

Great Ideas

PHYX 1100

Spring 2019

Instructor: Bela G. Fejer
email address: bela.fejer@usu.edu

Office Hour: Before and after Class

Text: *Seven Ideas that Shook the Universe*,
by: Nathan Spielberg and Bryon D. Anderson

Schedule (if a small possible variation):

Class Date	Topic of Study	Reading Assignment	Tests
January 07	Introduction		
09	Physics and Scientific Methodology	Ch 1	
14	Early Science and Geocentric Model	Ch 2: A-D	
16	Heliocentric Theory Kepler's Law	Ch 2: E-F	
23	Aristotle and Galileo	Ch 3: A-B	Test Ch 2
28	Newton Mathematics and Science (I)	Ch 3: C	
30	Newtonian Mechanics	Ch 3: D-E	
February 4	Mechanical and Thermal Energy	Ch 4: A-B	Test Ch 3
6	Conservation of Energy	Ch 4: C	
11	Entropy: 1 st Law of Thermodynamics	Ch 5: A-D	Test Ch4
13	Laws of Thermodynamics	Ch 5: E-K	
20	Entropy & Probability	Ch 5: L	
25	Electricity & Magnetism (1)	Ch 6: A-B3	Test Ch5
27	Electromagnetic Theory of Radiation	Ch 6 B-D-2	

March 4	Special Theory of Relativity	Ch6D-3-D6	
6	General Theory of Relativity	Ch 6: E	
	— SPRING BREAK —	—	
18	Quantum Theory Blackbody Radiation	Ch 7: A-B	Test Ch6
20	Photoelectric Effect. Atomic Spectra	Ch 7: C-D	
25	Quantum Theory, Probability (1)	Ch 7: E	
27	Quantum Theory (2)	Ch 7: F	
April 1	Conservation Principles and Symmetries	Ch 8: A-B	Test Ch7
3	Conservation Laws and Invariants	Ch 8: C	
8	Quantum Model	Ch 8: G	
10	Present Knowledge & Challenges		Test Ch 8
16	Special Topics		
17	Term Projects (1)		
22	Term Projects (2)		
24	Review		
29	FINAL EXAM 11:30-1:20		

Assignments:

Reading: The assigned reading should be done **before** class so that you can better participate in discussions. Optional sections and chapter appendixes are optional and can be skipped.

Chapter Question Sheets: A question sheet will be available for each chapter. These will not be graded or handed in, but will be an invaluable study guide for quizzes and the final exam.

Term Project: This will be a major project and an important part of your final grade. You can choose the subject matter from what is covered in the course. Your talents, abilities and interests should determine the form of this project. All projects must include a short class presentation.

Tests:

Quizzes: There will be an in-class quiz given at the end of each chapter.

Final Exam: The final exam is comprehensive.

Grading:

Best 6 of 7 Quizzes (65% of total grade)

Final Exam (20%)

Project (15%)

No need to take the final exam if the average of the 7 quizzes is equal or higher than 90%.

DISABILITY

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) as early in the semester as possible (University Inn # 101, 435-797-2444, drc@usu.edu). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.