



Northeastern Illinois University
EXCELLENCE. ACCESS. DIVERSITY. COMMUNITY.

Physics & Astronomy
College of Arts & Sciences

Syllabus

Physics 103

Spring 2010

Astronomy

The Universe: Past, Present, Future

Instructor name: Dr. Bob Moltaji

Office:

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Office hours:

Monday 4:00 - 6:00PM

Course Title:

Physics 103- Universe: Past, Present, Future

Credit Hours: 3 unit of credit

Lecture room: ELC 123

Lecture time:

Monday 6:10 - 8:50PM

Textbook:

The Essential Cosmic Perspective, Bennett J. et al, 5th edition, (Pearson/Addison Wesley)

Knowledge of basic algebra skills is assumed.

Prereq.: MATH-O91 or MATH-102 Placement.

Course Overview

An introductory-level Astronomy/Astrophysics course for non science majors requiring no previous college-level science background. The evolution of the universe: Big Bang creation, expansion of the universe, formation, development and properties of stars, endings of the universe; as well as the history of our understanding of the universe from the perspectives of culture, philosophy, and science.

Modern astronomy is mostly a "**physics of the cosmos**"—**how things work** and **how we know**. Astronomy is a visually beautiful and intellectually stimulating subject. We live in a beautiful universe on a gorgeous planet. Understanding how it became the way it is and how the parts interact with each other enriches and deepens our appreciation for the artistry around us. It is my hope that you will take the time and spend the effort to learn how our universe works.

Format

This course will be taught in the power point Physics format. This course format differs substantially from the lecture/recitation format. In this format, classes are held one time a week, in a three-hour block.

The course design is based on the following premises:

1. Interaction between teacher and student is an important factor in promoting learning;
2. Interaction among students is another;
3. Active learning is better than passive learning;
4. Hands-on experience with the phenomena under study is crucial.

Collaborative Work

The students work in groups as well as alone. Social interactions are critical to their success. Most good ideas grow out of discussions with colleagues. This subject encourages collaborative teamwork. As you study together, help your partners, ask each other questions, and critique your group homework and lab write-ups. Teach each other! You can learn a great deal by teaching others.

Honesty on Course Work

You are welcome to and encouraged to work on the homework problems with fellow students. However, the work you submit should be your own and reflect your own understanding of the subject. For in-class work, you must be present and personally write your name on any material which is turned in in that class.

Readings

You are responsible for reading the text book or lecture note and working assigned problems. You will sometimes be assigned homework problems on material that has not yet been covered in class. You should start homework early and get help if needed before the due date.

Before Class Reading

We urge you to read the material in the up-coming class before coming to class.

BONUS PROBLEMS

Bonus problem may be assigned occasionally during lecture so that you may earn extra credit. These problems are optional.

ATTENDANCE:

Attendance most important part of the course, if you wish to withdraw from the class, it is your responsibility to do so officially.

ASSISTANCE

I am available during my office hours to answer questions and help with your assignments.

Written Homework

There will be one homework handed in on paper each week. To receive full credit for your hardcopy homework handed in, you must prepare and submit lucid and clearly reasoned written solutions. These problems will be graded and returned.

PROBLEM ASSIGNMENTS

The assigned problems at the end of each chapter will be due on the day announced in class, which is usually the class meeting following the completion of the chapter. Late homework is not accepted. Homework is the single most important part of the course. Timely completion of the assignments will greatly improve your chances of obtaining a good grade.

Skygazer activities

You will be offered hands-on, inquiry-based activities during the class period. These **activities** allow you to discover various aspects of a astronomy concept and to see a picture of the sky as it would look from any location at any time. Skygazer activities will vary in length and complexity and will be done in groups.

Skygazer activities section is always at the last part of every Monday lecture (about once every week). Attendance is required at all Skygazer activities without exception.

Your Skygazer activities report should describe your predictions, your experiences, your observations, your measurements, and your conclusions.

Tests

Three 1½ hour tests will be given. There will be a final in the course. The final will be a written exam and will cover all of the subject material.

Grades

Grades are not curved in this subject. If everyone in the class does well, everyone can get an A. Once the final course grade has been computed at the end of the term, grades will be assigned adhering strictly to the break-points below. Grades will be assigned based on your overall, weighted class average using the weighting scheme presented below.

Method of Evaluation

Student will be evaluated according to the following criteria

Tasks	Weights
Exam I	15%
Exam II	15%
Final Exam	20%
Homework	20%
Skygazer activities	15%
Attendance, Class activities and Quiz	15%
Total	100%

Grading

Your final grade will be computed according to the following scale:

A	90% - 100%
B	80% - 90%
C	70% - 80%
D	55% - 70%
F	< 55%

Definition of Active Pursuit of Course:

Active pursuit of this course constitutes participation in:

50% of lectures

50% of homework

50% of Attendance and Class activities

50% of tests

50% of Skygazer activities must be completed

Successful completion refers to submission of a report resulting from attendance and full participation in the corresponding laboratory experiment.

A student who is not actively participating in any one of the items listed above can be dropped and not receive a grade.

WEEK #	Date	ACTIVITIES	TOPICS
1	January 11	Class	Chapter 1. Our Place in the Universe
2	January 18	Class	Chapter 2. Discovering the Universe for Yourself
3	January 25	Class	Chapter 3. The Science of Astronomy
4	February 1	Class	Chapter 4. Making Sense of the Universe <i>Understanding Motion, Energy, and Gravity</i>
5	February 8	Class	Chapter 5. Light: The Cosmic Messenger
5	February 15	Class	Exam I (Chapters 1,2,3 and 4)
6	February 15	Class	Chapter 6. Formulation of Planetary Systems: <i>Our System and Beyond</i>
7	February 22	Class	Chapter 7. Earth and the Terrestrial Worlds
8	March 01	Class	Chapter 8. Jovian Planet Systems
9	March 08	Class	Chapter 9. Asteroids, Comets, and Dwarf Planet: <i>Their Nature, Orbits, and Impacts</i>
10	March 15	Class	Chapter 10. Our Star
10	March 15	Class	Exam II (Chapters 5,6,7, 8 and 9)
11	March 22	Class	Spring Break
12	March 29	Class	Chapter 11. Surveying the Stars
13	April 05	Class	Chapter 13. The Bizarre Stellar Graveyard
14	April 12	Class	Chapter 12. Star Stuff

15	April 19	Class	Chapter 17. The Beginning of Time
16	April 26	Class	Chapter 18. Life in the
17	May 03	Class	Final exam (All Chapters)