Physics 1040: Introductory Astronomy
Fall 2009 Semester

Lecture Room: BUS 215; Tue and Thu 1:30-2:45pm

Instructor: Mike J. Taylor, SER Bld. 220C, Tel: 797-3919,
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Instructor Office Hours: Tuesday and Thursday 3 – 5pm.

SI Instructor: Margaret Jensen (e-mail: ma.j@aggiemail.usu.edu)
Supplementary instruction classes will be conducted twice a week during the semester (days and times to be announced). You are strongly encouraged to participate in the SI classes to help you with any problems and to improve your understand of class material.

Text (REQUIRED**):** ***The Essential Cosmic Perspective*** (fifth edition) by J. Bennett, M. Donahue, N. Schneider and M. Voit, **ISBN:0321566947.** Earlier editions are also acceptable for this course as all the homework and exams will be done online using "Blackboard".

Lab Fee: There is a $10.00 lab fee for this class. It covers maintenance and supplies for the Physics Department Observatory. (Note: Some scholarships will not pay for this fee, even though they pay full tuition costs. Scholarship students have been dropped from the class without notice for not paying the fee.)

Prerequisite: There is no prerequisite class for this course. However, as stated in the course catalog, a working ability at the high school mathematics level is expected. This is equivalent to USU Math 0900 and 1010.

Goals: This is a fun class that will introduce you to many aspects of astronomy. During the course we will study the Earth, the heavens as viewed from Earth, our solar system, the Sun, stellar evolution, galaxies, black holes and beyond! Our goal is to help you develop a process of learning and understanding of the universe as we now know it. This will include how scientists have learned many amazing facts and how they continue to expand the boundaries of our knowledge. This is an introductory course but there is a lot to learn and discover. You are expected to read the relevant chapter prior to each class.

Disability Note: If there is any student in this class who has a disability that will require some accommodation by the instructor, that student should contact the instructor and the Disability Resource Center (797-2444) as soon as possible. Persons with disabilities that may prevent them from observing through the telescope should contact the instructor to make alternate arrangements.

Honor Code: The USU honor code will be strictly enforced in this class. Any suspected violations of the honor code will be promptly reported to the honor system. Policies regarding the honor code will be enforced and can be found at: http://www.usu.edu/policies/PDF/Acad-Integrity.pdf

Course Activities:

Lectures: will focus on basic concepts and knowledge and you will be expected to read appropriate chapters to aid your understanding.

Homework: will be weekly mainly in the form of multiple choice questions with short answers and will be performed online using "Blackboard". Homework will be due each Friday by midnight (except for first week). You will do fourteen homeworks and your total homework grade will be assessed will be determined by your twelve highest scores.

Tests: will consists of four tests mainly in the same format as the homework and will be held during class periods (see attached syllabus). They will be closed book and closed notes and of equal weighting. You should be prepared to present a photo id during the exam.

Observation Projects: As part of this course, you will have the opportunity to use telescopes at the USU Observatory and to participate in Night-Sky viewing sessions where you will learn about constellations, planets and other celestial phenomena. These will be conducted from the roof of the SER building on campus. You will perform three observation projects during this semester, two of which will focus on stars, constellations and studying the moon. The third project is open for you to choose from a list of projects that will follow later in the class. Note: The observatory will be open **Monday through Thursday from 9 to 10 pm** (weather permitting). Two student instructors will assist guide you in your star gazing. You can call the observatory (797-2942) prior to attending to make sure it will be open that night. You are strongly advised to perform your first two projects early in the term while the weather is still good.

Term Project: You will each be required to complete a term project in the form of a poster report about a topic in astronomy or astrophysics that interests you. Example topics will be discussed in class. The poster must contain detailed information about your topic as well as figures and captions. This is an important part of the class.

Grading: Your final grade will be determined as follows:

4 Tests: 50% total
3 Observation Projects: 15% total
Term Project: 15%
12 Homeworks: 20% total
Grand total: 100%

PHYS 1040: Introductory Astronomy
Fall 2009 Syllabus

Week	Date	Lecture	Chapter
Section 1: Preview, Chapters 1-5			
1	Aug 25	Tour of the Universe, Sky Motions	1, 2
	27	Constellations, Seasons, Clocks and Calendars	2
2	Sep 01	Earth-Moon System, Eclipses, Heliocentric System	2, 3
	03	Motion, Newton's Laws, Conservation Laws	4
3	Sep 08	Orbits, Light, Electromagnetic Spectrum	4, 5
	10	Light Generation and Spectra	5
4	Sep 15	Telescopes for Astronomical Measurements	5
	17	**Test 1**	-
Section 2: Solar System, Chapters 6-9			
5	Sep 22	Origin and Composition of Solar System	6
	24	Planetary Formation and Other Systems	6
6	Sep 29	Earth: Structure and Composition	7
	Oct 01	Terrestrial Planets	7
7	Oct 06	Jovian Planet Systems	8
	08	Jovian Planet Moons and Rings	8
8	Oct 13	Asteroids, Comets and Other Solar System Left-overs	9
	15	No Class (Friday schedule)	-
9	Oct 20	Review of Solar System	6-9
	22	**Test 2**	-
Section 3: Stars and Stellar Evolution, Chapters 10-13			
10	Oct 27	The Sun: Interior, Atmosphere, Cycles and Sunspots	10
	29	Fusion and Stellar Properties	10, 11
11	Nov 03	Stellar Classifications, H-R Diagram, Birth of Stars	11, 12
	05	Life and Death of Low and High Mass Stars	12
12	Nov 10	Stellar Graveyard, White Dwarfs, Neutron Stars, Black Holes	13
	12	**Test 3**	-
Section 4: Galaxies and Cosmology, Chapters 14-17			
13	Nov 17	Our Galaxy, The Milky Way	14
	19	Galactic Classification and Evolution	14, 15
14	Nov 24	Active Galaxies, Quasars, Radio Galaxies, Hubble's Law	15, 16
	26	No Class (Thanksgiving)	-
15	Dec 01	Cosmology, Dark Matter	16
	03	Big Bang Theory and its Evidence	17
	Dec 08	**Final Exam: 1:30 – 3:20pm**	

Homework due each Friday by midnight (no homework first week). No exceptions for late homework.