

# FYS 065: Uses and Abuses of Science in Science Fiction

## Professor: Lyle Hoffman

### Fall 2019

<b>Month</b>	<b>Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Work Due</b>
Aug.	26	Introduction		
	28	Spacetime, <i>Star Trek</i> style	Krauss Chs. 1-2	Question Lunch with <i>Star Trek</i>
	30	Energy & Propulsion	Krauss Chs. 3-4	Question
Sept.	2	Transporters & Holodecks	Krauss Chs. 5-7	Question
	4	Possibilities & Impossibilities	Krauss Chs. 8-10	Question Lunch with <i>Star Trek</i>
	6	Library orientation		<i>Meet in Skillman 003</i>
	9	Terraforming Selene	Niven & Cooper Prologue-Ch. 11	Question
	11	Onboard <i>John Glenn</i>	Niven & Cooper Chs. 12-23	Question Lunch with <i>Star Trek</i>
	13	Internet Orientation		<i>Meet in Skillman 003</i>
	16	<i>2001: A Space Odyssey</i>		
	18	<i>2001: A Space Odyssey</i>		Class & Lunch
	20	Warp Drive Report Teleportation Report		

	23	Exoplanet Report Terraforming Report		
	25	Cryogenic Suspension Report Nanotech Report		Lunch with <i>Star Trek</i>
	27	Fast Forward	Niven & Cooper Chs. 24-35	Question
	30	Stellar Flare Report Artificial Intelligence Report		
Oct.	2	Refuge	Niven & Cooper Chs. 36-50	Question Lunch with <i>Star Trek</i>
	4	Antimatter Report Fusion Propulsion Report		
	7	Antimatter	Niven & Cooper Chs. 51-63	Question
	9	Departure	Niven & Cooper Chs. 64-81	Question
	11	<i>Star Trek</i>		Draft I
	14	<i>Fall Break</i>		
	16	<i>Interstellar</i>		Class & Lunch
	18	<i>Interstellar</i>		
	21	Foundations	Thorne Chs. 1-4	Question
	23	Black Holes	Thorne Chs. 5-8	Question
	25	Disaster on Earth	Thorne Chs. 9-12	Paper I

	28	Wormholes	Thorne Chs. 13-16	Question
	30	Gargantua's Planets	Thorne Chs. 17-20	Question Lunch with <i>Nova</i>
Nov.	1	Extra Dimensions	Thorne Ch. 21-24	Question
	4	Spaceflight Hazards Report Stellar Evolution Report		
	6	Quantum Gravity	Thorne Ch. 25-28	Question Lunch with <i>Nova</i>
	8	The Tesseract	Thorne Ch. 29-31	Question
	11	Milky Way Structure Report Galactic Center Report		
	13	Accretion Disk Report Exobiology Report		Lunch with <i>Nova</i>
	15	The Aloof	Egan Chs. 1-5	Question
	18	The Null Chamber	Egan Chs. 6-9	Question
	20	The Nuclear Stellar Disk	Egan Chs. 10-12	Question
	22	<i>Nova</i> episode		Draft II
	25	The Ark	Egan Chs. 13-16	Question
	27-29	<i>Thanksgiving</i>		
Dec.	2	The Tunnel	Egan Chs. 17-21	Question
	4	The Wanderer	Egan Chs. 22-28	Question
	6	Wrapup		Paper II

Learning outcomes. Upon completion of this course, each student should be able

to:

- Distinguish scientific evidence from unsubstantiated argument;
- Marshall evidence in support of an assertion;
- Examine personal assumptions and biases, thereby building informed perspectives;
- Recognize and resolve contradictions between texts;
- Generate, organize and revise ideas;
- Engage in writing as an act of intellectual and critical inquiry;
- Acquire an introductory understanding of research skills necessary for academic writing;
- Identify and locate information relevant to a specific purpose or goal;
- Use information critically and effectively to accomplish a specific purpose or goal;
- Use information ethically and legally;
- Begin to develop strategies for participating in discourse communities beyond the classroom.

Texts:

- Egan, *Incandescence*
- Krauss, *The Physics of Star Trek*
- Niven & Cooper, *Building Harlequin's Moon*
- Thorne, *The Science of Interstellar*
- Lunsford & Connors, *The New St. Martin's Handbook*

Requirements:

- Regular attendance
- Participation in classroom discussions
- Submission of questions by email before each class
- Two papers (7-10 pages each)
- One oral report (15-20 minutes)

In Case of Inclement Weather:

If I am unable to make the trip to campus, or if class must be canceled for any reason, I will leave a message on my voicemail (610-330-5211) and send email.

Writing Assignments:

Each paper or oral report is to be submitted first in draft, one week before the final copy is due. The drafts of the papers should be typed, double-spaced with one-inch margins all around, in a 10 or 12 point font, approximately 7 pages in length. The drafts of the report may be on paper or in electronic form (Powerpoint or pdf). One copy of the draft will be reviewed by me, and returned to you with suggestions about the content -- additional points to consider, understandings that appear to be incomplete or erroneous, etc. The other draft will be given to the Writing Associate for the course, Natalie Schmit, with whom you will meet for a half-hour conference in which you and the WA will engage in conversation about the organization and style of the paper, and about how it could be made more readable and more persuasive. The WA is obligated to inform me of any late or missed appointments.

After your conference with the WA, and after you review my comments about your draft, you will prepare a final copy of the paper for submission at the start of class on the due date. Only the final copy of the paper (or presentation of the report) will be graded. No final copy will be accepted before a conference with the WA, and subsequent revision, has occurred. It is important that you realize that your work with the WA is in no way remedial, but instead is part of the normal process of writing about sophisticated topics. There will be a penalty for late submission (unless there are extenuating circumstances, such as an illness severe enough to send you to the infirmary for an overnight stay).

**Accommodation:**

- If you have any disabilities that you feel may interfere with your ability to succeed in this course, please contact me to discuss ways in which I might help you. In compliance with Lafayette College policy and equal access laws, I am available to discuss appropriate academic accommodations that you may require as a student with a disability. Requests for academic accommodations need to be made during the first two weeks of the semester, except in unusual circumstances, so that arrangements can be made. Students must register with the Office of the Dean of the College for disability verification and for determination of reasonable academic accommodations.

**Registrar's Mandatory Privacy Statement:**

- Moodle contains student information that is protected by the Family Educational Right to Privacy Act (FERPA). Disclosure to unauthorized parties violates federal privacy laws. Courses using Moodle will make student information visible to other students in this class. Please remember that this information is protected by these federal privacy laws and must not be

shared with anyone outside the class. Questions can be referred to the Registrar's Office.

**Federal Credit Hour Compliance Statement:**

- The student work in this course is in full compliance with the federal definition of a four credit hour course.

Your grade will be based on:

- Papers: 25% each
- Oral report: 25%
- Contributions to discussions: 25%

*This page is maintained by [Lyle Hoffman](#)*