

Physics 103
Astronomy
Syllabus and Schedule
Summer 2013

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Office Hours: TBA

Other times: By appointment

Textbook: *Astronomy: A Beginners Guide to the Universe* by Chaisson & McMillan, 7th Edition

Lab Manual: PHYS 103 Lab Manual

Lecture: MTWRF 9:50-10:50 AM; Neckers 440

Learning Objectives:

In this course you will discover how information about celestial objects is obtained, the size of planets, stars, clusters, galaxies, etc. and an understanding of how models of the formation of planets, stars, galaxies, and the universe are tested by comparison to observations. Particular objectives are:

You will be able to:

- 1) describe the properties of light and other electromagnetic radiation, how light is produced, and how information about distant objects is obtained from light and other forms of electromagnetic radiation.
- 2) describe Newton's Laws of motion and gravity and how they define orbital motion. You will be able to explain how the mass of celestial objects are determined from these laws.
- 3) describe the source of energy for stars and the conditions necessary for nuclear fusion. You will be able to described how the requirements of heat flow defines the temperature distribution in stars.
- 4) describe the solar system and name the major bodies in the solar system. You will be able to describe unique features of the major bodies. You will be able to describe the classes of minor bodies and their properties.

- 5) explain the current theories on how stars form, evolve, and die. You will be able to describe the importance of mass in this evolution and how close companions can alter this evolution.
- 6) describe the structure of galaxies, galaxy types, and how galaxies form clusters. You will be able to describe the observational evidence which gave rise to the Big Bang Theory, and what supporting evidence has been found, and what the current understanding of the evolution of the universe is.

Quizzes:

Quizzes will be given in classes in the end of the each chapter. Quizzes count **10%** of your total grade.

Midterm Tests 1-4:

Four midterm tests will be given in classes during the semester with the counting **15% each** of your total grade. They will be announced approximately one week before the test. The lowest score on one test will be dropped, so there will be no make-up tests unless your absence from the exam is properly authorized (see Missed Test Policy).

Missed Exam Policy:

Valid reasons for missing an Exam **are limited to properly documented**:

- Religious Observance;
- Military Duty;
- Bereavement (only members of the immediate family);
- Official University business;
- Jury Duty or Court Appearance;
- Properly documented medical reason (Doctor's certificate stating that the student was incapable of attending the exam; notes from the Student Health Services that the student was there at the time are **not** sufficient).

It is the student's responsibility to use the appropriate University form for Excused Absences to request accommodation from the instructor in case an exam is missed. Except in cases of medical emergency, this University form needs to be given to the instructor before the absence occurs.

Final:

The final is comprehensive and counts as **30%** of the course grade. The final is scheduled for **Thursday Aug. 1 from 12:00 to 1:50 pm in Neckers 440.**

Observation/Labs:

Observations and labs will meet on every week, except the first and the last week of class. **At 8 pm** you will meet in **Neckers 403** for an indoor lab or solar observation. **At 9 pm** you will meet in **Neckers 410** for night observations. Weather permitting; an outside observation will be done. During inclement weather, the lab instructor will show you to the room where an inside lab will be done. If inclement weather prevents outside observations for a section for an extended period, it may be necessary to reschedule lab sections. This will be announced if necessary in lecture well in advanced of the schedule change. You are responsible for all class related announcements given during the lecture. You must meet with the section in which you are assigned. Your Observation/Lab instructor cannot approve a change in section. This must be accomplished through the class registration process, drop/add. Failure to attend your assigned section will result in your receiving a zero for the lab work. There are no makeup labs. The lowest lab grade will be dropped.

Section 201 meets on Mondays. Section 202 meets on Tuesdays.

Grading: Quizzes	10%
Midterm exam 1-4	45%
Observations/Labs	15%
Final	30%

Grades are based on your overall average.

A	80 and above
B	70 to 79
C	60 to 69
D	50 to 59
F	less than 50

Your current grade will be posted periodically on SIU Online.

The grades will be posted periodically during the semester, beginning after the first exam. You should check your status regularly and address errors immediately. Errors must be addressed within two weeks after the grade is posted.

IMPORTANT REMARKS

1. Read the chapters in advanced of the lecture. If you don't understand the material in the text, **ask questions**.
2. **Attend class.** Most material is covered both in class and in the text, but from a different prospective and therefore complement each other. Almost all who fail, do so because they do no attend class.

3. Do not underestimate the **importance of the lab** grade. Failure to attend the labs can lower your grade by more than a letter grade.
4. Review your exams questions to find out where you made mistakes. Ask questions if you still don't understand. The Final is comprehensive; Don't make the same mistakes twice.
5. Turn off cell phones and pagers during the class.

Academic Dishonesty in PHYS 103

This is to inform you of the policy regarding academic dishonesty in PHYS 103.

Any individual found cheating on any exam, quiz, or assignment will be failed in the course. The possession of any *cheat-sheet* during the final will be considered cheating and treated as such. Plagiarizing will be considered cheating. If another individual takes the quiz or final for you, then both will be reported for cheating.

A report will be made to the proper authority for further disciplinary action including possible suspension from the university.

Emergency Procedures. *Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Safety's website www.dps.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.*

Tentative Lecture and Lab Schedule

Week	Lab (yes or no)	Lecture Dates	Chapter	Lecture Topic
1	No	6/10	0	The Sky
		6/11	0	The Sky
		6/12	0/1	The Sky/Copernican Revolution
		6/13	1/2	Copernican Revolution/Light/Matter
		6/14	2	Light/Matter
2	Yes	6/17	3	Telescopes
		6/18	3/4	Telescopes/Solar System
		6/19	Review for Exam 1	Review for Exam 1
		6/20	Exam 1	Exam 1
		6/21	4	Solar System
3	Yes	6/24	4/5	Solar System/Earth/Moon
		6/25	5	Earth/Moon
		6/26	6	Terrestrial Planets
		6/27	6	Terrestrial Planets
		6/28	6/7	Terrestrial/Jovian Planets
4	Yes	7/1	7	Jovian Planets
		7/2	8	Moons/Rings/Plutoids
		7/3	8/9	Moons/Rings/Plutoids/The Sun
		7/4	No Class	Independence Day
		7/5	Review for Exam 2	Review for Exam 2
5	Yes	7/8	Exam 2	Exam 2
		7/9	9	The Sun
		7/10	9/10	The Sun/Stars
		7/11	10/11	Stars/Interstellar Medium
		7/12	11	Star Formation
6	Yes	7/15	11/12	Star Formation/Lives and Death of Stars
		7/16	12/13	Lives and Death of Stars/Neutron Stars/Black Holes
		7/17	13/14	Neutron Stars/Black Holes/Milky Way Galaxy
		7/18	Review for Exam 3	Review for Exam 3
		7/19	Exam 3	Exam 3

Week	Lab (yes or no)	Lecture Dates	Chapter	Lecture Topic
7	Yes	7/22	14/15	Milky Way Galaxy/Normal and Active Galaxies
		7/23	15/16	Normal and Active Galaxies/Dark Matter/Galaxy Collisions
		7/24	16/17	Galaxy Formation and Evolution/ Super Massive Black Holes
		7/25	17/18	Cosmology/Life in the Universe
		7/26	Review for Exam 4	Review for Exam 4
8	No	7/29	Exam 4	Exam 4
		7/30	18	Life in the Universe
		7/31	Review for Final	Review for Final
		8/1	Final Exam	Final Exam

April Hendley thanks Dr. A. Kolmakov for their help with the syllabus.