

PHY102: Astronomy, Cosmology and Astrophysics

Gustavus Adolphus College

Spring Semester 2005

Instructor: Dr. Steven Mellema

Office: Olin Hall 210

Office Hours: MTWRF 8:10-8:45, 11:30 AM-12:15 PM

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Textbook (Required):

- *The Cosmic Perspective, Third Edition (Media Update)* by Bennett, Donahue, Schneider and Voit, ©2004, Pearson Education

Course Objectives:

1. Achieve an understanding of “how we know what we know” in science.
2. Come to an understanding of your own, personal position in the universe.
3. Examine the relationship between scientific knowledge and other types of knowledge.
4. Understand the social context of science, and astronomy in particular, both historically and contemporarily.
5. Learn quantitative-reasoning and problem-solving skills and be able to apply them successfully to the solution of scientific problems.

Achievement of these objectives will be demonstrated through writings (quizzes, papers, exams, and lab reports) as well as participation in class discussions.

Course Policy and Evaluation:

1. **Class Schedule:** The regular class meeting time is Monday, Wednesday and Friday during 2nd period (9:00-9:50 AM). Class periods will be used for discussion, lecture, problem solving, video presentations, etc. Each student must register for and attend a laboratory class weekly on **either** Tuesday or Thursday during the same period. Attached is a daily calendar of activities for the course. When a reading assignment is listed for a class discussion, the **reading is expected to be completed before coming to the class.**
2. **Discussion Preparation and Pre-Lab Quizzes:** Each day that there is a reading assignment on the calendar, there will be a discussion preparation assignment administered via the WebAssign program on the World Wide Web. The assignment must be completed by each student before coming to class, and the WebAssign assignment for that day will expire 15 minutes before class begins, i.e. at 8:45 AM. On days when a lab experiment is scheduled, there will be a WebAssign pre-lab assignment based upon the lab handout for that experiment. (After completing the assignment, students are encouraged to print out their answers and bring them to class for reference during class discussions/activities.)
3. **Evening Observing Labs:** Each student will also be required to complete a set of evening observing laboratory exercises.
4. **Online Quizzes:** Using WebAssign, weekend quizzes will be administered. On the weeks in which they are scheduled, the quizzes will be available Fridays, after the end of the class period, and must be

completed before 8:45 AM Monday morning. A detailed schedule of the quizzes is given on the calendar below.

5. **Group Problems/Lab Reports:** Frequently, students will work together, in assigned groups of 2-3 members, to cooperatively solve problems or write a report. Only one group solution or report needs to be submitted, with all group members receiving the same grade. There will be no make-up for group problems missed due to absence. For lab reports, students may submit reports as a group or individually, but the name(s) on the report should reflect the person(s) who actually did the work.
6. **Extra-Credit Video Reports:** Throughout the semester, a series of videos will be presented in the evenings. Attendance is optional, but any student who attends a video presentation and submits a one-page summary paper (summarizing the video and relating it to the course discussions) will receive extra credit of up to 5 points toward the next exam score. (Video extra credit points may not carry over past the next exam, and no exam score can ever exceed 100%.)
7. **Exams:** There will be four one-hour exams during the course of the semester (see schedule below) and a two-hour final exam. Students must arrange **in advance** to take an exam at other than the scheduled time, and may do so **only** for a valid health or school-related reason. (It is the responsibility of the student to inform the instructor during the first week of the semester regarding any anticipated absences due to required field trips, athletic events, musical performances, or other extra-curricular activities.) Exams missed without pre-arrangement are entered as zero credit and cannot be made up.
8. **Attendance:** Students are expected to attend all class periods, and are responsible for all announcements and assignments made during class.
9. **Academic Honesty:** Having signed and agreed to abide by the College's Honor Code, students thereby pledge that, in all academic exercises, examinations, papers, and reports, they shall submit their own work. Footnotes, or some other acceptable form of citation must accompany any use of another's words or ideas. In the context of this course, students are expected to collaborate and to discuss their out-of-class assignments. However, submitting under one's own name work that is merely copied from another is a violation of the Honor Code. (The full text of the Gustavus Academic Honor Code Policy may be found in the Gustavus Academic Bulletin 2004-2005, p. 32).
10. **Evaluation:** Grades will be assigned using the following as a guide:
 - 10% WebAssign Discussion-Preparation and Pre-Lab Assignments
 - 15% Quizzes
 - 10% Group Problems
 - 15% Lab Reports
 - 32% Hour Exams (8% each)
 - 18% Final Exam

Final course grades will be assigned using the following scale as a guide:

94-100 A	90-94 A-	86-90 B+	82-86 B	78-82 B-
74-78 C+	70-74 C	66-70 C-	62-66 D+	58-62 D
				0-58 F

Assignment of final letter grades may also take into account the instructor's subjective evaluation of the student's attendance, initiative, preparation, and evidence of improvement.

12. Incompletes: A grade of incomplete will **only** be given for work not completed due to circumstances beyond the control of the student (*this is the College policy*)

February

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
		1	2	3	4	5
6	7 Syllabus; Introduction	8	9 Chapter 1	10	11 Chapter 2	12 Quiz Chap 1-2
13	14 Sections 3.1-3.4	15	16 Sections 3.5- end	17	18 Chapter 4	19 Quiz Chap 3-4
20	21 Hour Exam: Chapters 1-3	22	23 Sections 5.1-5.3	24	25 Sections 5.3- end	26 Quiz Chap 5
27	28 Sections 6.1-6.3					
						2005

March

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
		1	2 Sections 6.4- end	3	4 Chapter 8	5 Quiz Chap 6,8
6	7 Hour Exam Chapters 4-6	8	9 Sections 9.1-9.3	10	11 Sections 9.4- end	12 Quiz Chap 9
13	14 Sections 10.1- 10.3	15	16 Sections 10.4- end	17	18 Sections 11.1- 11.4	19 Quiz Chap 10
20	21 Sections 11.5- end	22	23 Sections 12.1- 12.4	24	25 No Class: Spring Break	26
27	28 No Class: Spring Break	29	30 No Class: Spring Break	31		
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April

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
					1 No Class: Spring Break	2
3	4 Sections 12.5- end	5	6 Sections 13.1- 13.4	7	8 Sections 13.5- end	9 Quiz Chap 11-13
10	11 Sections 14.1- 14.4	12	13 Sections 14.5- end	14	15 Chapter 15	16 Quiz Chap 14-15
17	18 Hour Exam: Chapters 8-14	19	20 Chapter 16	21	22 Sections 17.1- 17.3	23
24	25 Sections 17.4- end	26	27 Chapter 18	28	29 Sections 19.1- 19.3	30 Quiz Chap 16-18
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May

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
1	2 Sections 19.4- end	3	4 Chapter 20	5	6 Hour Exam: Chapters 15-19	7
8	9 Sections 21.1- 21.4	10	11 Sections 21.5- end	12	13 Chapter 22	14 Quiz Chap 19-22
15	16 Chapter 23	17	18 Final review	19 No Class: Reading Day	20 Final Exam: 10:30am- 12:30pm (50% Chapters 20-23; 50% Comprehensive review)	21
22	23	24	25	26	27	28
29	30	31				

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