

**33-120**  
***Science & Science Fiction***

**Welcome!**

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# ***Making science accessible to non-science majors...***

- Satisfies a science requirement  
e.g. Dietrich Gen-Ed Scientific Inquiry  
(Physics Elective for Physics Minor or BA)  
(Technical Elective for Physics Major)
- Nontraditional approach

***33-120 Science & Science Fiction:  
What is this course all about?***

# ***Making science accessible to non-science majors...***

**Please come and visit me for additional help  
or further discussion...**

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(by appointment + drop-ins welcome)**

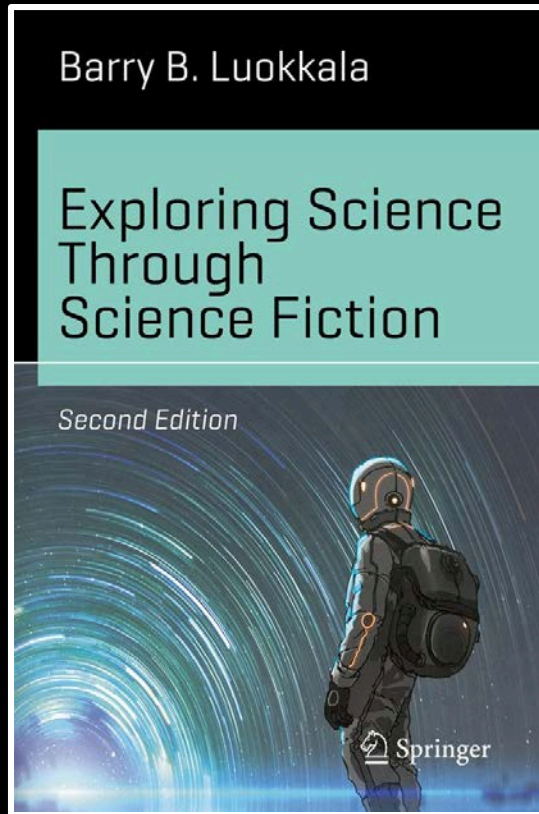
***33-120 Science & Science Fiction:  
What is this course all about?***

# ***Exploring science using examples from science fiction***

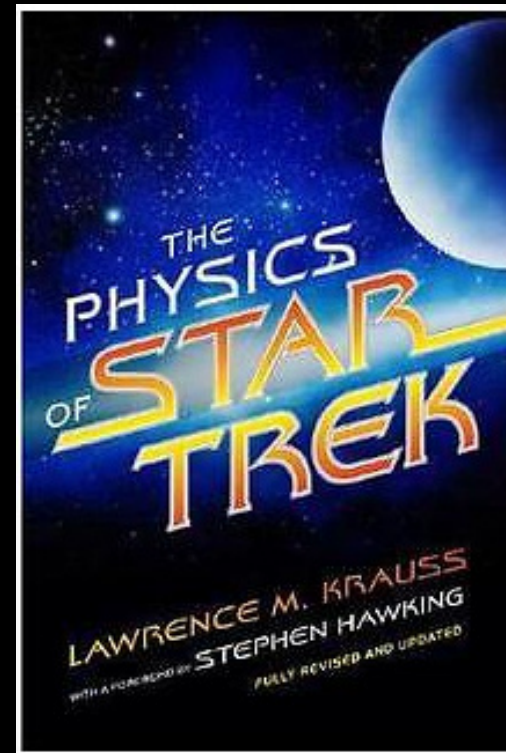
- **Source material: mostly film & TV**
- **Film examples spanning > 100 years**
- **TV examples spanning > 50 years**
- **Occasional references to classic Sci-Fi novels**

**33-120 Science & Science Fiction:**  
***What's so “nontraditional” about it?***

Required text: (2<sup>nd</sup> ed.)



Recommended:



## **33-120 Science & Science Fiction: Required Text & Recommended Reading**

- **What is the nature of space and time?** (8)
- **What is the universe made of?** (8)
- **Can a machine become self-aware?** (5)
- **Are we alone in the universe?** (3)
- **What does it mean to be human?** (4)
- **How can we solve our problems?** (3)
- **What lies ahead?** (3)

**Course Overview**  
*Exploring Science Through Science Fiction...*

## **Seven Major Questions**

**33-120 Science & Science Fiction**

- **Science Knowledge Survey (today) 25**
- **Exploration Papers (5 @ 30points) 150**
- **Quizzes (7 total, points variable) 375**
- **Team Projects (2 @ 25 points) 50**
- **Sci-fi problems (4 @ 25 points) 100**
- **Film critiques (2 @ 50 points) 100**
- **Final exam 200**
- **Total points for the course: 1000**

## **Course Requirements**

- 900 points (90% of 1000) = A
- 800 points (80% of 1000) = B
- etc.
- Fair Warning: No Makeup Quizzes
- No *second submissions* on assignments

## Determining Final Grades



- Numerous opportunities throughout the semester to earn Extra Credit points
- Not announced in advance on Canvas
- You must be present in class to hear about them.

## Opportunities for Extra Credit

# Fiction (i.e. not fact)

Maybe based on reality but not actually real.

*Exploring Science Through Science Fiction...*

***What is Science Fiction?***

***Fiction*** that has  
something to do with  
***science.***

But is the science presented realistically?

***What is Science Fiction?***

# *Sharpening critical thinking skills*

Critiquing sci-fi movie or TV clips.

Learning to discern the **real** (or at least *realistic*), the *potentially possible* (possible, in principle) and the **impossible** (as far as we know).

33-120 Science & Science Fiction:  
***What is this course all about?***

# ***Realistic:***

- Based solidly on good science
- Actually happens as shown on screen
- (or could happen essentially as shown)

## ***Critical Thinking:***

Discerning the ***realistic***, the *possible*  
and the *impossible*.



# ***2001: A Space Odyssey***

*Warner Brothers (1968)*

*Directed by Stanley Kubrick*

*Screenplay by Stanley Kubrick*

**A good example of (often) *realistic* sci-fi**

# *Possible:*

- i.e. *hypothetically*, or *possible in principle*
- It hasn't happened yet, but...
- There's no fundamental reason why it couldn't happen.

## *Critical Thinking:*

Discerning the *realistic*, the **possible**  
and the *impossible*.



# ***GATTACA***

*Columbia Pictures (1997)*

*Directed by Andrew Niccol*

*Screenplay by Andrew Niccol*

**Possible in principle, but not yet feasible**



# *Impossible:*

- It can't happen as shown.
- Not just a matter of time and technology.
- Science says NO!

## *Critical Thinking:*

Discerning the *realistic*, the *possible*  
and the *impossible*.



# ***Star Trek***

*Paramount (2009)*

*Directed by J.J. Abrams*

*Screenplay by Roberto Orci and Alex Kurtzman*

**Science says NO!**

## ***Another possibility:***

- **Something that was purely sci-fi at the time of production, but...**
- **It's now real, thanks to new developments.**
- **Sci-fi often predicts or inspires new technology.**

### ***Critical Thinking:***

**Discerning the *realistic*, the *possible*  
and the *impossible*.**

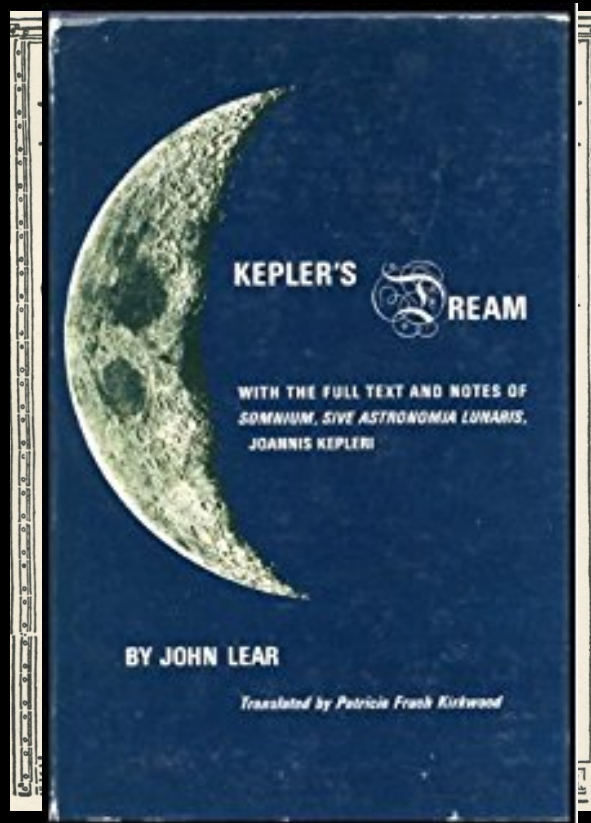


# ***Star Trek***

## ***(the Original Series)***

***Paramount (1966 – 1969)***

**Accurate Predictions...**  
**Sci-Fi Inspires New Technology**



## ***Somnium (Dream), by Johannes Kepler (1634)***

**When was the first Sci-Fi novel written and who was the author?**



# ***Le Voyage dans la Lune (A Trip to the Moon)***

**Georges Méliès (1902)**

**Today...**

**Critiquing the First Sci-Fi Movie Ever Made**

# **Science Knowledge Survey**

## **(25-question quiz on Canvas)**

**What do you already know about the topics to be covered in the course?**

**Answer questions honestly.  
(Don't look up answers on the internet.)**

**Time required: about 25 minutes**

***33-120 Science & Science Fiction***  
**Assignment for Today**

**Wednesday**

**Reference Frames and Acceleration  
Setup of Homework Problem 1**

**Friday**

**Begin Major Question 1**

***What is the nature of space and time?***

**Part 1: Classical Physics and Newton's Laws**

***33-120 Science & Science Fiction  
Schedule for This Week***