

OLLI Course Bio

Prof. Basri taught in the Astronomy Dept. at UC Berkeley for 35 years. His favorite classes were the introductory courses for non-majors and small freshman seminars, including a long-running one called "The Science in Science Fiction". He enjoys making science accessible to the general public, and has been given the Sagan award for this talent. He has taught several popular OLLI courses in person and online.

Title: Science Fiction or Fictional Science? Time: Wednesdays 1-3pm,
April 1 - May 6, 2020

Since novels by Jules Verne and "The Time Machine" by H.G. Wells, science fiction has taken the latest science of the time and extended it to various extremes to explore both technological and sociological ramifications of progress. This course will consider books and movies from the past few decades as to their plausibility from the perspective of current physics and computer science. Topics may include starships, time travel, alien contact, cosmic disasters, and general artificial intelligence. We will examine "The Physics of Star Trek". We'll have fun trashing a few movies. I will invite early input on the favorite sci-fi material you might like to discuss. We will try to have some class discussion as well as lectures.

Syllabus

Week 1 Why is Space Travel Hard?

Mar. 29 Distances in the Solar System and Galaxy.
What are the limitations on Rockets; how long does it take to get around?
Cool new ideas about better spaceships (within current physics)

Week 2 The Physics of Star Trek

Apr. 5 Relativity and time dilation
Starship Enterprise: warp and impulse engines, antimatter
Black Holes, Wormhole travel

Optional Reading: <https://www.amazon.com/Physics-Star-Trek-Lawrence->

[Krauss/dp/0465002048](https://www.krauss.com/dp/0465002048)

Week 3 The Physics of Star Trek

Apr. 12 Transporters, holodeck, tractor beams
 Weaponry: phasers, photon torpedoes, deflector shields
 "Physics" of Star Wars

Week 4 Aliens!

Apr. 19 Intelligent life on other planets
 The "Fermi Paradox" (why hasn't ET phoned in?)
 Contact: what if SETI worked?
 Alien Invasion (how will it go?)

Week 5 Robots and Machine Life

Apr. 19 Machine Consciousness
 What would motivate machines? Would they have
 morals?
 How would robots or androids interact with people?

Week 6 Why Time Travel is Impossible

May 3 ... but so much fun to speculate about
 Time paradoxes, Parallel Universes
 "Block time"

Week 7 Science Fiction or Fictional Science?

May 10 Which are the worst sci-fi movies and novels? Why?
 Send your nominations early; let's talk about them now

Week 8 Science Fiction or Fictional Science?

May 17 Which are the best sci-fi movies and novels? Why?
 Send your nominations early; let's talk about them now

For a list of science fiction literature that has reasonable science in it see:
<http://www.fraknoi.com/wp-content/uploads/2019/07/Science-Fiction-with-Good-Astronomy-PDF.pdf>