WittSem 100L - Fall 2010
Why we believe weird things: Science and pseudoscience in psychology
TTh 2:10–3:40, BDK 260

Instructor: Dr. Jeffrey Brookings Peer mentor: Christian Barille

Course Description

"Vaccines cause autism." "Playing Mozart to infants increases their intelligence." "Prayer cures cancer." These and other sensational claims are reported daily by the popular media, who usually present them as factual because there is—purportedly—scientific evidence of their validity. But what qualifies as scientific evidence, and how do we distinguish scientifically- supported conclusions from plausible-sounding but unsubstantiated, untestable assertions? In this course, we begin by defining what science is and how it differs from pseudoscience. We then consider the basic perceptual and cognitive mechanisms through which humans gather and process information, emphasizing errors in thinking and reasoning that, despite scientific evidence to the contrary, predispose us to believe "weird" things. Finally, we will use what we have learned to investigate phenomena of particular interest to behavioral scientists and paranormal investigators, including subliminal perception and persuasion, astrology, near death experiences, criminal profiling, alien abduction stories, repressed memories, and "new" psychotherapies. Our goal is to be open to novel claims, coupled with the determination to subject those claims to careful scientific scrutiny.

Required Books

Clancy, S. (2005). *Abducted: How people come to believe they were kidnapped by aliens*. Cambridge, MA: Harvard University Press.

Hines, T. (2003). *Pseudoscience and the paranormal* (2nd ed.). Amherst, NY: Prometheus Books.

Kida, T. (2006). *Don't believe everything you think: The 6 basic mistakes we make in thinking*. Amherst, NY: Prometheus Books.

Offitt, P. A. (2008). *Autism's false prophets: Bad science, risky medicine, and the search for a cure*. New York, NY: Columbia University Press.

Additional Required Readings: Moodle and e-reserve. In addition, we will analyze a number of specific "cases" through films, video clips, newspaper/internet articles, occasional guest presentations, and a field experience or two.

Course Objectives

In this class, you will:

1) learn how science and pseudoscience differ, and why the difference matters;
2) explore human perception, cognition, memory, and emotion, including errors and biases that lead us to believe "weird things";
3) develop tools for conducting skeptical analyses of extraordinary claims;
4) sharpen your writing and oral presentation skills;
5) design, complete, and present an investigation of an extraordinary claim; and
6) lay the foundation for a successful college experience.

Attendance and Participation - 15% of final grade

You are expected to read assignments, attend class, and make substantive contributions to in-class activities and discussions. This entails contributing your own ideas, asking questions, and challenging—respectfully—the viewpoints of other students and the instructor. You should complete the readings for each week prior to our Tuesday class meeting.

Quizzes and Mid-Semester Exam - 15% (Date TBA)

There will be a mid-semester exam (format TBA) and there *may be* occasional quizzes over the readings and class activities.

Assignments (see attachment for details) – 70%

1) "Science in the News items"; Summaries and reaction papers (**20%**);
2) Critical review of the evidence for an extraordinary claim (**20%**); and
3) Empirical study of an extraordinary claim (**30%)**.

Grades: Course grades are percentage based; 90% for an A, 80% for a B, etc. These cutoffs will be adjusted for individuals who maintain a pattern of effort, enthusiasm, and high-quality participation throughout the semester.

Course topics and schedule: Posted on Moodle

Assignments*

1. **Science in the news** – For these assignments you are to summarize news items about extraordinary claims. The source of your items may be a newspaper or magazine article, news website, television program, movie, YouTube, etc. Selected items must be long enough to provide adequate information for your summary (video clips may require supplementary information). Your 2-3 page summary of the item should include questions you would ask—and that the author of the piece probably did not ask—to assess the validity of the claim. You will submit two of these during the semester and briefly present at least one of them in class. Other students will ask questions and participate in a discussion of the item. To facilitate discussion, you will provide a copy of the item—or a link to it—prior to the class meeting at which you present your item.

2. **Reaction papers** – 2-3 page summaries and reaction papers for assigned readings, in-class demonstrations and activities, videos, critical thinking exercises, guest presenters, field experiences, etc. There will be 5-7 of these, some of which will be completed in class. Consequently, they cannot be made up.

3. **Project 1: Critically reviewing the evidence for an extraordinary claim** – For this project, you and a partner will: a) select an extraordinary claim; b) read published literature on it; c) write a critical review and analysis of the evidence; and d) present your conclusions to the class. You may use one of your "Science in the news" topics or an entirely new one (a partial list of possible topics is posted on Moodle). In either event, you are to use published articles, research reports, books from the scientific and skeptical literature, and websites to assess the scientific legitimacy of the claim. Your paper and presentation should conclude with questions about the claim that you feel remain to be answered (if any), and how they might be addressed using scientific methods. (Group project and presentation; individual papers)

4. **Project 2: Investigating an extraordinary claim** – Working with two *new* partners, you will: a) design and conduct an investigation of an extraordinary claim; b) demonstrate the claim and present your findings at an end-of-semester class poster session; and c) submit a write-up of the study. Your investigation may take either of two forms: 1) An on-campus, laboratory-based research study; or 2) A field investigation. Christian and I will meet with each group to provide assistance with project design. (Group project and poster; individual papers).

*****There will be class discussion of all assignments, including guidelines, timelines, and due dates. In addition, there will be periodic class "writing workshops," and we will meet with representatives of the Writing and Oral Communications Centers to help you prepare papers and presentations.