Syllabus
Psychology 421: The Psychology of Scientific Integrity
Fall, 2014
Professor Lee Jussim
Monday/Thursday, 10:20-11:40am
Tillett 230 (Livingston)

THE PRE REQS ARE QUANT METHODS AND A LAB, OR 400,
ADV STATS METHODS, OR 495.
Meets Monday and Thursday 2nd, 10:20 to 11:40 in Tillett 230.

Scientific integrity refers to two concepts that advance the idea science should be about "getting it right": 1. Personal honesty and trustworthiness in the conduct and interpretation of scientific research; and 2. Developing a body of conclusions that are valid and unimpaired. Statistics, methods, transparency, replication, and political bias have come to the fore as threats to the integrity of psychology and other scientific disciplines.

Why is it that studies that cannot be replicated become famous and influential?
Why is it that, even when a study can be replicated, the results in subsequent studies are often much weaker?
Why won't some researchers let others analyze their data?

This course will provide some preliminary answers to these questions, primarily through readings and discussion. To be clear, though, this course is not *anti-science.* Its perspective is that the best antidote to bad science is not any of the vast variety of anti-scientific alternatives out there (post-modernism, social constructionism, supernaturalism, or anything else). ***The solution to bad science is good science.***

This will be a reading and writing intensive course. And a statistics and method intensive course (thus the prereqs emphasizing statistics, methods, and labs). Most of the first few weeks will be a review of basic ideas from introductory statistics and methods (correlations, t-tests, ANOVA, p-levels, effect sizes, experiments and surveys). You will then start reading, and we will discuss in class, original source materials addressing various issues in the integrity of science.

You will also have a major project to be conducted in two parts, and which is described in a separate document available on sakai, "Major Project."

Grades:
20% Homeworks and ¼ page assigned article summaries
20% Participation
20% Part 1. Completed Article Summary Template for the two articles you chose for your Major Assignment.
40%. Part 2. Completed Major Assignment.

Required Readings (see Sakai document called "Required Readings")

Topics with APPROXIMATE Dates

Introduction, Syllabus, Grades, Getting Organized (9/4 & 9/8)

Preliminaries: Introduction to Scientific Integrity Failures (9/8-9/15)

- how to lie with science, failures to replicate, voodoo correlations, and more
- Introduction of the Major Project

Part I: What is Science? (9/15/-9/22)

A. Science as belief justified by evidence confirmable by others.

- list of Wikipedia articles
- Four criteria (coherence, falsification, not yet falsified, generates knew knowledge)
- What is NOT science and how would you know?
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B. Scientific processes

- Scientific Method (Wikipedia)
- Transparency, replication, reproducibility. (Wikipedia).

Part II: Methods and Statistics

- Experiments, surveys, systematic observation
- Basic stats: T-tests, correlations, ANOVA, regression
    - The "null hypothesis" almost never appears in psychological research
- "Eureka, I can publish and not perish!" The Scientific Holy Grail: $p<.05$
- Statistical Power
- The problems of independent probabilities
    - lots of tests, finding one $p<.05$ is not $p<.05$
    - The Incredibility Index: Finding more $p<.05$ than is plausible
        - Schimmack, 2014

Part III: Scientific Integrity and Integrity Failures

A. P-Hacking: Listening to the Beatles Causes You to Become Younger(!!??), $p<.05$

- Simmons et al, John et al,
- Puzzlingly High Neuroscience Correlations

B. Underpowered and Overly Significant (lecture)

C. The Replication Wars

- Bargh/Doyen; The Schnall affair ("repligate")
- Cesario's defense
- Harvard Guy's defense and the response available through Vazire

D. Overgeneralizing from NonRepresentative and WEIRD samples

- Heine et al
- Krosnick?

E. Questionable Interpretive Practices: Science Does Not Thrive on Statistics and Methods Alone

- Vicky Rideout and “Facebook Depression”
- Political Bias in Social Psychology
    - Inbar & Lammers (2012);
    - The Unholy Trinity: Duarte et al, 2014, Jussim et al, 2014a, b
- Case Studies:
    - Hastorf & Cantril (read)
    - Rosenhan (read, deconstruct in class)
    - The saga of self-fulfilling prophecies (Chapters 4 and 6)
    - The saga of stereotype accuracy (Jussim et al, 2014)
    - The saga of stereotype threat (Steele & Aronson, 1995; Sackett et al, 2004)