

**SEMINAR IN SCIENCE VS. PSEUDOSCIENCE – PSY 4910**  
**MWF 10 am – 10:50 am, ED 303**  
**SYLLABUS, FALL 2011**

---

“Extraordinary claims require extraordinary evidence.”  
David Hume

“Keeping an open mind is a virtue, but not so open that your brains fall out.”  
James Oberg

---

Instructor: Caleb W. Lack, Ph.D.

**REQUIRED TEXTBOOKS**

Kida, T. (2006). *Don't Believe Everything You Think*. Amherst, NY: Prometheus Books.  
ISBN: 1591024080

Lack, C.W. (Ed.) (2011). *Science, Pseudoscience, & Critical Thinking!*. Available online at  
<http://pseudoscience.wikispaces.com>

Sagan, C. (1996). *The Demon-Haunted World: Science as a Candle in the Dark*. New York: NY:  
Ballantine. ISBN: 0-345-40946-9

Shermer, M. (2002). *Why People Believe Weird Things: Pseudoscience, Superstition, and Other  
Confusions of Our Time*. Owl Books. ISBN: 0-085-07089-3

Other readings will be made available via handouts or online at the course website.

**GOALS & OBJECTIVES**

My goal for this course is to have each student leave with increased critical thinking and reasoning skills and the ability to apply those skills in his or her environment. Specifically, this course will teach you how to apply empirical, scientific modes of thinking in explaining the causes of various phenomena, from everyday human behavior to supposedly paranormal events. You will become skilled in differentiating between scientific and pseudoscientific explanations of things such as psychic abilities, witchcraft, alien abduction, astrology, recovered memories, and the healing properties of various alternative medicines and techniques. In addition, you will come to understand the various ways in which we can be fooled, both by others and by ourselves, thanks to the way the human brain processes information.

**CLASS HINTS AND TIPS**

This course will include a mixture of lecture, in-class exercises, and discussion designed to assist your learning. When lecturing, I will be using PowerPoint slides to illustrate my lectures and assist you in your note taking. I post the complete PowerPoint slides online (@ [www.caleblack.com](http://www.caleblack.com)). Therefore, it would be best if you concentrate on listening and taking notes about what we discuss in class, rather than try to copy down all of the information on the slides.

There will be a large number of readings for this course, from both the required texts and the supplemental materials. While it is not necessary for you to memorize all of the information, it is strongly recommended that you read all assigned materials *before* class. Also, as a majority of points available in this course will come from in-class exercises and discussions, attendance is crucial.

There will be field trips during this course, as described below. All trips are mandatory and two will take place during course time; the third is planned on your own time.

Finally, there is one more rule for in-class. If your cell phone rings or I catch you texting during my course, the following will happen. For the first offense, you will be required to come to the front of the classroom and apologize to everyone for disrupting their learning, wasting their time, and wasting my time. For the second offense, you will be required to leave the classroom for the rest of the day. For the third offense, your grade will be dropped a letter grade. For the fourth offense, you will be removed from the course.

#### GRADING

There are a total of 1000 points available in this class. These points will come from the following areas.

- **Media Critiques, 50 points:** For most topics, we will watch a video from either a skeptical or non-skeptical point of view. It is your job to carefully analyze these and determine what you see as their strengths and weaknesses, as well as what pieces of critical thinking are/are not violated.
- **Exercises, 350 points:** These exercises will be assignments either carried out during class time or assigned in class and turned in the next day. Each one will be worth 50 points and, if missed, cannot be made up. There are, however, 8 total exercises for the course, meaning you can miss one and not be punished.
- **Excursions, 100 points:** An outing to Wal-Mart in Edmond is planned, as is one to the UCO Library. Brief write-ups will be required, as will discussion.
- **Personal excursion, 250 points:** You will each choose a store or business that is rife with pseudoscientific claims to examine. First, you will contact the place and explain that you are a student at UCO and for a class assignment you are to interview someone who works at a store/business such as theirs. Then, you will attempt to set up an interview with the proprietors. Prior to the interview, you will write a list of interview questions that will be asked during it. These questions will need to be submitted and approved by the professor beforehand. After the interview, you will write up the experience, including which thinking errors and fallacies you observed during the interview and/or at the location. It will need to be in APA style, 5 pages minimum (not including title page and references).
- **Personal experience essay, 250 points:** This critical essay will be about a "paranormal" occurrence in your own life or the lives of people you know. The essay should include: 1) a description of the event; 2) initial reaction to the event; and 3) current reaction to the event, given what you have learned in class and through assignments. It will need to be in

APA style, 3 pages minimum (not including title page and references). Proper grammar and spelling are very, very important to your grade, so proofread carefully.

The grade breakdowns will be as follows: A – 900+ points, B – 800-899 points, C – 700-799 points, D – 600-699 points, F – 599 points and below.

### **CLASS OUTLINE (SUBJECT TO CHANGE)**

(SPCT = Science, Pseudoscience, & Critical Thinking!)

#### **Week 1**

##### *Readings*

#### **Introduction to course / What is science?**

Syllabus  
Sagan 1-39  
Shermer 1-23  
Ruscio 14-28  
Kida 1-24, 67-84

##### *Assignments*

Exercise #1 – What do you think science is?

#### **Week 2**

##### *Readings*

#### **What is pseudoscience and antiscience?**

Shermer 24-43  
Sagan 200-218, 246-263  
Kida 45-66  
Hall 36-39  
Kruglyakov (2002)

##### *Assignments*

Media Critique #1 – Enemies of Reason  
Exercise #2 – Pseudoscience in the Media  
Have location for personal excursion picked and send to professor for approval (Sept. 2)

#### **Week 3-4**

##### *Readings*

#### **Why can't we trust our brains?**

Shermer 44-62, 273-314  
Sagan 41-60  
Kida 85-232  
SPCT 2

##### *Assignments*

Exercise #3 – Quiz maker  
Have questions for interview to professor for approval (Sept. 16)

#### **Week 5**

##### *Assignments*

#### **(Lack out of country)**

Media Critique #2 - What the Bleep Do We Know?  
The class will spend MW watching, then F discussing this film, with a 1 page (single spaced, 1" margins) write-up due the following Monday

<b>Week 6-7</b> <i>Readings</i>	<b>Why can't we trust our world?</b> Gilovich 75-124 Vyse 139-168 SPCT 3
<i>Assignments</i>	Exercise #4 – Fooled you!
<b>Week 8</b> <i>Readings</i>	<b>Is that a probe in your pocket, or are you just happy to see me?</b> Sagan 61-112, 151-189 Shermer 88-98 Blackmore (1998) SPCT 4
<i>Assignments</i>	Exercise #5 - Alien Autopsy Media Critique #3 – Dan Ackroyd's Unplugged on UFOs
<b>Week 9</b> <i>Readings</i>	<b>Ghosts, demons, &amp; witches, oh my!</b> Sagan 113-134, 401-149 Shermer 99-113 SPCT 5
<i>Assignments</i>	Media Critique #4 – Ghost Hunters
<b>Week 10</b> <i>Readings</i>	<b>Frauds, fakes, and other psychics</b> Shermer 65-72 Sagan 219-244 Underdown (2003) Nickel (2001) SPCT 6
<i>Assignments</i>	Exercise #6 - Design an Experiment
<b>Week 11</b> <i>Readings</i>	<b>If that's the alternative, I'll stick with this one</b> Ruscio 29-41, 79-88, 184-196 Bowd 50-53 Park (1997) Ulett (2003) SPCT 8-12
<i>Assignments</i>	Exercise #7 – The Placebo Effect
<b>Week 12</b> <i>Readings</i>	<b>Evolution....or evilution?</b> Shermer 125-172

Lilienfeld 46-49  
Textbook chapter  
SPCT 15

*Assignments*

Exercise #8 – Of Pandas & Propaganda  
Media Critique #5 – Penn & Teller’s Bullshit!

**Week 13**  
*Assignments*

**Excursions! (Field trips to Wal-Mart and Library)**  
Personal excursion write-up due

**Week 14**  
*Readings*

**The Wonderful World of Science**  
Sagan 293-306  
Ruscio 197-207  
SPCT 13-14

*Assignments*

Be awesome

**Week 15-16**

**Catch-up**

**Finals Week**

Personal experience essay due

---

## UNIVERSITY POLICY

**Student Etiquette:** Students will be expected to maintain a level of conduct described in the University Student Handbook and may be dismissed from the class if policies are not followed. Part of professional training is learning to behave professionally, including high levels of ethical conduct. Dishonesty includes cheating, violating the integrity of examination, plagiarism, or knowingly furnishing false information to the University or staff. Classroom misconduct includes disrespect for faculty or fellow students or disruption of the class by any means. Students are expected to be on time for class so as to avoid the disruption of learning and participation in discussion.

**Special Accommodations:** The University of Central Oklahoma complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990. Students with disabilities who need special accommodations must make their requests by contacting the assistant director of Disability Support Services, Kimberly Fields at 974-2549. The office is located in the Nigh University Center, Room 309. Students should also notify the instructor of special accommodation needs by the end of the first week of class.

**Non-payment of tuition:** Please be aware of the following:

If you do not pay your fees by the deadline, you'll be assessed a \$40 late payment penalty; and interest charges if the debt extends beyond a month. You will not be dropped from classes for nonpayment. If you do not or cannot attend class, you must withdraw, or risk receiving 'F's on your transcript, in addition to owing tuition and fees.

**Emergencies during final examinations:** If an emergency occurs that prevents the administration of a final examination, the student's final course grade will be calculated based on the work in the course completed to that point in time and the faculty member's considered judgment. Final exams will not be rescheduled, and a grade of "I" will not be given as a result of the missed exam. This applies to situations when the administration of the final was impossible, not when an individual student is unable to take a scheduled final.

Please review the Student Information Sheet available online at:

<http://www.busn.ucok.edu/academicaffairs/FORMS/Student%20Information%20SheetSPR06rev.pdf>

---

The College of Education and Professional Studies is committed to helping students learn by providing a range of transformative learning experiences in discipline knowledge and in the five core areas: leadership; research, creative and scholarly activities; service learning and civic engagement; global and cultural competencies; and health and wellness.