

Physics 110 - INTRODUCTORY ASTRONOMY (3 credits) - Fall 2025

This syllabus was last updated on August 21, 2025

Specific Course Information:

Instructor: Sylvio May, South Engineering 216A,
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Bulletin Description: Qualitative survey of the current understanding of the universe including planetary explorations, solar phenomena, stars, black holes, nebulae, galaxies.

This course has been approved for the General Education category PHYSICAL SCIENCE (SP) category. Students will analyze components and dynamics of natural and physical worlds, develop models to explain phenomena within the natural and physical worlds, and apply methods of scientific inquiry to enhance their understanding of the natural and physical world.

Objectives: The goal of this course is to provide students with the knowledge and understanding of basic principles of Astronomy. This includes historic aspects of astronomy, experimental methods, physical laws used to rationalize experimental observations, components and the structure of the universe on different scales, as well as their evolution in space and time. The course creates opportunities to explore and appreciate what humans know about our universe as well as current frontiers of human knowledge. The focus of the course on understanding and critical evaluation of current knowledge contributes to becoming a scientifically literate and technologically informed member of society.

Prerequisites: High-school algebra

Meetings: Tuesday and Thursday 2:00pm-3:15pm in NDSU A.G.Hill building, Rm 112. According to NDSU Policy 333, attendance of this in-person course is expected. Class meetings may be recorded and made available through BlackBoard Ultra.

Office hours: Mon 10am-11am and Fri 11am-12pm in South Engineering room 216A; additional zoom or face-to-face options may be specified during the course.

Textbook: *Astronomy*, OpenStax, 2nd edition, 2023 (optional)

Topic Outline and Timing: The course consists of six parts, with an exam at the end of each:

Part One	Introduction to Astronomy	Exam1: Tue, Sept 16 (2-2:20pm)
Part Two	Telescopes and Inner Solar System	Exam2: Tue, Sept 30 (2-2:20pm)
Part Three	Outer Solar System	Exam3: Tue, Oct 14 (2-2:20pm)
Part Four	Our Sun and Other Stars	Exam4: Tue, Oct 28 (2-2:20pm)
Part Five	Star Formation and Evolution	Exam5: Tue, Nov 18 (2-2:20pm)
Part Six	Galaxies and Cosmology	Final Exam: Mon, Dec 15 (1-3pm)

Format: In-class activities involve some traditional lecture plus discussions with a focus on critical thinking and problem solving. Paper flash cards may be distributed and used. Students are encouraged to engage in in-class discussions and ask questions at any time during or after class. Class announcements will be made through email. Students demonstrate their level of comprehension in homework and exams.

How to succeed: Attending class, reviewing lecture notes, reading the textbook, taking part in class activities and discussions, and completing homework problems are keys to success. Each student is encouraged to contact

the instructor with any concerns, questions, and suggestions. If desired, additional review sessions will be offered at any time during the course, especially prior to exams.

Course Management System: BlackBoard Ultra

Homework: 13 homework problem sets, each containing 12 multiple-choice problems, will be assigned through BlackBoard Ultra. The total number of available problems is $12 \times 13 = 156$.

Part One	(HW sets 1-3)	3 x 12 problems	due Sun, Sept 14
Part Two	(HW sets 4-5)	2 x 12 problems	due Sun, Sept 28
Part Three	(HW sets 6-7)	2 x 12 problems	due Sun, Oct 12
Part Four	(HW sets 8-9)	2 x 12 problems	due Sun, Oct 26
Part Five	(HW sets 10-11)	2 x 12 problems	due Sun, Nov 16
Part Six	(HW sets 12-13)	2 x 12 problems	due Sun, Dec 14

Each solved problem yields one point until a maximum score of 120 points is reached.

Exams: 5 midterm exams and a Final Exam will be administered. Each midterm exam will be completed within 20 minutes inside the classroom. The exact format will be communicated prior to each exam by the instructor. One midterm exam (the lowest scoring) will be dropped. The remaining 4 midterm exams yield up to 10 points each. Hence, 40 points maximum can be obtained from the exams. The Final Exam is required and yields up to 20 points.

Presentations: Each student will prepare and upload a PowerPoint presentation, 2-3 pages long, on an astronomy subject that extends or complements the course. This assignment yields up to 20 points. Every student is invited to give a 3-min presentation in the classroom (up to 5 points extra credit may be assigned).

Grading: will be based on homework score (max. 120 points), 4 midterm exams (max. 40 points), the Final Exam (max. 20 points), and a PowerPoint presentation (max. 20 points). From the actual number of points and the maximal number ($120 + 40 + 20 + 20 = 200$ points) the percentage will be calculated and used to grade according to: 0%-60.0% F, 60.0%-70.0% D, 70.0%-80.0%, C 80%-90.0%, B 90.0%-100% A. Expressed in points, this corresponds to: 0-119 F, 120-139 D, 140-159 C, 160-179 B, 180-200 A. The instructor reserves the right to lower the grade cutoffs in response to class performance, but they will not be raised.

General Course Information:

- Any students with disabilities who need accommodations in this course are invited to share these concerns or requests with the instructor and contact the Center for Accessibility and Disability Resources 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 the Provost. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.
- Your personally identifiable information and educational records as they relate to this course are subject to FERPA.
- 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.