

GENERAL EDUCATION COURSE PROPOSAL
UNIVERSITY OF MARY WASHINGTON

Use this form to submit **EXISTING** courses for review. If this course will be submitted for review in more than one category, submit a separate proposal for each category.

COURSE NUMBER:	FSEM100ZZ		
COURSE TITLE:	MAD SCIENTISTS, BAD SCIENTISTS, AND EVIL GENIUSES		
SUBMITTED BY:	Leanna Giancarlo	DATE:	January 7, 2008
<i>This course proposal is submitted with the department's approval. (Put a check in the box to the right.)</i>			X
<i>If part of a science sequence involving two departments, both departments approve.</i>			

THIS COURSE IS PROPOSED FOR (check one).

First-Year Seminar (<i>indicate in the rationale if this will also count for major credit</i>)	X
Quantitative Reasoning	
Global Inquiry	
Human Experience and Society	
Experiential Learning	
Arts, Literature, and Performance: Process	or
	Appreciation
Natural Science (<i>include both parts of the sequence</i>)	

NOTE: See the report entitled "General Education Curriculum as Approved by the Faculty Senate," dated November 7, 2007, for details about the general education categories and the criteria that will be used to evaluate courses proposed. The report is available at www.jtmorello.org/gened.

RATIONALE: Using only the space provided in the box below, **briefly** state why this course should be approved as a general education course in the category specified above. *Attach a course syllabus.* **Submit this form and attached syllabus electronically as one document to John Morello (jmorello@umw.edu).** All submissions **must** be in electronic form.

The purpose of this course is to introduce students to the skills of a life-long learner: namely, critical reading, thinking, writing, speaking and research. The course will explore the portrayal of scientists in the literature, cinema and other media as well as through historical references and ask the question of why scientists are depicted the way they are, what is the historical context of the author/writer/director, and what is society's view of science for the time. The course will use many classic images of the scientist from Mary Shelley's *Frankenstein* to Stanley Kubric's *Dr. Strangelove* to derive a sense of the "mad" and "bad" scientist in order to compare to historical figures who are perceived as ethically and/or morally "gray." Through these "case-studies" we will try to understand and critically assess the motivation for painting the picture of the scientist as "mad, bad or evil."

**Mad Scientists, Bad Scientists and Evil Geniuses:
The Complicated Relationship between Science and Society
FSEM 100zz Spring 2009**

Instructor:

Dr. Leanna C. Giancarlo
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Lecture: MWF 1:00 – 1:50 p.m.; 205 Goolrick

Office Hours:

M 10:00 – 11:00 a.m.
W 10:00 – 11:00 a.m.
2:00 – 3:00 p.m.
F 10:00 – 11:00 a.m.
12:00 – 1:00 p.m.
or by appointment

Required Course Materials:

Christopher Frayling, *Mad, Bad and Dangerous? The Scientist and the Cinema*
Mary Shelley, *Frankenstein*
Robert Louis Stevenson, *Dr. Jekyll, Mr. Hyde*
Jules Verne, *Facing the Flag*
Daniel Charles, *Master Mind: The Rise & Fall of Fritz Haber, the Nobel Laureate Who Launched the Age of Chemical Warfare*
Kurt Vonnegut, *Cat's Cradle*
Ed Regis, *Great Mambo Chicken and the Transhuman Condition*

On-line Readings:

Roslynn Doris Haynes, *From Faust to Strangelove: Representations of the Scientist in Western Literature*;
selections on Blackboard
“On Being a Scientist”
<http://books.nap.edu/readingroom/books/obas/>

Course Description: In this course we will examine how science and scientists have been perceived and described in the literature, cinema and other media. We will explore numerous classic depictions of scientists “gone astray” (e.g. Victor Frankenstein, Dr. Henry Jekyll) as well

as more modern, morally/ethically questionable ones (Werner Heisenberg, Fritz Haber) in an attempt to determine why they are viewed as mad, bad and evil. We will also examine the complex and inspiring interplay between science fiction and real scientific discovery.

The goals of the course are

- to gain an appreciation for the nature of science
- to investigate the ethical principles underlying scientific investigation
- to discern the impact of a time period (as well as the political, social and religious climate) upon the perception of science and scientists
- to explore the difficulties faced in the advancement of science

This course is reading intensive. You will be reading numerous books, discussing them in class, and communicating your ideas about them in a variety of forms (both formal and informal), including papers, presentations, blogs, wikis, etc. This is not a class in learning “what to think”; it is a class in learning “how to think.” Class participation, therefore, where you can demonstrate this will be a significant portion of your grade.

Grading:

4 papers at 100 points each	400 points
Group Project	150 points
Blackboard Journal entries	100 points
Weekly blogs	100 points
Class Participation	100 points
Final Reflection Paper	150 points

Students with a class average of C- or less will receive a midsemester report.

The overall grade scheme used in this course reflects the following from the *Dictionary of Academic Regulations*:

A	excellent	B+		C+		D+	
A-		B	commendable	C	acceptable	D	marginal
		B-		C-		F	failure

Grades will be determined based on points accumulated from papers, projects, journals, and class participation:

Points accumulated	Letter Grade	Points accumulated	Letter Grade
≥ 930 points	A	769 – 730 points	C
929 – 900 points	A-	729 – 700 points	C-
899 – 870 points	B+	699 – 650 points	D+
869 – 830 points	B	649 – 600 points	D
829 – 800 points	B-	below 600 points	F
799 – 770 points	C+		

Note: I reserve the right to give “pop” quizzes if discussions are not reflective of your reading and understanding of the material.

Honor System: All graded work (online journals, writing assignments, projects and finals) must be your own and pledged as such:

I hereby declare upon my word of honor that I have neither given nor received any unauthorized help on this work.

Signed

Online journal entries are deemed pledged by your submission. **No late assignments or submissions will be accepted.** Please, discuss difficulties with the course schedule with me in advance.

Class Participation: This course will not be a chronology of important dates and players or facts. Instead, it is meant to give you a feel for how science is perceived throughout the ages, concentrating on each time period’s social, political, and religious climate. Because of this, your feelings, impressions, ideas, etc. are a vital component to everyone’s understanding of the material. Each student brings a different perspective to the discussion. Class attendance is essential since participation in discussion of the readings contributes to your overall course grade. Absences negate the possibility for your thoughtful contributions to the discussions. (Immediate notification of the instructor is mandatory in the case of absences for known reasons). Classroom participation will follow the rules we, as a group, establish. I expect each member of the class to abide by these rules whether they entail raising hands before speaking, keeping an appropriate tone and volume, paying attention to the speaker, etc.

Points for participation will be awarded by the following system:

The base number of points is 50. These points will be awarded on presence in the classroom.

Each absence will see the deduction of 2 points unless permitted by the instructor.

+: Awarding of 2 points for substantial, informed and appropriate contributions to the discussion

-: Removal of 2 points for inappropriate contributions. This includes violating our discussion rules, impolite conduct toward another student, dominating the discussion to the point where others cannot contribute, etc.

0: No points due to presence but no active participation.

Online Journal Entries: Each lecture will have a discussion question posted on Blackboard. These questions are meant to serve as “ice-breakers” for the next lecture’s discussion. It is beneficial, therefore, that you answer these questions after completing the reading and reflecting on the material. All submissions are due by nine (9 am) on the day of the lecture. The questions will require submission in essay format. Feel free to cut and paste from a word-processing program so that you have a copy of your thoughts/feelings/reflections, etc. These questions are open-ended and are a chance for you to think about the material in the context of your experiences, your interests, other readings, etc. They are not meant to be reiterations of the readings. Electronic submission constitutes your abiding by the Mary Washington Honor Code. If you cannot submit your entry electronically through Blackboard, you must email or present a hand-written copy by the submission deadline for credit.

Blogs: Each week or so you will post to our blog site. (Instruction on blogging will be given during initial course meetings.) These postings will be reflections on the larger themes brought out in the readings, movies and in-class discussions and will enable us to carry the conversation

outside of the classroom. To obtain credit for your posting, you must reflect and write substantively. Reiteration of another's ideas without significant elaboration will not be counted. I will grade 10 of these based on completion (not A, B, C, etc.). For each "late" one, you will receive ½ credit; for each missing one you will receive no credit.

Papers: There will be 4 assigned, 2-page typed papers over the course of the semester to enable you to show your knowledge of the subject matter and/or readings by writing about how they fit into the context of the course. Each paper must have 1.5 line spacing with 1 inch margins and use size 12 font. (References will not be counted toward the pages limit.) Proper grammar, spelling, clarity of writing will be important as poorly written papers will not convey your thoughts and ideas. Students needing assistance in writing are advised to talk to the instructor or visit the Writing Center. The major purpose of the papers, however, is to give you the opportunity to synthesize your understanding into a coherent piece of work; therefore, emphasis will be placed on the construction of the paper and the process of writing.

Projects: One of the goals of this course is to assess the ethical "rules" governing scientific investigations and what makes science "good" or "bad." Using the case studies we have examined as a guide, select other case studies from the news, literature or the cinema to present to the class (using Powerpoint) that describes the issues involved—both scientific and ethical, political, religious, or social (even potentially personal) pressures or stimuli, the way in which the scientist deals with all of these factors, and your assessment of the "mad," "bad," or "evil."

Final: Your final examination in this course is an assessment of your learning over the course of the semester. Using your blogs, papers, projects, etc. you will construct a portfolio of your work and describe how you have progressed from the first day of class to the last.

Other "helpful" information:

The tentative schedule that follows is how I see the course arranged. It is not concrete. If there is material that you, as a class, find interesting and want to spend a little more time on, we will spend more time on that topic. Success in this course requires considerable work on your part. Successful students typically spend a minimum of 1 hour per day on each subject. For this course, this time is best devoted to reading ahead for the next lecture and reflecting on our discussions (blogging is a great means for this). Some helpful "secrets" for success in a course like this include

- reading the material prior to class.
- attending the lectures and taking good notes.
- actively participating in discussions and asking questions.
(The only "stupid" question is the one that goes unasked.)
- enlisting the aid of the instructor (office hours or appointments).
- reviewing appropriate sections of the text(s) and all notes after class.

Course Themes:

What is Science? How do you describe "The Scientist"?

Alchemy ("The Tree of Knowledge") to the Scientific Method

Stepping on God's Turf (scientific method and Newton, "Jerusalem")

Playing God (case studies: Frankenstein, Jekyll, Griffin)

Science for Good or Evil?
the “technological imperative” (Haber)
“beast of progress” (Heisenberg)
hubris and science/scientists out of control

Course Outline:

1/14 Introduction/What is Science	1/16 Definitions of science	1/18 The Scientist
1/21 Alchemy vs. The Scientific Method/ Francis Bacon (Haynes)	1/23 Isaac Newton (Frayling) LIBRARY INSTRUCTION	1/25 <i>Newton's Dark Secrets</i>
1/28 “Jerusalem”	1/30 Frankenstein (Frayling)	2/1 paper 1 due Frankenstein
2/4 Frankenstein	2/6 Frankenstein	2/8 Frankenstein (Frayling)
2/11 Dr. Jekyll, Mr. Hyde	2/13 Dr. Jekyll, Mr. Hyde	2/15 Dr. Jekyll, Mr. Hyde
2/18 Frankenstein and Dr. Jekyll (Toumey)	2/20 Facing the Flag	2/22 Facing the Flag
2/25 Facing the Flag	2/27 <i>The Invisible Man</i>	2/29 paper 2 due <i>The Invisible Man</i>
3/3 SPRING BREAK	3/5 SPRING BREAK	3/7 SPRING BREAK
3/10 segway to reality: triumphant discovery (Frayling)	3/12 Master Mind	3/14 Master Mind
3/17 Master Mind	3/19 Master Mind	3/21 Master Mind
3/24 paper 3 due <i>Copenhagen</i>	3/26 <i>Copenhagen</i>	3/28 discussion of <i>Copenhagen</i>
3/31 Fall out from War (Haynes and Frayling)	4/2 Cat's Cradle	4/4 Cat's Cradle
4/7 paper 4 due Cat's Cradle	4/9 Cat's Cradle	4/11 <i>Dr. Strangelove</i>
4/14 <i>Dr. Strangelove</i>	4/16 Great Mambo Chicken	4/18 Great Mambo Chicken
4/21 Great Mambo Chicken	4/23 projects	4/25 “On Being a Scientist” conclusions (Frayling)

Final Exam: Monday, April 28, 2008; 12:00 pm

Reading Assignments:

Date	Text	Reading
1/18	Frayling, Christopher, <i>Mad, Bad and Dangerous?</i>	Ch 1: 9-32
1/21	Haynes, Roslynn, "The Alchemist in Fiction: The Master Narrative." http://www.hyle.org/journal/issues/12-1/haynes.htm Haynes, Roslynn, <i>From Faust to Strangelove</i> . Chapter 2	on-line Blackboard
1/23	Frayling, Christopher, <i>Mad, Bad and Dangerous?</i>	Ch 1: 32-47
1/30	Frayling, Christopher, <i>Mad, Bad and Dangerous?</i>	Ch 4: 109-117
2/1	Shelley, Mary, <i>Frankenstein</i>	Letters - Ch 10
2/4		Ch 11 - 16
2/6		Ch 17 - 24
2/8	Frayling, Christopher, <i>Mad, Bad and Dangerous?</i>	Ch 4: 117-133
2/11	Stevenson, Robert Louis, <i>Dr. Jekyll, Mr. Hyde</i>	Ch 1 – 4
2/13		Ch 5 – 8
2/15		Ch 9 and 10
2/18	Toumey, Christopher P., "The Moral Character of Mad Scientists: A Cultural Critique of Science" accessible from JSTOR	on-line
2/20	Verne, Jules, <i>Facing the Flag</i>	Ch I - V
2/22		Ch VI - XI
2/25		Ch XII - XVIII
3/10	Frayling, Christopher, <i>Mad, Bad and Dangerous?</i>	Ch 4: 133-166
3/12	Charles, Daniel, <i>Master Mind</i>	Ch 1 - 4
3/14		Ch 5 - 7
3/17		Ch 8 - 9
3/19		Ch 10 - 11
3/21		Ch 12 -14
3/31	Haynes, Roslynn, <i>From Faust to Strangelove</i> . Chapter 14, pages 246-263 Frayling, Christopher, <i>Mad, Bad and Dangerous?</i>	Blackboard Ch 3
4/2	Vonnegut, Kurt, <i>Cat's Cradle</i>	Ch 1 - 34
4/4		Ch 35 - 65
4/7		Ch 66 - 93
4/9		Ch 94 - 127
4/16	Regis, Ed, <i>Great Mambo Chicken and the Transhuman Condition</i>	Mania – Ch 2
4/18		Ch 3 - 4
4/21		Ch 5 and epilogue
4/25	Frayling, Christopher, <i>Mad, Bad and Dangerous?</i> "On Being a Scientist" http://books.nap.edu/readingroom/books/obas/	Conclusion on-line