



HCOL 196H

Pathological Science: *How Do We Know What We Know?*



Spring 2018

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- CLASS MEETING:**
- Tues/Thurs, 10:05 - 11:20 a.m.
 - UHeights North, Room 034F

- INSTRUCTOR:**
- Joel Goldberg
 - W321 Discovery Hall
 - 802-656-4394
 - Joel.Goldberg@uvm.edu

- OFFICE HOURS:**
- Wednesday, 10:30 am - noon
 - Friday, 2:00 – 3:30 pm

I am also available at other times (see or email me to make an appointment) and, of course, you are welcome to stop by my office at your convenience (but if I am busy we will have to reschedule for another time). Also, I am *virtually* available via email for your questions; you should receive an email reply to a question within 24 hours of your posting it to me (barring any unforeseen technical difficulties!).

Email Etiquette: Please use a subject line prefaced with "HCOL 186H:" so that I can immediately see your email in my crowded inbox and attend to it efficiently. If you do not use this subject line prefix (or any subject line at all!), I cannot ensure a timely response to your query.

TEXTS/READINGS: Most of the readings will be available on Blackboard as pdf files or as web links. However, the following books are recommended for purchase as we will be making liberal use of selections from them, and there is much more in there that is relevant to the material covered in this course that you may find interesting and useful:

- Thomas Gilovich's *How We Know What Isn't So* (1991, The Free Press).- \$16.22 from Amazon (new)
- Ben Goldacre's *Bad Science* (2010, Farrar, Straus and Giroux).- \$8.17 from Amazon (new)
- Michael Shermer's *Why People Believe Weird Things* (2002 (Revised Edition), Holt) - \$11.59 from Amazon (new)

GRADING: This is a seminar-style course and you are expected to attend every class, to have read the assigned readings for the class *before* class, and to be an active participant in the in-class discussions. You will be graded based on your class participation, written assignments and class presentations. If you must miss a class due to illness or family emergency, you must contact me prior to class to be excused from class and to arrange to makeup the material missed. I expect excused absences to be extremely rare occurrences. An *unexcused absence* will result in a class participation grade of **zero points** to be awarded for the entire course.

Your grade for the course will be determined as follows:

Attendance and Class Participation: 250 points

Short Written Assignments (5) 300 points

Research Paper -Written: 300 points

Research Paper -Presentation: 150 points

TOTAL: 1000 points

ASSIGNMENTS: There will be four or five short written assignments distributed throughout the semester. These will be 2-3 pages in length and will involve either your followup on a previous class's discussion topic or your preparation for a discussion topic for an upcoming class. Details for each assignment will be posted on Blackboard.

A significant chunk of your course grade will be based on your Research Paper assignment. Details are provided on Blackboard, but will have two components: 1) preparation and submission of a research paper (about 10-15 pages in length) and, 2) presentation of your research paper topic to the class.

All assignments are to be submitted on Blackboard.

CLASS: This class will be structured like a seminar and will typically be broken up into lecture, discussion and activity portions. During the class meeting time, we will present material - some from me, and some from you - that will provide the basis for both discussion and for future material. Class activity components will serve to demonstrate, introduce or reinforce material as well as to initiate discussion.

I expect that we will be engaged in areas that are somewhat controversial and that will result in spirited discussion - this is good. It is essential, however, to temper one's comments so that other viewpoints are respected and not ridiculed, regardless of how ~~stupid and foolish~~ much at odds they may be with your perspective. But seriously, if we are to have meaningful discussions, it is critical that we approach them from a position of reason and mutual respect. Personal attacks and name calling are unacceptable behaviors and will not be tolerated. All informed viewpoints are welcome and should be freely expressed, whether they coincide with the consensus of the class or whether they are supported by a minority in the class. Please let me know immediately should you feel that you are not able to do so or feel that you have been personally attacked for positions you've taken during our discussions.

In a class of this nature, it is especially important that you give your undivided attention during classtime. So, I ask that during the class you turn off (or place on "stun") any mobile communication devices and that you refrain from using any other portable computers, iPads, iPods (pretty much anything that starts with a lower-case "i") or other electronic devices that could be distracting to you or the class. You can turn them back on once we have reached a cruising altitude and the pilot has turned off the "fasten your seatbelts" sign (which should occur about 11:20 am each Tuesday and Thursday).

COURSE OBJECTIVES: This is a course about science; about the way that science is done, what science can reveal and what science cannot reveal. We will do this in a bit of a backwards manner, by exploring the boundaries of science and seeing where some have fallen off the edge. We will approach this in (surprise!) a manner befitting a scientific study: making observations about science, trying to find order in the observations, postulating hypotheses and then testing them to see if they fit our observations.

We will start out by first comparing two "major scientific discoveries": one that has, indeed, had a profound impact on science and one that, alas, has been rejected by the science community. We will look at other examples of scientific discoveries that have either been accepted or rejected over time and try to categorize the rejections in ways that give some insights into how science is done and the pitfalls of pushing science to its limits. We will then address directly the question of "What is Science?" and will look at some models for understanding how science is done. We can then consider some of the fundamental limitations to science: Are there limits to what we can uncover using scientific methods? Are there limits to how well we can understand the universe? Are there limits to the predictive powers of science?

Lastly, we will tackle some of the more interesting (and controversial) science-related issues facing the world today, critically evaluating them using our knowledge of science and our understanding of both how science is done and its limitations. This last portion of the course will be mostly student-led and student-directed.

UVM Policies

Student Learning Accommodations: In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact the Student Accessibility Services (SAS) office on campus. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly encouraged to meet with their faculty to discuss the accommodations they plan to use in each course. A student's accommodation letter lists those accommodations that will not be implemented until the student meets with their faculty to create a plan.

Student Accessibility Services
A170 Living/Learning Center
802-656-7753
access@uvm.edu
<http://www.uvm.edu/access>

Policy on Disability Certification and Student Support:

<http://www.uvm.edu/policies/student/disability.pdf>

Religious Holiday Policy Statement: *Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time.*

Academic Integrity: This policy addresses plagiarism, fabrication, collusion, and cheating.

<http://www.uvm.edu/policies/student/acadintegrity.pdf>

Code of Student Rights and Responsibilities:

<http://www.uvm.edu/policies/student/studentcode.pdf>

Center for Health and Well-Being: <http://www.uvm.edu/~chwb/>

Counseling and Psychiatry Services (CAPS): <http://www.uvm.edu/~chwb/psych/>

If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380).

If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at: <http://www.uvm.edu/~saffairs/>