CHAMINADE UNIVERSITY
PHY-140-01-1: INTRODUCTION TO ASTRONOMY
COURSE SYLLABUS – FALL 2012

Instructor: Matthew Cochran
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Office: Henry Hall 7
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Course Time: Monday, Wednesday, and Friday from 11:30 to 12:20
Course Room: Ching 254
Prerequisites: Concurrent enrollment in PHY-140L is assumed.
Required Text: Bennett, Donahue, Schneider, and Voit, *The Essential Cosmic Perspective,* 6th ed., Pearson, New York, 2012.
Other Materials: Calculator

COURSE DESCRIPTION:
This survey of general astronomy course is intended for students with no previous background in astronomy. The course will emphasize the tools and methods of astronomy, the solar system, the stars, and the structure of the galaxy and the universe.

EVALUATIONS AND GRADING SCALE:

Exam 1	15%
Exam 2	15%
Exam 3	15%
Exam 4	15%
Final	15%
Homework	15%
Presentation	10%

90%	–	100%	A
80%	–	90%	B
70%	–	80%	C
60%	–	70%	D
0%	–	60%	F

Incomplete grades (I) will be given in accordance with college regulations as outlined in the college catalog. Withdrawals (W) from the class are the responsibility of the student and deadlines are set by the college.

EXAMS:
There will be four examinations and a final as part of the requirements for the course. Tests include a combination of short answer, multiple choice, figure identification, and short essay formats. Exam questions may be drawn from readings in the textbook, lecture materials (including handouts or other supplements), homework assignments, slides, and in-class activities. Make-up exams will only be given under extenuating circumstances beyond the student's control.

HOMEWORK:
To be successful in this course, it is essential that you complete all homework assignments. Be prepared to spend three hours or more on homework every week. If you are having trouble, get help from the instructor or your classmates. Do not fall behind. Homework is due at the beginning of class. Late homework is not accepted.

PRESENTATION (more information coming later):
As a part of this course, you are required to give a presentation. You can either give it by yourself or with one other person.

Presentations from individuals should last between five and eight minutes. Presentations from groups of two should last between eight and twelve minutes. Time will be allowed for questions. You can use Power Point, the white board, or just talk. If you require other materials, let the instructor know in advance.

You can speak on anything related to astronomy that you think the class will find interesting. The only constraint is that the topic must be approved by the instructor. Here are some ideas.

Chapters 16 to 18 During the semester, we will only have time to cover the first fourteen chapters in your text. Still, the later chapters answer very interesting questions such as what is dark matter and what is the evidence for dark matter in galaxies? What are the necessities of life? Could there be life on Mars? Europa or other jovian moons? Do massive black holes really exist?

Current Research New discoveries in astronomy are made on a daily basis. Check the magazine *Astronom*y in the library or http://www.physorg.com/ for instance. There are many other sources.

Popular Culture UFOs, crop circles, and similar topics are frequently reported in the popular news. A discussion of these topics could be interesting. Do not, however, stray too far from science. The information that you present must be backed by evidence and you must describe this evidence in your talk.

History People have observed the Sun, Moon, and stars since the beginning of time. Their understanding of what they observed took the form of stories and legends. You might, for example, discuss part of the history of Hawaiian, Greek, Chinese, or Native American astronomy.

ATTENDENCE:
Regular attendance is expected of all students. Read material prior to lecture. If a topic is still not clear after it has been discussed in class, ask questions. Time will be spent working through homework problems and reviewing for exams in addition to lecturing. You will work with partners in class. It is important that partners engage in discussion of their work and avoid working as isolated individuals.

COURSE OBJECTIVES:
Upon successful completion of the course, the student will be able to:

- Identify and describe all the members of our solar system.
- Identify major stars and constellations.
- Classify stars according to brightness, size, color, and distance.
- Describe the evolution of different kinds of stars.
- State characteristics of various deep sky objects.
- Construct a hierarchy of objects in the observable universe, according to size and distance.

MUSIC DEVICES AND CELLPHONES:
Unless specifically permitted by your instructor, use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade, as it is discourteous and may lead to suspicion of academic misconduct. Students unable to comply will be asked to leave class.

ADA ACCOMODATIONS:
Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from CUH Counseling Center (Dr. June Yasuhara, 735-4845) by the end of the third week of classes. Failure to provide written documentation will prevent your instructor from making necessary accommodations. Please refer any questions to the Dean of Students and review procedures at:

www.chaminade.edu/student_life/sss/counseling_services.php

TENTATIVE WEEKLY SCHEDULE:

Week	Date	L#	Topic	Reading	Due	Monday Lab
	Aug 27	1	Intro;Our Place in the Universe			Lab 1: Position
1	Aug 29	2	Scale of the Universe	1.1 to 1.3		
	Aug 31	**H1**	**Fall Spiritual – No Class**			
	Sep 03	**H2**	**Labor Day – No Class**			Labor Day – No Class
2	Sep 05	3	Patterns in the Sky	2.1	**HW 1**	
	Sep 07	4	The Seasons	2.2		
	Sep 10	5	The Moon	2.3		Lab 2: Motion
3	Sep 12	6	The Planets	2.4		
	Sep 14	7	Review		**HW 2**	
	Sep 17	**E1**	**EXAM 1 – Chapters 1 & 2**			Lab 3: Seasonal Stars
4	Sep 19	8	Ancient Science	3.1 & 3.2		
	Sep 21	9	Copernicus; Nature of Science	3.3 & 3.4		
	Sep 24	10	Describing Motion	4.1	**HW 3**	Lab 4: Acceleration of Gravity
5	Sep 26	11	Newton's Laws	4.2		
	Sep 28	12	Conservation Laws	4.3		
	Oct 01	13	Gravity	4.4		Lab 5: Focal Length
6	Oct 03	14	Matter	5.1	**HW 4**	
	Oct 05	15	Light	5.2		
	Oct 08	**H3**	**Discoverer's Day – No Class**			Discoverer's Day – No Class
7	Oct 10	16	Telescopes	5.3		
	Oct 12	17	Review		**HW 5**	
	Oct 15	**E2**	**EXAM 2 – Chapters 3 to 5**			Lab 6: Star Magnitudes
8	Oct 17	18	Our Solar System	6.1 to 6.3		
	Oct 19	19	Formation of Planets	6.4 & 6.5		
	Oct 22	20	Terrestrial Worlds	7.1 & 7.2	**HW 6**	Lab 7: Earth's Changing Surface
9	Oct 24	21	Terrestrial Worlds	7.3 to 7.5		
	Oct 26	22	Jovian	8.1 to 8.3		
	Oct 29	23	Jovian; Asteroids	9.1 & 9.2		Lab 8: The Parsec
10	Oct 31	24	Comets	9.3 & 9.4		
	Nov 02	25	Review		**HW 7, 8, 9**	
	Nov 05	**E3**	**EXAM 3 – Chapters 6 to 9**			Lab 9: Parallax and Distance
11	Nov 07	26	Sun; Fusion in the Sun	10.1 & 10.2		
	Nov 09	27	The Sun-Earth Connection	10.3		
	Nov 12	**H4**	**Veteran's Day – No Class**		**HW 10**	Veteran's Day – No Class
12	Nov 14	28	Luminosities	11.1		
	Nov 16	29	Patterns Among Stars	11.2		
	Nov 19	30	Star Clusters	11.3		Lab 10: HR Diagrams
13	Nov 21	31	Star Birth; Low-Mass Stars	12.1 & 12.2		
	Nov 23	**H5**	**Thanksgiving – No Class**			
	Nov 26	32	High-Mass Stars		**HW 11,12**	Lab 11: Milky Way Scales
14	Nov 28	33	The Stellar Graveyard	13.1 & 13.2		
	Nov 30	34	The Stellar Graveyard	13.3 & 13.4		
	Dec 03	35	Presentations			Presentations
15	Dec 05	36	Presentations			
	Dec 07	37	Review			
finals	Dec 12	**FE**	**CUMULATIVE FINAL – 11:00 to 1:00**			