Physics 110 INTRODUCTORY ASTRONOMY Fall 2017

This syllabus was last updated on **August 10, 2017**

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Bulletin Description: Qualitative survey of the current understanding of the universe including constellations, planetary explorations, stellar evolution, galaxies, and origin of the universe. Focus on the physical mechanisms behind stars 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 the knowledge and understanding of basic principles of Astronomy. 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 STEM building* **Room 112**
Class attendance is expected, highly recommended but is not a component of the course grade.

Office hours: Monday 11:00am-12:00pm, Friday 11:00am-12:00pm, or by arrangement

Recommended Textbook: Seeds+ Backman, *Astro: Introdcutory Astronomy*, 3rd edition, Cengage Learning, 2017

Topic Outline: The chapters in the textbook to be discussed in this course are listed below, along with the $tentative$ exam dates.

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 12
Chapter 5: Sun Light and Sun Atoms
Chapter 6: The Terrestrial Planets
Chapter 7: The Outer Solar System
Exam II: October 10
Chapter 8: Origin of the Solar System and Extrasolar Planets
Chapter 9: The Family of Stars
Chapter 10: Structure and Formation of Stars
Chapter 11: The Death of Stars
Exam III: November 16
Chapter 13: Galaxies: Normal and Active
Chapter 14: Modern Cosmology
Chapter 15: Life on Other Worlds
Final Exam: Thursday, December 14 (3:30pm – 5:30pm)

Format: The class will involve traditional lecture, along with discussion and problem solving. If desired, paper flash cards will be distributed and used. Students are encouraged to ask questions at any time during or after class.

How to succeed: Attending class, reviewing lecture notes, reading the textbook, taking part in class activities and discussions, and doing homework (and additional) problems are keys to success. 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 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: Three homework problem sets will be assigned via the LON-CAPA online system.

set #	coverage	# of problems
1	chapters 1-4	15 out of 20
2	chapters 5-7	15 out of 20
3	chapters 8-11	15 out of 20
4	chapters 13-15	15 out of 20

Each set will contain 20 problems. Each solved problem earns 1 point. The maximal number of points per homework set is thus 15. All four homework sets together earn up to 60 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 20 multiple-choice problems. Each correctly solved problem earns 1 points. The problems are a mix of conceptual and computational problem-based questions. Your lowest of the four exam scores (either midterm or final) will be dropped. That is, only the best three exam scores (with maximal 20 points for each exam) count toward the final grade.

All exams are open lecture notes (i.e., using the lecture notes but not the textbook is permitted during an exam). A calculator will 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, calculator, and scantron sheet for each exam.

No makeup exams will be scheduled.

Grading: Grading will be based on LON-CAPA homework score (max. 60 points) and best 3 out of 4 exams (max. 3×20 points). From the actual number of points and the maximal number (120 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 in response to class performance, but they 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 is operated 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.*