I. B. Discussion leader (10% of final grade; can be completed anytime during the semester): Once during the semester each student will lead a discussion of an empirical paper that utilized one of the methods we cover during the course. Ideally, I would like each of you to choose the paper that you would like to present so that you can select a paper that is relevant to your own research interests, but I am also happy to provide suggestions. Once you select a paper please email it to me for final approval, and then I will post it on the website so all of us can read it prior to the discussion.

II. Research reviews:

II.A. Manuscript review #1 (10% of final grade; due January 29th). Read Reynolds & Nicolson (2007) and prepare a "bullet point" critique summarizing your reaction to the paper (positive and negative) for discussion in class. Think about both the specific content / logic of the paper and your more general "gut-level" reactions to the style of presentation. I realize that you don't have detailed knowledge about this area of research - the goal of this assignment is just to get us all thinking about these issues, so please don't let this one stress you out.

II.B. Manuscript review #2 (10% of final grade; due February 26th). You will review an empirical paper that I will distribute in the format that is used for blind reviews for a clinical psychology journal. I will provide several sample reviews as examples before you are required to write your own review.

II.C. Grant review (10% of final grade; due approximately March 19th). You will each write a review of a full application for a National Research Service Award (NRSA) fellowship. We will discuss the NIH review format in detail before this assignment.

II.D. Review of popular press article (10% of final grade; can be completed anytime, due by April 30th). As you read articles in the popular press, watch for articles that make an "error in thinking" that is relevant to the issues covered in this course ("relevant" can be interpreted liberally). Newspapers, magazines, and the internet are all fine - just make a copy of the article or send along the link so I know what you read. In no more than 2 - 3 pages, describe the error that you spotted, and explain why it is an error. Then, in your role as empathic skeptic, discuss why you think the error was made. Things to think about could include:

1. Why does the error matter in the big picture?
2. Why was the author of the article susceptible to the error? Did the original source of the information play a role in the error? (i.e., did the author of the article just misinterpret the source, miss a subtle point, or frame the information from the source in a way that contradicts its content, or was the original source material misleading?)
3. Why might members of the public be susceptible to believe the error?
4. How would you change the story? Is the information in the article simply wrong, or is it a more subtle mistake that could be presented more appropriately by providing adequate context, discussion of caveats, etc.?

III. Foundation of NIH F31 individual fellowship proposal (30% of final grade; due May 7th)

The final assignment is to write the framework for a proposal for an NIH Ruth Kirschtein National Research Service Award Individual Predoctoral Fellowship. In a perfect world each of you will use the final product from this course as the foundation for a submitted proposal for the NRSA deadline in December of your second year in the program. We will discuss the specific details of this assignment extensively throughout the semester. For now, this is a summary of the sections you will complete:

Full written draft: Abstract, Specific Aims, Significance
Detailed outline: Approach (including data analyses), Training Plan, Human Subjects
POLICIES

Students with a disability
If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu.

Honor Code
All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at http://www.colorado.edu/policies/honor.html and at http://honorcode.colorado.edu

Classroom behavior policy
Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran’s status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. The University of Colorado does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status in admission and access to, and treatment and employment in, its educational programs and activities. (Regent Law, Article 10, amended 11/8/2001). CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, “Protected Classes” refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, or veteran status. Individuals who believe they have been discriminated against should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Student Conduct (OSC) at 303-492-5550. Information about the ODH, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at http://hr.colorado.edu/dhv
## Tentative Course Schedule and Assignments

Note: The deadlines listed below are estimates, and will be confirmed as the date approaches. Specific topics that will be covered each week will be updated regularly on the website throughout the semester, and articles for each class session will be available online.

### 1/15: What is this career that we've chosen? (And why in the world did we make that choice?)

**Required Readings:** NONE

Supplemental readings: page 8 and [http://psych.colorado.edu/~willcutt/resmeth_career.htm](http://psych.colorado.edu/~willcutt/resmeth_career.htm)

### 1/22: Topic I: The NRSA and other training grant options and general grant-writing tips

**Topic II:** Combating illogical thinking: causal inference as a candle in the dark

**Required Readings:**


Supplemental readings on grant writing: page 8 and [http://psych.colorado.edu/~willcutt/resmeth_grants.htm](http://psych.colorado.edu/~willcutt/resmeth_grants.htm)

Supplemental readings on causal inference: page 9 and [http://psych.colorado.edu/~willcutt/resmeth_inference.htm](http://psych.colorado.edu/~willcutt/resmeth_inference.htm)

### 1/29: Defining Your Research Question and Reviewing the Literature

**Due: Assignment II.A.: Bullet-point critique of Reynolds and Nicolson (2007)**

**Required Readings:**

- Bem, D. J. (1995). Writing a review article for Psychological Bulletin. *Psychological Bulletin, 118*, 172-177. [even if you never have the slightest interest in writing an article for Psychological Bulletin, this paper provides a nice summary of things to think about for any literature review you write.]
- Wicker, A. W. (1985). Getting out of our conceptual ruts: Strategies for expanding conceptual frameworks. *American Psychologist, 40*, 1094-1103. [this paper begins to address the importance of theoretical models to guide both the literature review and new empirical studies]

Supplemental readings, literature reviews: page 10 and [http://psych.colorado.edu/~willcutt/resmeth_reviews.htm](http://psych.colorado.edu/~willcutt/resmeth_reviews.htm)

Supplemental readings, meta analyses: pages 11-13 and [http://psych.colorado.edu/~willcutt/resmeth_meta.htm](http://psych.colorado.edu/~willcutt/resmeth_meta.htm)

### 2/5: Erik Out of Town: Meet without me for discussion of initial drafts of your aims

### 2/12: Overview of Study Design and Sampling Issues

**Required Readings:**

- Wainer, H. (1999). The most dangerous profession: A note on nonrandom sampling error. *Psychological Methods, 3*, 250 - 256. [describes potentially important implications of the cases that do not get included by your sampling design]

Supplemental readings, design: page 14 and [http://psych.colorado.edu/~willcutt/resmeth_design.htm](http://psych.colorado.edu/~willcutt/resmeth_design.htm)

Supplemental readings, longitudinal studies: page 15 and [http://psych.colorado.edu/~willcutt/resmeth_long.htm](http://psych.colorado.edu/~willcutt/resmeth_long.htm)

Supplemental readings, treatment: page 16 and [http://psych.colorado.edu/~willcutt/resmeth_intervention.htm](http://psych.colorado.edu/~willcutt/resmeth_intervention.htm)
2/19: MULTICULTURAL ISSUES

REQUIRED READINGS:

Cohen, A. B. (2009). Many forms of culture. American Psychologist, 64, 194-204. [describes the dramatic oversimplification of many of our measures of ethnicity, race, and culture]


Smedley, A., & Smedley, B. D. (2005). Race as biology is fiction, racism as a social problem is real: Anthropological and historical perspectives on the social construction of race. The American Psychologist, 60, 16-26. [Key points about the biological meaning of our racial categorizations (especially the "census level" categories). This has important implications for interpretation of several prominent (and inflammatory) hypotheses about racial differences.]

Supplemental readings: page 17 and http://psych.colorado.edu/~willcutt/resmeth_culture.htm

2/26: MEASUREMENT: INTERNAL VALIDITY, RELIABILITY, AND SCALE DEVELOPMENT

REQUIRED READINGS:


Willcutt, E. G., Boada, R., Riddle, M. W., Chhabildas, N. A., & Pennington, B. F. (2011). A parent-report screening questionnaire for learning difficulties in children. Psychological Assessment, 778 - 791. [Don't worry about the substantive details of our results - this paper just illustrates a number of the methods we will cover in class.]

Supplemental readings: pages 18-19 and http://psych.colorado.edu/~willcutt/resmeth_internal.htm

3/5: NO CLASS, ERIK OUT OF TOWN.

3/12: EXTERNAL VALIDITY PART I

**DUE BY FRIDAY 3/15: DRAFT OF AIMS**

REQUIRED READINGS:


Willcutt, E. G., Boada, R., Riddle, M. W., Chhabildas, N. A., & Pennington, B. F. (2011). A parent-report screening questionnaire for learning difficulties in children. Psychological Assessment, 778 - 791. [Don't worry about the substantive details of our results - this paper just illustrates a number of the methods we will cover in class.]


Supplemental readings: page 20 and http://psych.colorado.edu/~willcutt/resmeth_external.htm
3/19: **EXTERNAL VALIDITY PART II**

**DUE: ASSIGNMENT II.B.: RESEARCH CRITIQUE #2: RIND 1998**

REQUIRED READINGS: NO NEW READINGS. COMPLETE ANY FROM LAST WEEK IF NECESSARY.

3/26: NO CLASS, SPRING BREAK

4/2: **STATISTICAL INFERENCE AND INTERPRETATION I: DISTRIBUTIONS, ASSUMPTIONS, AND VIOLATIONS**

**DUE: OUTLINE OF SIGNIFICANCE SECTION**

**DUE: ASSIGNMENT II.C.: CRITIQUE OF F31 PROPOSAL**

**Required readings:**

- DeCoster, J., Iselin, A. M., & Gallucci, M. (2009). A conceptual and empirical examination of justifications for dichotomization. *Psychological Methods, 14*, 349-366. [Examines researchers’ justifications for dichotomization, then tests whether their rationale is supported empirically. Read this one for big picture points, and don’t worry about the details of the simulation models.]
- Wilcox, R. R. (1998). How many discoveries have been lost by ignoring modern statistical methods? *American Psychologist, 53*, 300-314. [Summarizes the loss of power (and potential implications for validity) if “old school” statistical procedures are applied when assumptions are not met]

**Supplemental readings:** pages 21-22 and http://psych.colorado.edu/~willcutt/resmeth_statinf.htm

4/9: **STATISTICAL INFERENCE AND INTERPRETATION II: SIGNIFICANCE TESTS, CONFIDENCE INTERVALS, AND EFFECT SIZES**

**DUE: ROUGH DRAFT OF DETAILED OUTLINE OF APPROACH**

**Required readings:**

- Cohen, J. (1994). The earth is round (p < .05). *American Psychologist, 49*, 997-1003. [Position paper by one of the most influential methodologists in our field. Argues against the value of null hypothesis significance testing.]
- Cumming, G., & Finch, S. (2005). Inference by eye: confidence intervals and how to read pictures of data. *American Psychologist, 60*, 170-180. [Focus on the big picture points about the utility of confidence intervals to simultaneously illustrate a point estimate of an effect size and the likely range of error around the estimate]
- Krueger, J. (2001). Null hypothesis significance testing: On the survival of a flawed method. *American Psychologist, 56*, 16-26. [Summarizes some of the key arguments that have been advanced for and against null hypothesis significance testing]
- Schmidt, F. L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. *Psychological Methods, 1*, 115-129. [Argues against null-hypothesis significance testing and in favor of point estimates of effect size with confidence intervals]

**Supplemental readings:** pages 23-24 and http://psych.colorado.edu/~willcutt/resmeth_signif.htm
4/16: Statistical Inference and Interpretation III: Specific Procedures and Statistical Power

**Due:** Full draft of detailed outline of Approach

**G*Power3 computer program:** [http://wwwpsycho.uni-duesseldorfdede/abteilungen/aap/gpower3/]

**Required readings:**
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159. [Overview of power by one of the most influential figures in this specific area. Includes his take on estimates of small, medium, and large effect sizes]

**Supplemental readings, statistical power:** page 24 and [http://psych.colorado.edu/~willcutt/resmeth_power.htm]

**Supplemental readings, regression:** page 25 and [http://psych.colorado.edu/~willcutt/resmeth_regression.htm]

**Supplemental readings, factor analysis:** page 25 and [http://psych.colorado.edu/~willcutt/resmeth_latent.htm]

**Supplemental readings on longitudinal designs:** [http://psych.colorado.edu/~willcutt/resmeth_long.htm]

**Supplemental readings on intervention:** [http://psych.colorado.edu/~willcutt/resmeth_intervention.htm]

**Supplemental readings on meta analysis:** [http://psych.colorado.edu/~willcutt/resmeth_meta.htm]

4/23: Ethical Issues in Research

**Due:** Rough draft of outline of training plan

**Required readings:**
- Fine, M. A., & Kurdek, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. *American Psychologist, 48*, 1141-1147. [Some suggestions may be a little too rigid, but brings up key points regarding a potentially awkward issue]

**Supplemental readings, ethical issues:** page 26 and [http://psych.colorado.edu/~willcutt/resmeth_ethics.htm]

4/30: Dissemination of Results

**Due:** Assignment II.D.: Review of Popular Press Article

**Required readings:**
- Kazdin, A. E. (1995). Preparing and evaluating research reports. *Psychological Assessment, 7*, 228-237. [Hopefully this one will be largely review for you. He provides a nice summary of the components of an effective research report.]
- Lilienfeld, S. O. (2012). Public skepticism of psychology: why many people perceive the study of human behavior as unscientific. *American Psychologist, 67*, 111-129. [Excellent synopsis of the issues faced by psychologists when we present our results to those outside the field. May tie in nicely with your assignment on an error in thinking in a popular press article]

**Supplemental readings, dissemination:** page 27 and [http://psych.colorado.edu/~willcutt/resmeth_dissem.htm]

5/7: Due: Assignment III: Final draft of all parts of F31 required for this course
FULL READING LIST
(Once again, please note that the supplemental readings are not required for the course)
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CAREER DEVELOPMENT AND TRAINING
JANUARY 15, 2013
(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_career.htm)

Supplemental readings:
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GRANT WRITING
JANUARY 22, 2013
(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_grants.htm)

Supplemental readings
COMBATING ILLLOGICAL THINKING: CAUSAL INFERENCE AS A CANDLE IN THE DARK
JANUARY 22, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_inference.htm)

Required Readings:

Supplemental readings: Causal inference

Supplemental readings: causal inference in the popular press

Supplemental readings: the role of theory
COMBATING ILLLOGICAL THINKING: CAUSAL INFERENCE AS A CANDLE IN THE DARK
READINGS CONTINUED

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_inference.htm)

Supplemental readings: philosophy of science

SUMMARIZING THE LITERATURE
JANUARY 29, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_reviews.htm)

Required readings:
Bem, D. J. (1995). Writing a review article for Psychological Bulletin. Psychological Bulletin, 118, 172-177. [even if you never have the slightest interest in writing an article for Psychological Bulletin, this paper provides a nice summary of things to think about for any literature review you write.]
Wicker, A. W. (1985). Getting out of our conceptual ruts: Strategies for expanding conceptual frameworks. American Psychologist, 40, 1094-1103. [this paper begins to address the importance of theoretical models to guide both the literature review and new empirical studies]

Supplemental readings: Literature review methodology

Supplemental readings: Literature review interpretation
META-ANALYSES
JANUARY 29, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcut/resmeth_meta.htm)

Supplemental readings: overviews and critiques of meta-analysis:

Supplemental readings: Estimating effect sizes

Supplemental readings: Publication and other biases in the literature search


**Supplemental readings: extensions of meta-analysis**


**Supplemental readings: detecting and accounting for heterogeneity among studies**


**Supplemental readings: Presentation of meta-analyses**


**Supplemental readings: software for meta-analyses**

Supplemental readings: statistical procedures for meta-analyses

Supplemental readings: statistical power in meta-analyses

Supplemental readings: meta-analysis of correlations
STUDY DESIGN AND SAMPLING ISSUES
FEBRUARY 12, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_designs.htm)

Required readings:
Wainer, H. (1999). The most dangerous profession: A note on nonrandom sampling error. *Psychological Methods, 3,* 250 - 256. [describes potentially important implications of the cases that do not get included by your sampling design]

Supplemental readings: general research design

Supplemental readings: Epidemiological designs

Supplemental readings: Extreme groups analysis

Supplemental readings: qualitative research designs
LONGITUDINAL DESIGNS
FEBRUARY 12, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_long.htm)

Supplemental Readings: overview

Supplemental Readings: statistical issues
Supplemental readings: design issues

Supplemental readings: efficacy and effectiveness

Supplemental readings: outcome measures

Supplemental readings: statistical issues

Supplemental readings: statistical power
CULTURE, RACE/ETHNICITY, GENDER, AND OTHER FORMS OF DIVERSITY
FEBRUARY 19, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_culture.htm)

Required readings:

Supplemental readings: Race

Supplemental Readings: Gender
REQUIRED READINGS:
Willcutt, E. G., Boada, R., Riddle, M. W., Chhabildas, N. A., & Pennington, B. F. (2011). A parent-report screening questionnaire for learning difficulties in children. Psychological Assessment, 778 - 791. [Don't worry about the substantive details of our results - this paper just illustrates a number of the methods we will cover in class.]

Supplemental Readings: reliability measures

Supplemental readings: scale development

Supplemental readings: response styles

Supplemental readings: interrater agreement
Hoyt, W. T. (2000). Rater bias in psychological research: when is it a problem and what can we do about it? Psychological Methods, 5, 64-86.


**Supplemental readings: Item-response theory**


Waller, N. G., Thompson, J. S., & Wenk, E. (2000). Using IRT to separate measurement bias from true group differences on homogeneous and heterogeneous scales: an illustration with the MMPI. *Psychological Methods, 5*, 125-146.
EXTERNAL VALIDITY
MARCH 12, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_external.htm)

Required Readings:


Willcutt, E. G., Boada, R., Riddle, M. W., Chhabildas, N. A., & Pennington, B. F. (2011). A parent-report screening questionnaire for learning difficulties in children. *Psychological Assessment, 23*, 778 - 791. [Don’t worry about the substantive details of our results - this paper just illustrates a number of the methods we will cover in class.]


Supplemental readings: construct and content validity


Supplemental readings: concurrent and predictive validity


Supplemental readings: Incremental validity


AN OVERVIEW OF STATISTICAL INFEREN\E
APRIL 2, 2013
(webpage with links to most papers: http://psych.colorado.edu/~willcut/resmeth_statinf.htm)

REQUIRED READINGS:
DeCoste, J., Iselin, A. M., & Gallucci, M. (2009). A conceptual and empirical examination of justifications for dichotomization. Psychological Methods, 14, 349-366. [examines researchers' justifications for dichotomization, then tests whether their rationale is supported empirically. Read this one for big picture points, and don't worry about the details of the simulation models.]


Wilcox, R. R. (1998). How many discoveries have been lost by ignoring modern statistical methods? American Psychologist, 53, 300-314. [summarizes the loss of power (and potential implications for validity) if "old school" statistical procedures are applied when assumptions are not met]


SUPPLEMENTAL READINGS: GENERAL STATISTICAL INFERENCE


Supplemental readings: Distributions and assumptions

APPROACHES TO DEAL WITH MISSING DATA


SUPPLEMENTAL READINGS: DICHOTOMIZATION


Required readings:
Cohen, J. (1994). The earth is round (p < .05). American Psychologist, 49, 997-1003. [Position paper by one of the most influential methodologists in our field. Argues against the value of null hypothesis significance testing.]
Cumming, G., & Finch, S. (2005). Inference by eye: confidence intervals and how to read pictures of data. American Psychologist, 60, 170-180. [Focus on the big picture points about the utility of confidence intervals to simultaneously illustrate a point estimate of an effect size and the likely range of error around the estimate]
Krueger, J. (2001). Null hypothesis significance testing: On the survival of a flawed method. American Psychologist, 56, 16-26. [Summarizes some of the key arguments that have been advanced for and against null hypothesis significance testing]
Schmidt, F. L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. Psychological Methods, 1, 115-129. [Argues against null-hypothesis significance testing and in favor of point estimates of effect size with confidence intervals]
Schmidt, F., & Hunter, J. E. (1997). Eight common but false objections to the discontinuation of significance testing. Psychological Methods, 2, 161-177. [Fleshes out some of the most influential methodologists in our field. Argues against the value of null hypothesis significance testing and in
favor of point estimates of effect size with confidence intervals]
Schmidt, F. L. & Hunter, J. E. (2005). Confidence intervals and replication: Where will the next mean fall? Psychological Methods, 10, 227-246. [Focuses on the big picture points about the utility of confidence intervals to simultaneously illustrate a point estimate of an effect size and the likely range of error around the estimate]

Supplemental readings: significance tests:
Harris, R. J. (1997). Significance tests have their place. Psychological Science, 8, 8-11.

Supplemental readings: confidence intervals

**Supplemental readings: Effect sizes**


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**Statistical Power**

**April 16, 2013**

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/power.htm)

**Required Readings:**

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159. [Overview of power by one of the most influential figures in this specific area. Includes his take on estimates of small, medium, and large effect sizes]


**Supplemental Materials:**


**STATISTICAL METHODS: CORRELATION AND REGRESSION**  
**APRIL 16, 2013**

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_regression.htm)

**Supplemental readings: mediators/moderators**

**FACTOR ANALYSIS AND LATENT VARIABLE APPROACHES**  
**APRIL 16, 2013**

(webpage: links to most papers: http://psych.colorado.edu/~willcutt/resmeth_latent.htm)

**Supplemental materials: Overview of latent variable approaches**

**Supplemental readings: Exploratory and confirmatory factor analysis**
RESEARCH ETHICS
APRIL 23, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_ethics.htm)

Required readings
Fine, M. A., & Kurdek, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. American Psychologist, 48, 1141-1147. [some suggestions may be a little too rigid, but brings up key points regarding a potentially awkward issue]

Supplemental Materials: Conflicts of interest

Supplemental materials: Ethics and IRBs
DISSEMINATION OF RESULTS
APRIL 30, 2013

(webpage with links to most papers: http://psych.colorado.edu/~willcutt/resmeth_dissem.htm)

Required readings:
Kazdin, A. E. (1995). Preparing and evaluating research reports. Psychological Assessment, 7, 228-237. [hopefully this one will be largely review for you. He provides a nice summary of the components of an effective research report.]
Lilienfeld, S. O. (2012). Public skepticism of psychology: why many people perceive the study of human behavior as unscientific. American Psychologist, 67, 111-129. [excellent synopsis of the issues faced by psychologists when we present our results to those outside the field]

Supplemental Readings: Authorship and publication issues

Supplemental Readings: Dissemination of results to the scientific community

Supplemental Readings: Dissemination of results to the public