

Freshman seminar : : Fall 2010
mw 3:30-4:20 / Wagner Hall 135

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Department of the History of Science
Office Hours: tu/th 10:30-11:30, th 1:30-2:30 &
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Robots, Mad Scientists, and the Man in the Moon: Exploring History, Science, and Science Fiction / UCOL 1022:007

In this class we'll take a fresh look at the history of modern science by seeing how its concepts were incorporated into science fiction stories, blending fact with speculation, skepticism with wonder, and social and intellectual critiques with a burning curiosity about living in a world of constant change.

Our overall goals are: to introduce you to three major eras in the history of science (the scientific revolution, the Victorian period, and the Cold War), and to significant scientific concepts developed in each of these eras (Copernican astronomy, evolution, and cognitive psychology); to gain an understanding of how scientific ideas circulate within the wider culture, through such cultural forms as literature; to examine how the genre of science fiction has facilitated discussions in Western society about the nature of scientific ideas, ethical questions about science and technology, and of the goals of scientific knowledge; and to help each one of you gain skill and confidence as thinkers and writers.

One of the key foundations of this course is the wide-ranging reading you'll be doing. You'll be learning to read two kinds of books: the first one, *The Moon and the Western Imagination*, is a more advanced discussion of historical episodes than you will likely have had in high school, and will be a good introduction to college-level reading material: I'll be helping you with strategies for how to learn to read these kinds of texts effectively. Our second set of books are original science fiction texts, and here I'll be helping you learn to read not only to find out what the story's about, but how to connect the story with the intellectual and social questions being debated within the scientific world and the larger culture.

In addition to the assigned reading, lectures will provide historical background and other forms of context to flesh out our topics, and we'll also view movies to explore different ways of telling the same story. An essential part of thinking about the material will come through participating in small group and class-wide discussions, and writing short essays about the topics we'll be examining, and then choosing a final project of your own that explores the educational potential of using science fiction in the classroom.

Our class is itself an experiment in using science fiction to learn about history, literature, and science – as well as opening up questions about society, philosophy, psychology, and more. As we come to the last month of the class we'll think about this more explicitly as you plan your own final project, which will discuss your own thoughts about how science fiction can be used as an asset in the learning process (at any point, from grade school through college).

To help launch your thinking, we'll look at an experiment in using science fiction at MIT in the 1950s to teach “creative engineering,” and also write to real-world people who value science fiction and history in their careers, across many different walks of life, to get their ideas as well. In your final project, you'll be working on an individualized model of the best kind of learning: active learning, designed by you, toward goals you think really matter – which I hope will get you thinking about all the kinds of ways you can customize your own educational journey here at OU!

Office Hours / Email Questions

Please always feel free to drop by my office hours or to email me, so that I can help you out however I can (I try to answer email within 24 hours; however, know that I'm usually off email Friday evenings and all day Saturday.)

When should you visit with me or send an email? Here are a few suggestions:

- 1) When everything is going great! Seriously, chances are I have some good advice on how to build on your strengths with special opportunities available here at OU, through coursework and other activities.
- 2) When things are going pretty good you think, but you're a little nervous, because well, time just disappears and it's hard to see how you could manage one more thing like contacting me. Because it never hurts to get some feedback on time management, or advice on how to study more effectively if you're feeling everything is a bit chaotic.
- 3) When you're worried a problem may be looming down the road that will affect your work, but then again maybe it won't happen (or maybe it will just go away if you don't think about it!) and why bring it up since it may never happen and besides you don't want to seem like a goof. Hey, it is always easier to develop strategies for problems EARLIER rather than LATER – there are always more options on the table. Also, being able to troubleshoot possible obstacles that may or may not occur in the future means you're smart – I'll be impressed, believe me.
- 4) When you're stuck because the problem seems too big and you don't know what to do. If you don't know what to do, then you need advice: I'm good at helping individuals connect up with the expert advice they need.
- 5) When you're trying to figure out how to approach a writing assignment, and don't know how to start? When you have a few notes put together for your writing assignment? When you have a rough draft of your writing assignment? After it's been graded and you'd like some further ideas on strengthening the next assignment? Any and all of these times!

Books to purchase:

Scott L. Montgomery. *The Moon and the Western Imagination* (U of Arizona Pr, 1999)

Edwin A. Abbott. *Flatland: A Romance of Many Dimensions* (Dover, 1992/1884)

Mary E. Bradley Lane. *Mizora: A World of Women* (Bison Books, 1999/1880)

H.G. Wells. *The Island of Doctor Moreau* (Dover, 1996/1896)

Isaac Asimov. *I, Robot* (Spectra, 1991/1950)

Assignments and Due Dates

1. Mini-Assessment Papers [m.a.p.s] / 10% of total grade: Typically, during one of the class meetings each week, I will ask you to write one or two paragraphs about some of the work we are doing. I may ask you to reflect on your own responses to the material you are reading outside of class, or to speculate about some of the historical circumstances we will be studying, or even ask you to tell me what part of a lecture or reading may be confusing to you.

These brief writing assignments help introduce you to the process of generating ideas about the material you are studying, assist you in identifying key points, and give you practice in analyzing the topics at hand. Each m.a.p. is graded s/u and is worth one point - with the two exceptions noted below, which are 2-point m.a.p.s that necessitate a bit more preparation than usual and are done outside of class. Both 2-point m.a.p.s are required.

1st two-point m.a.p.: Please write a 2-page essay on a childhood experience(s) with science fiction (due week 2 on 8/30)

2nd two-point m.a.p.: Prepare 3 questions that we can choose from to submit to our corresponding guest thinkers on science fiction and education (due week 12 on 11/8)

You will need to acquire 10 m.a.p. points over the course of the semester in order to receive the 10% allotment for this part of your grade.

2. First Take-Home Essay Assignment (15%): A 3-4 page essay on *The Moon and the Western Imagination* and Kepler's science fiction journey (due week 4 on 9/15)

3. Second Take-Home Essay Assignment (15%): A 3-page essay on *Flatland* (due week 7 on 10/6)

4. Third Take-Home Essay Assignment (15%): A 3-page essay on *Mizora* (due week 9 on 10/20)

5. Fourth Take-Home Essay Assignment (15%): A 3-page essay on *Island of Doctor Moreau* (due week 11 on 11/3)

6. Fifth Take-Home Essay Assignment (15%): A 3-page essay on *I, Robot* (due week 13 on 11/17)

7. Your Final Project: Proposal for Using Science Fiction as a Learning Tool (15%): Due at the finals time assigned for this class, Thursday, December 16th, 4:30-6:30 p.m.

Schedule of Topics, Readings, and Assignment Due Dates

week 1

8/23 introduction: course logistics & expectations / fill out info sheets

8/25 overview of our historical case studies: renaissance astronomy; victorian evolution; minds & machines in the cold war era. Plus quotations on the nature of science fiction [handout]

reading: Begin Montgomery, *Moon and the Western Imagination*, chapters 1-3, pp. 1-43

assignment: 2-page m.a.p. on a childhood experience(s) with science fiction (due 8/30)

week 2

8/30 small group & class discussion of childhood experiences with sf from the m.a.p. assignment (First 2-page m.a.p. due)

9/1 what's the history?: the aristotelian cosmos and ideas about the nature of the moon

reading: Montgomery, *Moon and the Western Imagination*, chapters 4-5, pp. 44-82

Excerpt, Marjorie Hope Nicolson, *Voyages to the Moon* / Handout

week 3

9/6 no class - labor day holiday

9/8 what's the history?: picturing the moon -- from medieval lunar imagery to what Galileo saw through his telescope and the drawings that he made

reading: Montgomery, *Moon and the Western Imagination*, chapters 6-8, pp. 83-134

Excerpt, Kepler, *Somnium* / Handout

assignment: 3-4 page essay on *The Moon and the Western Imagination* and Kepler's science fiction journey (due 9/15)

week 4

9/13 Galileo Galilei and Johannes Kepler: what to do with the Aristotelian moon?

9/15 Kepler's *Somnium*: discussion (First essay due)

reading: Montgomery, *Moon and the Western Imagination*, chapters 9-10, pp. 135-168

Excerpts from Godwin, *Man in the Moone* and de Bergerac, *Voyages to the Moon* / Handout

week 5

9/20 field trip! visit to the history of science collections to see our books on renaissance astronomy, the moon in particular / Bizzell Library, 5th floor

9/22 Godwin and de Bergerac's moons: discussion

reading: Montgomery, *Moon and the Western Imagination*, chapters 11-12, pp. 169-208; (chapters 13-14 optional)

Begin Abbott, *Flatland*, pp. 1-31

assignment: 3-page essay on *Flatland* (due 10/6)

week 6

9/27 what's the history? evolution, religion, and victorian society

9/29 author's background and intro to the novel: the Reverend Edwin A. Abbott & Flatland

reading: Abbott, Flatland, pp. 31-103

week 7

10/4 film: Flatland: The Movie (2007) / 36 minutes // discussion of film

10/6 Flatland: discussion of the novel
(Second essay due)

reading: Begin Lane, Mizora, pp. 1-68

assignment: 3-page essay on Mizora (due 10/20)

week 8

10/11 what's the history? evolution, race, and gender: imagining other worlds

10/13 author's background and intro to the novel: Mary E. Bradley Lane and Mizora

reading: Lane, Mizora, pp. 69-147

week 9

10/18 Mizora: discussion

10/20 what's the history? evolution, morality, and the human/animal question
(Third essay due)

reading: Begin Wells, Island of Doctor Moreau, pp. 1-51

assignment: 3-page essay on Island of Doctor Moreau (due 11/3)

week 10

10/25 author's background and intro to the novel: H.G. Wells and The Island of Doctor Moreau

10/27 film: Island of Lost Souls (1932) / 70 minutes [we'll see the first 40 minutes today]

reading: Wells, Island of Doctor Moreau, pp. 51-104

week 11

11/1 film: Island of Lost Souls (1932) / finish, and film discussion

11/3 Island of Doctor Moreau: discussion of the book
(Fourth essay due)

reading: Begin Asimov, I, Robot, pp. 1-90

Supplementary short stories [choose two to read]: In D. Van Tassel, ed., Computers, Computers, Computers: In Fiction and Verse (New York: Thomas Nelson, 1977): "Answer," by Frederick Brown, pp. 13-14; "Computers Don't Argue," by Gordon R. Dickson, pp. 65-79; "That Dinkum Thinkum," by Robert A. Heinlein, pp. 83-93; and "2066: Election Day," by Michael Shaara, pp. 99-115 / Handout

week 11 (continued)

assignment: 3-page paper on *I, Robot* (due 11/17)

assignment: m.a.p. question submissions for corresponding with our guest thinkers on science fiction and education (due 11/8, per instruction sheet handout)

week 12

11/8 what's the history? minds and machines in the cold war era
(Second 2-page m.a.p. due)

11/10 author's background and intro to the novel: Isaac Asimov and *I, Robot*

reading: Asimov, *I, Robot*, pp. 91-224

assignment: Instructions Passed out for the Final Project, "Proposal for Using Science Fiction as a Learning Tool": Due at the finals time assigned for this class, Thursday, December 16th, 4:30-6:30 p.m.

week 13

11/15 film: "Elegy" from *The Twilight Zone* (1960) / 25 minutes // discussion

11/17 *I, Robot*: discussion
(Fifth essay due)

reading: H. Howe, "Space Men' Make College Men Think," *Popular Science*, Oct. 1952 / Handout
Katherine Pandora, "Redesigning the Engineering Mind: The Revelations of the Arcturus IV
Science Fiction Project at Mid-Century MIT," *Science, Technology & Society Curriculum
Newsletter*, Spring 2006:1-7 // <http://www.lehigh.edu/~instds/142.pdf> [go to p. 2 of the .pdf]

week 14

11/22 science fiction and education: the arcturus experiment in engineering education at MIT in
the 1950s, and imagining our own educational experiments today

11/24 no class - thanksgiving vacation

reading: guest answers to questions on science fiction and education

week 15

11/29 discussion groups: working up summaries of guest answers to questions on science fiction
and education

12/1 class discussion of the guest answers

week 16

12/6 summing up the class: discussion of where we've been

12/8 looking ahead: using what you've learned here as you move forward

Final Project due at the finals time assigned for this class, Thurs., Dec. 16th, 4:30-6:30 p.m.

Rules of the Road

Attendance: Attendance is required. The course grade will be lowered by one letter grade after the third absence and by one letter grade for each subsequent absence. Absences may be excused by petition with appropriate documentation to the Freshman Programs Office: phone 405.325.8216 for appointments within three weeks of the absence. Students are expected to use the allowed absences for illness, injury, or family emergencies. Three tardies will count as one absence. A tardy is 1-5 minutes late for class.

Electronic Devices: During classtime, all external communication devices should be turned off. Computers are to be used for note-taking only; if used for any other purpose this privilege will be revoked.

Academic Misconduct: **Cheating will not be tolerated.** Cheating includes, but is not limited to, copying the work of another student, using the written work of another author without attribution, or any conduct that seeks to compromise the evaluation process. *Such conduct will result in an automatic F on that assignment and the student can be referred to the Dean for disciplinary action.* We will discuss the academic integrity requirements in class together.

For reference, the complete version of the "Student's Guide to Academic Integrity" on the Provost's website is located here: <http://www.ou.edu/provost/integrity/>

The opening section states: What does "academic integrity" mean?

Academic integrity means honesty and responsibility in scholarship. Professors have to obey rules of honest scholarship, and so do students. Here are the basic assumptions about academic work at the University of Oklahoma:

- (1) Students attend OU in order to learn and grow.
- (2) Academic assignments exist for the sake of this goal.
- (3) Grades exist to show how fully the goal is attained.
- (4) Thus, all work and all grades should result from the student's own effort to learn and grow. Academic work completed any other way is pointless, and grades obtained any other way are fraudulent.

Academic integrity means understanding and respecting these basic truths, without which no university can exist. Academic misconduct -- "cheating" -- is not just "against the rules." It violates the assumptions at the heart of all learning. It destroys the mutual trust and respect that should exist between student and professor. Finally, it is unfair to students who earn their grades honestly.

Due Dates: Assignments will not be accepted if turned in late.

Religious Holidays: It is the policy of the University to excuse the absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays. Please see me in advance.

Students with Disabilities: Any student in this class who has a disability that may prevent full demonstration of ability should contact the professor personally before the end of the first week of classes so that discussion can be held regarding accommodations necessary to ensure full participation and facilitate individual educational opportunities.

Grading Scale: The letter grades for assignments in this course conform to a 4 point scale, as follows:

4.0 - 3.5 = A (A=4.0, A- = 3.7, A-/B+=3.5)

3.49 - 2.5 = B (B+ = 3.3, B = 3.0, B- = 2.7, B-/C+=2.5)

2.49 - 1.5 = C (C+ = 2.3, C = 2.0, C- = 1.7, C-/D+=1.5)

1.49 - 0.5 = D (D+ = 1.3, D= 1.0, D- = 0.7)

0.5 and below = F

University of Oklahoma ConocoPhillips Writing Center

Writing Center Introductory Statement from their Website: "Most universities have a writing center, a place for students, faculty, and staff to meet and talk about writing. As a writer you will want to seek feedback from many different readers. The writing consultants at the writing center are able to talk with you about your writing—at any stage in the process and for any course you are taking. You can make an appointment (online or by phone) and you can drop in whenever they are open."

For more information, visit their website at: www.ou.edu/writingcenter