

33-120 Fall 2023

Week	Monday	Wednesday	Friday
1	8/28/2023 Course Overview & early works of sci-fi Critiquing the first sci-fi movie Imagining human spaceflight in 1902 Science Knowledge Survey	8/30/2023 Reference frames, acceleration and artificial gravity	9/1/2023 What is the nature of space and time? Classical Physics and Newton's Laws Quiz 1: Introductory material (25 pts)
2	9/4/2023 No Class Today Labor Day	9/6/2023 Newton's Laws (continued) Einstein and Modern Physics	9/8/2023 Einstein and Modern Physics (continued) Relativistic spacetime Problem 1 due: Acceleration
3	9/11/2023 Einstein and Modern Physics (continued) Special Relativity and time travel	9/13/2023 General Relativity Black holes and more time travel ideas	9/15/2023 General Relativity (continued) Gravitational waves and warp drive Problem 2 due: Time Dilation
4	9/18/2023 No Class Today Work on Spacetime Team Project (Einstein's Principle of Equivalence)	9/20/2023 "Future Physics" Quantum gravity & wormholes Spacetime Team Project (elevator data) Due	9/22/2023 The Multiverse hypothesis Exploration Paper 1 Due: Space & Time
5	9/25/2023 What is the universe made of? Standard Model of Particle Physics Quiz 2: Space and Time (100 pts)	9/27/2023 Dark Matter and Dark Energy Problem 3 due: General Relativity	9/29/2023 Nuclei, atoms & gases
6	10/2/2023 Liquids, solids, phase transitions	10/4/2023 Optical properties; transparent materials	10/6/2023 No Class Today Work on Optical Team Project (reflection, refraction, absorption, emission) Problem 4 due: Matter & Materials
7	10/9/2023 Metamaterials and invisibility cloaks Optical Team Project Due	10/11/2023 Chemical energy Midterm Film Critique Due	10/13/2023 Nuclear weapons; matter & anti-matter Exploration Paper 2 Due: Matter & Energy
X	10/16/2023	Fall Break - No Classes This Week	

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8	10/23/2023 Can a machine become self-aware? Information storage & data processing	10/25/2023 Intelligent robots Quiz 3: Matter and Energy (75 pts)	10/27/2023 BONUS DAY (TOPIC TBA)
9	10/30/2023 The Turing Test	11/1/2023 Asimov's Laws and robot behavior	11/3/2023 Artificial consciousness & robot ethics Exploration Paper 3 Due: Artificial Intelligence
10	11/6/2023 Are we alone in the universe? Conditions necessary for life to exist Quiz 4: Artificial Intelligence (50 pts)	11/8/2023 Finding habitable planets	11/10/2023 The science behind the SETI Project Exploration Paper 4 Due: Extraterrestrial Intel.
11	11/13/2023 What does it mean to be human? Insight from Mary Shelley's Frankenstein Medical technology Quiz 5: Extraterrestrial Intel. (25 pts)	11/15/2023 Cell structure and radiation damage DNA, genome sequencing & gene editing	11/17/2023 Human Teleportation
12	11/20/2023 What can we learn from an android about what it means to be human? Exploration Paper 5 Due: Biotech/Being Human	11/22/2023 No Classes Today Thanksgiving Recess	11/24/2023 No Classes Today Thanksgiving Recess
13	11/27/2023 How can we solve our problems? Public perception of science The scientific method	11/29/2023 Misplaced faith in science Misunderstanding of science Quiz 6: Biotech/Being Human (50 pts)	12/1/2023 Misuse of science in advertising How can we know what is real
14	12/4/2023 What lies ahead? Examples of sci-fi predicting the future How sci-fi storytelling changes with time Quiz 7: Problem-Solving (25 pts)	12/6/2023 Imagining the future Final Film Critique Due	12/8/2023 Last day of class - closing remarks Open discussion

Late Policy:

Assignments may be submitted late for partial credit, except as noted below.

Assignments submitted after others of the same kind have already been graded and returned will not be accepted for credit.

Quizzes will be given on Canvas and must be completed by midnight on the scheduled date. **There are no makeup quizzes!**

Opportunities for Extra Credit will be offered at various times throughout the semester, which may help to offset a missed quiz.