Syllabus Updated: 8/16/2019

Physics 110 INTRODUCTORY ASTRONOMY Fall 2019

Instructor: Timothy Twohig
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Class Description:
Qualitative survey of past and current scientific understanding of the universe including constellations, planetary explorations, stellar evolution, galaxies, and origin of the universe. There will be a focus on the physical mechanisms behind star structure, planetary formation, and evolution of the universe. This course has been approved for the Science and Technology category of the General Education requirements.

Objectives:
The goal of this course is to provide students with knowledge and understanding of the basic principles of science and Astronomy. Additionally, this course will help students attain an appreciation for the impact of Astronomy on our society, history, and progress of the other sciences.

Prerequisites:
High-school algebra.

Meetings:
Tuesday and Thursday 2:00pm-3:15pm in NDSU A. Glenn Hill Center Room 112. Class attendance is expected, and highly recommended but is not a component of the course grade.

Office hours:
Tuesday 3:30pm-4:30pm, Thursday 3:30pm-4:30pm, or by arrangement

Recommended Textbook:
Seeds + Backman, Astro 3: Introductory Astronomy, 3rd edition, Cengage Learning, 2017.
*This book is not required to complete the assignments for this class. However, this textbook will cover most of the materials we will discuss in class and provide further explanation than what is given in lecture.

Topic Outline:
The chapters in the textbook to be discussed in this course are listed below, along with the tentative exam dates. These dates and topics may change based upon the speed the material is covered in class.

Chapter 1: Here and Now
Chapter 2: User's Guide to the Sky: Patterns and Cycles
Chapter 3: The Origin of Modern Astronomy
Chapter 4: Light and Telescopes

Exam I: September 19

Chapter 5: Sun Light and Sun Atoms
Chapter 6: The Terrestrial Planets

Chapter 7: The Outer Solar System
Chapter 8: Origin of the Solar System and Extrasolar Planets

Exam II: October 17

Chapter 9: The Family of Stars
Chapter 10: Structure and Formation of Stars
Chapter 11: The Death of Stars

Exam III: November 14

Chapter 12: The Milky Way Galaxy
Chapter 13: Galaxies: Normal and Active
Chapter 14: Modern Cosmology
Chapter 15: Life on Other Worlds
Possible Alternate Chapter: Human Space Exploration

Final Exam: Tuesday, December 17th (1:00PM – 3:00PM)

Format:
The class will involve traditional lecture, along with discussion and problem solving. Students are encouraged to ask questions at any time during or after class.

How to Succeed:
Attending class, reviewing lecture notes, reading the textbook and other resources, taking part in class activities and discussions, and doing homework. Each student is encouraged to contact the instructor with any concerns, questions, and suggestions. If desired, review sessions will be held prior to exams.

LON-CAPA:
The LON-CAPA course management system will be used to post and grade homework, lecture notes, grades, and other information. LON-CAPA can be accessed by selecting the appropriate server at http://www.ndsu.edu/physics/lon capa/. Your username is everything to the left of the @ in your NDSU email address (use all lowercase letters). For example, if your email address is Ragnar.Lothbrok@ndsu.edu, then your LON-CAPA username is ragnar.lothbrok. Initially you create your own password by following the link “Forgot Password”. For help using LON-CAPA contact your instructor or laboratory technician Paul Omernik (SE110, Paul.Omernik@ndsu.edu, 231-7047) A $5 course fee is assessed for LON-CAPA server upgrades and maintenance.

Homework:
Seven homework problem sets will be assigned via the LON-CAPA online system. The following are rough estimates of what will be covered on each assignment.

1. Chapters 1-2
2. Chapter 3-4
3. Chapters 5-6
4. Chapters 7-8
5. Chapters 9-11
6. Chapters 12-13
7. Chapters 14-15

Each set will contain 10 problems. Each solved problem earns 1 point. All seven homework sets together earn up to 70 points. You may work together on homework sets, but simply copying another's answers is neither recommended nor beneficial. No late homework will be accepted.

Exams:

Three in-class "midterm" exams and a final exam will be given. All the exams will be based primarily on material covered since the last exam, but certain questions may require previous knowledge. Each exam (midterm and final) consists of 25 multiple-choice problems. Each correctly solved problem earns 1 point. Your lowest of the four exam scores (either midterm or final) will be dropped. That is, only the best three exam scores (with maximal 25 points for each exam) count toward the final grade.

Students are permitted a hand-written note sheet for each exam- 8.5x11 inch paper front and back. Students may write any notes or other helpful drawings, diagrams, graphs, etc. that they wish on this note sheet. Note sheets from earlier tests will also be allowed at the following exams (i.e. a student may bring their note sheet from Exam I to Exam II as well as a new note sheet made for Exam II).

A calculator may be required for successful completion of the exams; all other electronic devices must be turned off and stored. The use of calculator software in cell phones, translators, laptop computers, etc., is not permitted on an exam. Bring a #2 pencil, student ID, note sheet(s), and a calculator for each exam. No makeup exams will be scheduled.

Grading:

Grading will be based on LON-CAPA homework score (max. 70 points) and the best 3 out of 4 exams (max. 3*25 points). From the actual number of points and the maximal number (145 points) the percentage will be calculated and used to grade according to: 88.5% -100% A, 77.0% - 88.5% B, 66.0% - 77.0% C, 55.0% - 66.0% D, 0% - 55.0% F. The instructor reserves the right to lower the grade cutoffs and offer extra credit in response to class performance, but grade cutoffs will not be raised.

Additional Statements:

Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders.

Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible.

The academic community operates on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.