Northern Illinois University

Course Syllabus for Physics 162 --- Introductory Astronomy

Fall Semester, 2025

Instructor: Dennis Eugene Brown Faraday West 208W and/or 213W
DEBrown.niu.edu@gmail.com
Office Hours: TTh 11-2:00pm tel: 630-910-5512
Physics 210 WebPage: www.niu.edu/brown
Course Textbook: Astronomy 2nd ed. (OpenStax) **Author**: Fraknoi, Morrison & Wolff
Location: https://openstax.org/details/books/astronomy-2e
Online Homework: Expert TA: https://theexpertta.com
We will be covering the following material in OpenStax: (Tentative Schedule)

Science and the Universe:	Chapter 1
Observing the Sky:	Chapter 2
Orbits and Gravity:	Chapter 3
Quiz #1	
Earth, Moon, and Sky:	Chapter 4
Radiation and Spectra:	Chapter 5
Telescopes & Solar System:	Chapter 6,7
Quiz #2	
Venus and Mars:	Chapter 10
Giant Planets:	Chapter 11
The Milky Way Galaxy:	Chapter 25
Quiz #3	
Quasars & Black Holes:	Chapter 27
The Big Bang:	Chapter 29
TBD:	Chapter #

Final Exam (TBD - To be Determined)

Problem Sets will be posted on **www.niu.edu/brown** every week, and they will be due one week later. Late homework will be penalized 10% per day.
All quizzes and exams will be online and open book. Scientific calculators are recommended (like a TI-30XIIS Texas Instruments calculator).

Tentatively: 1 page essay about astronomy **or** an NIU Observatory visit = 5%
All Problems Sets will make up 20% of the **total** grade
Each quiz " " 15% " "
Final Exam " " 30% " "

The lowest scoring Problem Set will not be counted towards the final grade.
Blackboard, Zoom, or Office meetings = extra credit added to 5% grade

<u>There are Physics Tutors available in Faraday East Room 251</u>

Additional Notes:

(1) Quizzes will be done online. You will be given a minimum of 1 week to complete the Quiz (example: Monday [morning] to Sunday [midnight]). Makeup quizzes will be available upon request, but the scoring will start from a low base of 90%—thus you can still get some credit but no greater than an A- (exceptions made for valid excuses such as a doctor's note).

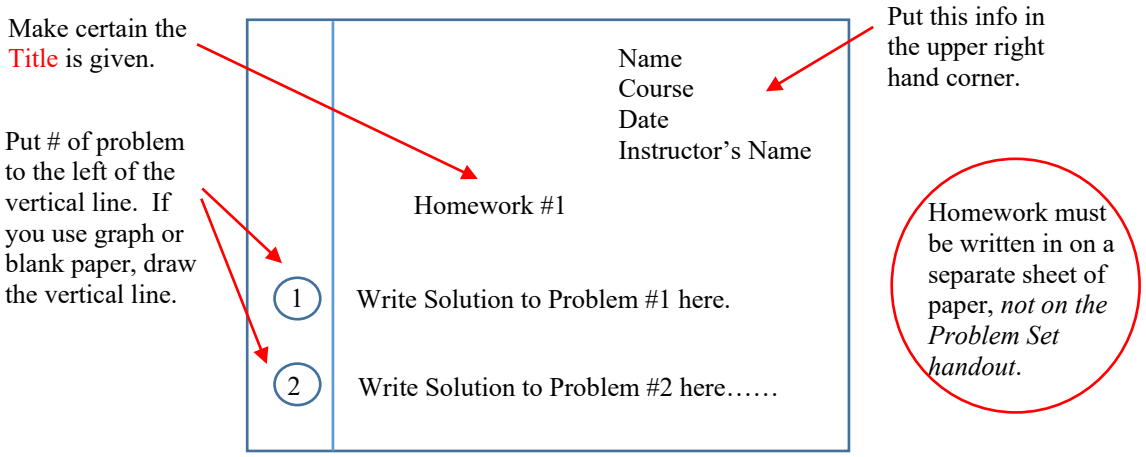
(2) When the homework solutions are posted on Expert TA, late homework will be allowed with a penalty (see below).

Expert TA:
Homework will generally be due on Thursdays (midnight)[the ***Due*** date], late homework accepted until Sunday (midnight)[the ***End*** date] with a penalty of 10% per day, and solutions will be viewable on Monday. Late homework will still be accepted at any time during the semester after the ***End*** date (*as makeup homework*), but the scoring will start at a low base of 70%—thus you can still get some credit, but no greater than a C- grade.

Blackboard:
Hardcopy solutions will be due on Blackboard on Thursdays (midnight) [the ***Due*** date], and late homework accepted until the next Thursday (midnight) [penalties are the same as those for Expert TA]. Submissions should only be pdf files (see Blackboard in the "Content" section for a video on how to convert jpeg images to a single pdf file).

(3) Homework solutions are to be completed on Expert TA, and also written out on paper and uploaded to Blackboard as a pdf file. For multiple choice and True/False questions: write out the solution in complete sentences (see examples below and the Example Problem Set on the Physics 162 WebPage). For questions requiring a number, show how you did the calculation to arrive at the answer. Instructions are below.

(4) Homework should have the following format (or you will be penalized up to a maximum of 50% per assignment):



Example for multiple choice:

A star is 230 light-years away. The light we see tonight from that star left it
(a) One year ago
(b) 2.3 years ago
(c) 23 years ago
(d) 230 years ago
(e) The time depends on which part of the sky the star is in

No need to write out the question

Answer:

The light we see tonight from a star 230 light-years away left it 230 years ago.

Write solution this way

Example for True/False:

An astronomical hypothesis is a piece of knowledge that every astronomer accepts. True or False

No need to write out the question

Answer:

It is false that an astronomical hypothesis is a piece of knowledge that every astronomer accepts.

Write solution this way

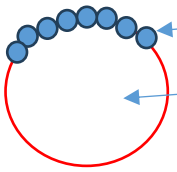
Example for numerical calculation:

The circumference of the giant planet Jupiter at its equator is 439,264 km. The diameter of planet Earth at its equator is 12,756 km. How many Earth diameters could we fit side by side into the circumference of Jupiter?

No need to write out the question

Answer:

$$\frac{439264km}{1jupitercircumference} \times \frac{1earthdiameter}{12756km} = \frac{439264}{12756} \frac{earthdiameter}{jupitercircumference} = \begin{cases} 34 \text{ Earth diameters can fit side by side} \\ \text{into the circumference of Jupiter} \end{cases}$$



Write solution this way

Example for graphical questions:

Just draw the picture you made in Expert TA

Do This for full credit
No need to write out the question

There will be also Review Questions, Thought Questions, and Collaborative Group Activities on your homework. See the Physics 162 WebPage for weekly homework www.niu.edu/brown (click on courses). On this webpage, you will also see an ***Example Problem Set***.

Grading: the grading scale will be a combination of a point and a curve scale:

Points: 100-90: A / 89.99-80: B / 79.99-70: C / 69.99-60: D / < 60: F
Curve: 10%: A / 20%: B / 40%: C / 20%: D / 10% F
10% = top 10% of students; 20% = next top 20%; etc.

The student's grade will be the higher of either the Points based or Curve based grades.

GED REQUIREMENTS: As part of the general education requirements, this course fulfills **3** credit hours in the *Knowledge Domain* of **Nature and Technology** towards the minimum of 21 hours across the three domains. For more information on General Education Requirements, please see your advisor or review the "General Education Requirements" for the appropriate undergraduate catalog.

ACCESSIBILITY: Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located in the Campus Life Building, Suite 180, and can be reached at 815-753-1303 or *drc@niu.edu*.

HONOR CODE: Be aware of the policies and procedures regarding your rights as well as responsibilities that are published in the NIU Student Code of Conduct, which is available on line at: https://www.niu.edu/conduct/_pdf/code-of-student-conduct.pdf.
Working with other students on homework is encouraged, but outright copying (plagiarism) of other student's work is strictly forbidden and will be reported to the NIU administration.

Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are guilty of plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students guilty of, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.