

Weird Science (JINS 375)

Syllabus

Taner Edis

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1 How to Find Me

The best way to reach me is **e-mail**, edis@truman.edu. My office phone is 785-4583, but I don't check messages often.

My office is MG 3004, and my office hours are: Tuesdays and Thursdays: 10:30–11:45, 15:00–15:50; Wednesdays: 13:30–15:20. Check my **calendar** (edis.sites.truman.edu/schedule/) to see when might be best.

I will post course-related notices and documents online. Bookmark the **Weird Science page** (edis.sites.truman.edu/weird-science-jins-375/).

2 Schedule

Class: Tuesday and Thursday 13:30–14:50, MG 1000.

Final Paper Due: Friday May 12, 12:00 noon, MG 3004.

3 Course Overview

Is the universe only a few thousand years old? Can psychics speak with spirits of the dead? Or has contact with extraterrestrial visitors been covered up by a massive government conspiracy?

Scientists usually leave such questions to supermarket tabloids, grumbling about public science illiteracy and refusing to engage disreputable ideas. However, “weirdness” like psychic phenomena, alien abductions, and more

traditional religious supernaturalism consistently attracts popular interest and support. Ours is the time of paranormal shows on TV, large New Age sections in bookstores, and battles over evolution education.

Moreover, paranormal and fringe-science claims have many articulate defenders, in and out of academia. UFO investigators, “Intelligent Design” proponents, and laboratory parapsychologists all insist that they have legitimate scientific arguments to make. If they were only given a fair hearing, if they could only overcome the closed-minded dismissal they face, they could demonstrate how mainstream opinions are radically mistaken.

So we will join the debate between skeptics and believers. First of all, because the questions are interesting. Asking whether life is a product of explicit design, or whether some people can demonstrate supernatural mental powers engage many of us. Looking at how science addresses these introduces some fascinating current ideas. However, doing this also takes us beyond the transmission of established knowledge common in science courses. Because these are controversial matters, we will be able to get a taste of how scientists operate while exploring new territory, when criticism and heated debate are the order of the day. When discussing “weird science,” questions about the *process* of science become clearer than with a survey of undisputed knowledge.

We will address a number of “weird” subjects—which ones will be your choice as a class. In each case, we will start by discussing their claims. Then we will go on to the mainstream scientific response, seeing why scientists consider such claims to be theoretically implausible and supported with weak evidence. Common skeptical themes will be caution in accepting “extraordinary claims” which attempt radical revisions in our picture of nature; the unreliability of anecdotes, testimony, and uncontrolled studies; and the unacceptability of statistical results with marginal effect sizes.

We will then consider possible rebuttals, such as charges that the scientific community has dogmatically rejected paranormal claims or arbitrarily excluded personal testimony as evidence. We will address questions raised when proponents of paranormal claims say that the standards of conventional science unfairly exclude their phenomena, and that their work challenges science to revise its methods and norms.

Our central theme in all this will be to learn to see science as a process of critical inquiry foremost—not as a body of assured facts, not as the application of a cut-and-dried method. Hence I will look for proper criticism in your work, rather than whether you can reproduce “correct” answers.

4 Interdisciplinary Aspects

Trying to understand fringe science invites approaches from multiple disciplines. We find physicists and psychologists arguing about the scientific merits of specific claims, folklorists examining themes in UFO abduction narratives, sociologists studying “weird” beliefs in religious movements, or forensics specialists investigating paranormal mysteries. An expert observer of creationism has to be familiar not only with the relevant biology and physics, but also know something about religion, the philosophy of science, and the social circumstances that support populist epistemologies.

So a student from practically any major will find opportunities to inject their perspective into the work they do on “weird science.” I will, in fact, encourage you to use your own background as much as you can, even as I emphasize scientific and philosophical forms of inquiry.

Examining parapsychological claims, for example, requires understanding something of the perspective of a mainstream physicist or psychologist, particularly how they use the methods of their disciplines to criticize such claims. However, a specifically *philosophical* approach also comes into play, where these methods are subjected to criticism. A philosopher would typically stand back from the debate, ask questions on how we might best attain knowledge, and question in what sense science might approach truth, without letting current scientific practice have the last word.

Combining science and philosophy in this course requires that the student *integrate* these perspectives in thinking about “weird science.” The object is not to write a few paragraphs of science-based analysis and then to switch to a philosophers’ voice—debating paranormal claims requires an approach where philosophical and scientific views interact and correct one another.

5 Course structure

In the first week we meet, I will explain to you what the course is about, form you into eight groups that will work and make presentations together, and have you discuss and decide upon the five topics we will address during the semester. I intend for three of the topics to center on specific paranormal claims, and two on more philosophical questions raised by “weird science” in general.

After that, each topic will get five class meetings. In each of the first four

meetings, a different group will make a brief (20-30 minutes total) presentation on whatever aspect of the topic interests them, and the rest of the time will be devoted to questions and discussions. For the fifth class meeting on a topic, you will all bring the first draft of your papers on that topic to class. You will then exchange papers with others and critique them.

Your paper on a topic will be due at the first class meeting after the draft critique session.

6 Course materials

There is no assigned textbook.

To do well, you will need to do a fair bit of reading on the topics we discuss. After all, not only will you have to write a paper on each topic, but I will have you make brief classroom presentations to start discussions. But it's your job to find appropriate materials to introduce yourself the topics in question. I will not assign readings.

I can, however, provide all sorts of useful advice about sources, and even lend you books from my personal library. It's your job to approach me with questions. Everyone will treat the topic at hand somewhat differently, so there is no single piece of reading I can recommend for everyone. Talk to me, and tell me what you have in mind—I can then help.

7 Classroom discussions

I will not lecture.

Our classroom meetings will be devoted to *you*, as a class, discussing the topic at hand. I might know a lot more about it than you, but my emphasis in this course will be on the questions you ask and the arguments you construct, not your ability to master information.

To give classroom discussions structure, I will assemble you into groups consisting of three or four students. I will construct the groups to be internally diverse—a mixture of different majors, and students inclined towards paranormal belief and skepticism thrown together. You will work closely together with members of your group.

The groups will run the show in classroom discussions. One group will lead each class meeting. This group will be responsible for doing background research on the topic, forming some preliminary positions, and presenting

what you have concluded to the rest of the class. I expect group members to work together closely: it's important to have others to bounce ideas off of. Talk to each other, and have some idea who is going to research and say what before appearing in front of the class.

If you're in the audience rather than the presenting group on a given day, your job will be to ask lots of questions. All of you, not just the presenting group, are responsible for thinking up possible answers, ways to get information that would help, and figuring out what are the really important questions to address.

After your presentation as part of a group, you will email me your rough notes or whatever you based your presentation on. Part of your grade will be based on your presentations.

8 Writing Assignments

Our focus will be on developing skills of intellectual criticism rather than mastering a body of knowledge. But producing well-written essays, though important, is not the only goal. It is easy to find very persuasive, even eloquent arguments which are selective in evidence, highlight weak representatives of rival viewpoints, and seek to score debating points rather than advance genuine inquiry. Instead of just effective advocacy, I want you to practice proper criticism—especially in characterizing opposing views fairly and understanding their intellectual attraction.

8.1 Writing topics

You will write five short papers (1000 words minimum each) during the semester. These short papers will have to incorporate research and references that go beyond what we discuss in class. The better papers will take risks, and defend strong positions. For example, if we have been discussing the creation/evolution debate, you might investigate the populist aspect of creationism, tying it to philosophies of commonsense realism and the populist democratic strain in American culture. Then you might connect this background to current debates over creationism in education, and perhaps even make a case that defenders of evolution have taken a heavilyhandedly elitist approach.

I encourage you to work together with members of your group. Indeed,

you will often have considerable overlap in the list of references you consult. However, each paper should also be individual—you will defend distinct positions in your own style, even when relying on a common list of references.

I will also require that you produce a first draft of your paper before a final version is due, and bring it to class. I will then have you pass the draft to another student, not in your group, and have them produce a short critique. The final version you turn in should have the critique you received attached—I want to see that you addressed the criticisms you receive.

You will also write a final paper that will be longer, at least 2000 words. You will propose your own final writing topic, but I will have to approve it before you go ahead. For example, if a nursing student is intrigued with the paranormal “Therapeutic Touch” healing claims which have made inroads in nursing, that will be fine by me.

You will write your final paper alone, not as a group.

8.2 Your audience

Do not write as if I am the person you are writing for. Write as if you were composing an article for the student newspaper. In other words, the audience you should have in mind is your fellow students: bright, reasonably well-informed, but not necessarily deeply knowledgeable about the exact topic you’re addressing. (You can assume that your readers have the basic background information about your topic, so don’t waste space on that.)

You should avoid saying things like “as we discussed in class” in your paper. You would not do that in the student newspaper, after all.

8.3 The content

Many of you are used to writing report-style papers in science courses, or creative writing in English courses. I am looking for something different, which includes aspects of both reports and creative writing.

Reports typically present established knowledge. They don’t have much individuality, and they tend to rely on the authority of published research, textbooks and so forth. *Do not write a report!* I want to see your own voice in your writing, to see you argue and directly engage with the claims you’re supporting or criticizing. If you fall into the habit of doing some background research and synthesizing what you find, that’s not good enough. I want to see your particular argument.

Creative writing is much more individual. But while I want to see some individuality in your writing, don't get carried away and make your writing center on your personal reflections. You want a good, convincing *argument* to be your centerpiece. Anecdotes and personal experiences are very helpful in livening up your writing, so include them if you can. But don't let your case rest on such personal experiences alone. You want to use them to illustrate a more general argument you are making.

In other words, strike a balance between individuality and reports.

The grade for each of your papers will depend equally on my judgment of the quality of your writing, and the quality of your argument. Both elements need to be there.

8.4 Presentation details

Turn in one *double-spaced* hardcopy of each paper. I will cover it in red ink and give it back to you. *Also email me an electronic copy.* HTML, PDF, RTF, or Microsoft Word will work. I can't read WordPerfect.

Papers you turn in should avoid mistakes in basics such as spelling and grammar; these detract from the presentation and will reduce the grade you receive. Papers must also be well-organized and present a coherent case. I expect you to be already proficient at basic writing; I'm looking for more than an ability to string sentences together.

8.5 Citations

You should cite appropriate and varied references. Consult a number of relevant books, articles and similar resources.

I would like you to consult both sources that you agree with and those that present an opposite point of view. It's not good if your reference list consists almost entirely of sources that support your point of view. *If you're arguing against a certain claim, you should consult **firsthand** sources defending that claim.* It's not good enough to just look up sources criticizing what you oppose.

Because there is a lot of fringe-science material that is available primarily on the web, I allow citations of web sites. But if at all possible, restrict your use of web sites so that they're only supplemental. It's too easy to run into untrustworthy sources on the web. Furthermore,

1. *Never* cite an encyclopedia-like source, in particular Wikipedia, as a reference. This is not admissible in serious writing. Such sources are useful to give you a basic introduction and background, and maybe some links to check out, but that is all.
2. *Do not* cite dictionaries. In fact, you should never write any line that goes like “the dictionary definition of XYZ is . . .”

8.6 Citation formats

If you’re already used to one of the standard formats for references, footnotes, or endnotes, you can use that. As long as you’re consistent, and I can understand your citations, everything is fine.

If you’re not used to any, here is the format I prefer:

Books: If you wanted to cite something from pages 73 and 75 in a particular book, your paper would include something like this:

As Schick and Vaughn (2008: 73) point out , . . .

“Ordinarily, if a proposition fails to cohere with the rest of our beliefs, we are not justified in believing it” (Schick and Vaughn 2008: 75).

References

Schick, Jr., Theodore, and Lewis Vaughn. 2008. *How to Think About Weird Things: Critical Thinking for a New Age* (5th edition, Boston: McGraw-Hill).

Articles: If you wanted to cite an article in the journal *Reports of the National Center for Science Education*, volume 27 and number 3-4, pages 31 to 34, you would go about it like this:

Educators dispute the value of including intelligent design in science classrooms (Borenstein 2007).

References

Borenstein, Jason. 2007. “Recurrence of the Same? ‘Intelligent Design’ and the Biology Classroom,” *Reports of the National Center for Science Education* **27**:3-4, 31-34.

Web Sites: Include author and date if you can. Use “n.d.” (not dated) if no date is available. Use “Anonymous” if no author is known. Always include the full URL, and don’t forget to send me an electronic copy I can click on. Here’s how it would go:

UFO researchers are especially interested in strange sightings recorded near airports (for example, Rodeghier n.d.).

References

Rodeghier, Mark. n.d. “UFO Seen Over OHare Airport,”
<http://www.cufos.org/ohare.html>, accessed April 19, 2008.

Note the “accessed” information that you must include. This is because the content of web pages is changeable.

The reference list should be in alphabetical order.

9 Grades

Your grade will depend primarily on the writing assignments. However, I also consider class participation.

- **15% — Class Participation:** Activity in and contribution to group presentations and class discussions.
- **60% — Short writing Assignments:** 12% each.
- **25% — Final Paper:** The final paper due after classes are over.