

Pseudoscience and the Paranormal, A Critical Evaluation

COURSE: Honors-201-04, 401-04, Pseudoscience and the Paranormal,
A Critical Evaluation

TIME: Spring Semester 2007, 5:00 - 6:50 p.m., M

PLACE: Trafton North N259

INSTRUCTOR: Steve Kipp **OFFICE:** Wissink 345; **PHONE:** 389-5912
(office), 389-2691 (Andreas Observatory) **EMAIL:** steven.kipp@mnsu.edu
WEB ADDRESS: <http://www.mnsu.edu/astro/skipp/>

TEXT: *Pseudoscience and the Paranormal*, 2nd edition, Terrence Hines

Recommended reference material:

The Skeptical Inquirer (journal)

The Skeptic (journal)

Why People Believe Weird Things, Michael Shermer, 1997

The Demon-Haunted World, Carl Sagan, 1995

Understanding Science, Arthur Strahler, 1997

ESP, a scientific evaluation, C.E.M. Hansel, 1966

Science: Good, Bad and Bogus, Martin Gardner, 1981

Paranormal Borderlands of Science, Kendrick Frazier(ed.), 1981

Scientific Blunders, Robert Youngson, 1998

Flim - Flam!, Psychics, ESP, Unicorns and other Delusions,
James Randi, 1982

The Journal of Scientific Exploration,

<http://www.scientificexploration.org> (online version of journal)

UFO Skeptic site, <http://www.ufoskeptic.org> (website)

COURSE CONTENT: The media today bombards us with stories of extraordinary, even supernatural occurrences. Television offers us *The Psychic Detective, Charmed, The X-Files, In Search of. . . , Arthur C. Clarke's Mysterious World* and a host of other shows on topics like UFO's, alien abductions, Big Foot and the Loch Ness monster. Bookstores are filled with books on astrology and other new age topics from pyramid

power to transcendental meditation. Newspapers feature stories of alternative medicine and dozens of psychic hot lines are available nationwide. And, of course, the World Wide Web has countless sites covering every conceivable paranormal and pseudoscientific phenomena. There is nothing wrong with being interested in pseudoscience topics. But the high level of belief in such topics is distressing. A 2005 Gallup poll of the public, (David W. Moore, Gallup News Service, June 16, 2005 accessed at <http://home.sandiego.edu/~baber/logic/gallup.html>), shows the percentage of the public that believes in selected popular paranormal/pseudoscientific topics:

Extrasensory perception or ESP	41%
That houses can be haunted	37%
Ghosts/that spirits of dead people can come back in certain places/situations	32%
Telepathy/communication between minds without using traditional senses	31%
Clairvoyance/the power of the mind to know the past and predict the future	26%
Astrology, or that the position of the stars and planets can affect people's lives	25%
That people can communicate mentally with someone who has died	21%
Witches	21%
Reincarnation, that is, the rebirth of the soul in a new body after death	20%
Channeling/allowing a 'spirit-being' to temporarily assume control of body	9%

According to Mr. Moore “A special analysis of the data shows that 73%

of Americans believe in at least one of the 10 items listed above, while 27% believe in none of them.”

In this course we will inquire skeptically into paranormal and pseudoscientific phenomena and in the process we will distinguish between science and pseudoscience, sense and nonsense. We will begin with a definition of science and the scientific method. We will consider examples of successful science. But we will also consider examples of “bad” science. Then we will seek to define pseudoscience - a more difficult job than defining science. We will also discuss paranormal phenomena, phenomena without any scientific basis whatsoever. We will develop our discussion using case studies from many areas of pseudoscience and the paranormal including ghosts and psychic powers, astrology, UFO’s, laboratory parapsychology and “alternative” medicine and other areas favored by students. Because an understanding of probability is important in evaluating scientific experimental evidence, we will also discuss probability theory and conduct some simple classroom experiments to demonstrate its fundamental principles. The ultimate goal of this course is not primarily to convince the student of the truth or falsehood of claims made by any of these paranormal or pseudoscientific topics but is to develop in the student critical thinking skills that are important in all aspects of life. This is not just a lecture course. At each meeting the instructor will present some basic material introducing a topic, however all the students are expected to participate in class discussions. Thoughtful disagreement is encouraged.

COURSE SCHEDULE:

Week #	Date(s)	Topic/Activity
1	Jan. 22	Introduction, Ch. 1, Science and Pseudoscience
2	Jan 29	Sci/Pseudosci, Ch.2, Psychic Phenomena
3	Feb. 5	Ch. 2, Psychic Phenomena, Ch. 3, Life After Death, pick topic
4	Feb. 12	Ch. 4, Lab Parapsychology
5	Feb. 19	Ch. 6, Astrology
6	Feb. 26	Chs. 7, 8 UFO’s
7	March 5	Midterm, Ch. 9, Ancient Astro . . . and the Bermuda Triangle
8	March 19	Ch. 11, Alternative Medicine, Paper Presentations
9	March 26	Ch. 11, Alternative Medicine

10	April 2	Ch. 10, Faith Healing
11	April 9	Ch. 12, Collective Delusions, Mass Hysteria
12	April 16	Ch. 13, Special topics etc.
13	April 23	More special topics
14	April 30	Paper Presentations
15	May 7	Final Exam 6:00-8:00 p.m.

The schedule is only approximate. Changes will be announced in class.

PAPER: Students are required to write a paper on some aspect of a paranormal or pseudoscientific topic of interest. A good starting point is to find an article or book that claims to have evidence to support some paranormal or pseudoscientific phenomena. Examine the evidence and then give a scientific analysis of these claims. The more specific the claim the better. Model your paper on the textbook discussions including as much factual material as you can find. Relevant topics incompletely covered or not covered at all in our text would be best. The paper should be about 3000 words, word-processed, and fully referenced. Numerous current references on science and pseudoscience can be found on PALS and on the Web. Try to choose your topics by the third week of class and register them with the instructor. A draft paper will be required. Students will be asked to present the results of their research to the class. More details about the topic selection, content and organization of this paper are presented in a separate document.

GRADING: Students will be graded on a midterm and final exam as well as the written paper in this course. The tests will be worth 50 points each. The tests will be a mix of short answers, multiple choice and matching. The paper will be worth a total of 100 points. The written part of the paper is worth 90 points. It will be graded based on your scientific analysis of the paranormal/pseudoscientific claims, as well as the paper's completeness, organization, neatness, spelling, grammar and punctuation. Students will have an opportunity to discuss the subject of their paper with the class for about thirty minutes. Presentation of the paper will be worth a maximum of 10 points. The total possible points in this course is 200. Your final grade will be the percentage of these points you receive. The grading scale is as follows:

Percentage Score	Grade
[90 - 100]	A
[80 - 90)	B
[70 - 80)	C
[60 - 70)	D
< 60	F

Students enrolled in 401-04 will be asked to do an additional project.

OFFICE HOURS: Regular office hours are posted at my office. They will also be announced in class. In addition to the listed hours I will be glad to meet with students by appointment. Feel free to drop by.