

Seven Ideas that Shook the Universe – Honors section

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Lecture Hours: Tuesday/Thursday/Friday 01:10-2:00 p.m. in Room 204, Smith Hall
Office Hours: Tuesday/Thursday 2:00-4:00 p.m. or by appointment
Course Website: <http://phys.kent.edu/~margetis/7ideas/>

Course Objective: Our objective in this course is to acquire some basic knowledge about a few fundamental concepts in Physics. At the same time we will see how the *Scientific Method* has been (and can be) used as a tool to produce knowledge and understanding. All material is presented in a manner that requires no special Calculus skills but basic Math skills are a must. See also the “*Learning Outcomes*” for this course at the end of this document. This course may be used to satisfy a Kent Core requirement. The Kent Core as a whole is intended to broaden intellectual perspectives, foster ethical and humanitarian values, and prepare students for responsible citizenship and productive careers.

Textbook : *Seven Ideas that Shook the Universe*, by N. Spielberg and B. Anderson

The textbook should be used as a supplement, a quick reference to look something up and also find more details (if you want) about a particular subject. **ALL material you will ever need is included in the lectures. The lectures plus supplemental material are going to be posted on the web site of the course.** If you study the material provided you should be able to get perfect scores in all quizzes and exams.

Contacting the Instructor: You may contact me about anything related to this course several ways. The **best** is through office hours. If this is not possible you may email me your question/concern/etc. In an emergency (illness during test period etc), you may use email. You may also try to give me a call at the listed number but I cannot guarantee my presence in the office at that time, so leave a message and a callback number.

Grades: *Quizzes:* 30%
 Project: 30%
 Mid-Term: 20% (Midterm is on *TBA*)
 Final: 20% (Final is on *TBA*)

Typically the letter grade is defined as follows: A=95% or more, A-=90-94%, B+=85-89%, B=80-84%, B-=78-79%, C+=75-77%, C=70-74%, C-=68-69%, D+=65-67 and D=60-64%. I will “curve” (down only) the thresholds if the class underperforms as a whole. More details on the nature of the project and the content and time of the quizzes will be given in class.

Important Dates: University imposed dates:

Course starting date: 8/26/2014

Course end date: 12/07/2014

Last day to register: 9/07/2014

Last day to drop the course: 9/07/2014

Last day to withdraw: 11/02/2014

*The official **registration deadline** for this course is 9/07/2014. University policy requires all students to be officially registered in each class they are attending. Students who are not officially registered for a course by published deadlines should not be attending classes and will not receive credit or a grade for the course. Each student must confirm enrollment by checking his/her class schedule (using Student Tools in FlashLine) prior to the deadline indicated. Registration errors must be corrected prior to the deadline.*

Administrative policy regarding student cheating and plagiarism:

University policy 3-01.8 deals with the problem of academic dishonesty, cheating, and plagiarism. None of these will be tolerated in this class. The sanctions provided in this policy will be used to deal with any violations. If you have any questions, please read the policy at http://www.kent.edu/policyreg/policydetails.cfm?customel_datapageid_1976529=2037779

Student Accessibility Statement:

University policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Accessibility Services (contact 330-672-3391 or visit www.kent.edu/sas for more information on registration procedures).

Modules and Course Schedule (tentative)

1. Introduction to the course and preliminaries. (Week-1)
2. Gravity and the Cosmic scale (Week-2)
3. Astronomy (Week-3)
4. Newtonian Mechanics. (Week 3-4)
5. Energy and Heat. (Weeks 5-6)
6. Entropy and Chaos. (Week 7)
7. Fluids. (Week 8)
8. Electromagnetism and Light (Weeks 9-10)
9. Waves and Optics (Week 11)
10. Elements of Relativity. (Week 12)
11. Elements of Quantum and Nuclear Physics (Weeks 13)
12. Concluding remarks (Last lecture)

PHY 11030 - Seven Ideas that Shook the Universe

Learning Outcomes:

Upon successful completion of this course, students will be able to:

1. Recount the origins, development, and significance of each of the seven major ideas of the course.
2. Describe the nature of science as a dynamic human activity, always open to improvement and new insights.
3. Demonstrate knowledge through a project and other activities.
4. Relate classroom content to current events in science.
5. Feel comfortable and at home with the physical universe, as much as possible.

In-class Activities:

1. Students will take notes and will be responsible for asking questions for clarification on discussion topics.
2. Students will watch PowerPoint presentations on various topics and will be responsible for understanding their content.
3. Students will watch video presentations, take notes on them, and be responsible for understanding their content.

Out-of-class Activities:

1. Students will be responsible for reading relevant textbook chapters.
 2. Students will be responsible for completing assigned projects and review materials.
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