

Physics 103
Syllabus and Schedule
Fall 2009

Astronomy

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 describe 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.

Instructor: **Dr. Andrei Kolmakov** **Phone:** **453-5212**

Office: **Neckers 478** **E-Mail:** **akolmakov@physics.siu.edu**

Office Hours: **M 10-11:50 am WF 3-5 pm**

Lecture: **MWF 2:00-2:50 AM; Neckers 240**

Labs: **In accordance with your class assignment and the distributed lab schedule (see below)**

PHYSICS 103 LAB SCHEDULE

Dates	Time	Mon.	Tu.	Wed.	Th.
Aug. 31 – Sep.3.	8:00 p.m.	9	11	13	15
	9:00 p.m.	10	12	14	16
Sept. 7 – Sept. 10	5:00 p.m.	9	11	13	15
	6:00 p.m.	10	12	14	16
Sept. 14 – Sept. 17	8:00 p.m.	9	11	13	15
	9:00 p.m.	10	12	14	16
Sept. 21 – Sept. 25	5:00 p.m.	9	11	13	15
	6:00 p.m.	10	12	14	16
Sept. 28 – Oct. 1	8:00 p.m.	9	11	13	15
	9:00 p.m.	10	12	14	16
Oct. 5– Oct. 8	5:00 p.m.	9	11	13	15
	6:00 p.m.	10	12	14	16
Oct. 12 – Oct. 15	8:00 p.m.	9	11	13	15
	9:00 p.m.	10	12	14	16
Oct. 19 – Oct.22	5:00 p.m.	9	11	13	15
	6:00 p.m.	10	12	14	16
Oct. 26 – Oct.29	8:00 p.m.	9	11	13	15
	9:00 p.m.	10	12	14	16
Nov. 2 – Nov.5	5:00 p.m.	9	11	13	15
	6:00 p.m.	10	12	14	16
Nov. 9 - Nov. 12	8:00 p.m.	9	11	13	15
	9:00 p.m.	10	12	14	16
Nov. 16 - Nov. 19	5:00 p.m.	9	11	13	15
	6:00 p.m.	10	12	14	16
	Lab Instructor:	Markevicius	Cothren	Bohorquez	Cothren

Nov. 30 Sections 9 and 10 will make up the lab missed Sept. 7, Labor Day.

Dec. 2 Sections 13 and 14 will make up the lab missed Nov. 11, Veterans Day

Textbook:

Astronomy: A Beginners Guide to the Universe by Chaisson & McMillan (from Fourth Edition and up).

Quizzes

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

Exams:

Four midterm tests will be given in classes in the mid of October and November with the counting **15% each** of your total grade.

Test 1-4

TBA Neckers 440, 10:00-10:50 a.m.

The lowest score will be dropped

Final: The final is comprehensive and counts as **30%** of the course grade.

The final is scheduled for Neckers 440 **Wed., Dec 16; 03:10-05:10p.m.**

Observation/Labs: Observations and labs will meet on **alternate weeks**. One week you will meet in **Neckers 410** during the **late evening** for 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. The next week, you will meet in **Neckers 403 in the afternoon for lab**. If inclement weather prevents outside observations for a section for an extended period, it may be necessary to reschedule evening and afternoon 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. **One lowest lab grade will be dropped.**

Grading:	Quizzes	10%
	Midterm exam 1-4 (lowest will be dropped)	45%
	Observations/Labs	15%
	Final	30%

Grades are based on your overall average.

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

Your current grade will be posted by individually assigned code number. The grades will be posted periodically during the semester, beginning after the first week of exams. The lab grades should be posted about three weeks after the lab. 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 perspective 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 of the report 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.*

Week #9	Chapter 9	The Sun
Week #10	Chapter 10	Measuring the Stars
Week #11	Chapter 11	The Interstellar Medium
Week #12	Chapter 12&13	Stellar Evolution, Neutron Stars, and Black Holes
Week #13	Chapter 14,15,&16	The Milky Way, Normal Galaxies, Active Galaxies, Hubble's Law
Week #14	Chapter 17	Cosmology
Week #15	Chapter 18	Life in the Universe
Week # 16		<u>FINAL</u>

A.K thanks Prof. T. Masden and Mr. R. Baer for their help with the syllabus and the webpage.