Northern Illinois University

Course Syllabus for Physics 162 --- Astronomy

Spring Semester, 2024

Instructor: Dennis Eugene Brown Faraday West 208W and/or 213W
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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
TBD:	Chapter #
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 (however, *the problem sets just before **quizzes&exams***—and the final problem set will not be accepted late). All quizzes and exams will be online and open book. Scientific calculators are recommended (like a TI-30XIIS Texas Instruments calculator).

Tentatively: One Blackboard or Zoom meeting = 5% of the **total** grade
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.

There are Physics Tutors available in Faraday East Room 251

Additional Notes:

(1) Quizzes will be done online. On the day of the Quiz (which will generally be on Tuesdays), you will be given a minimum of 24 hours to complete the Quiz.

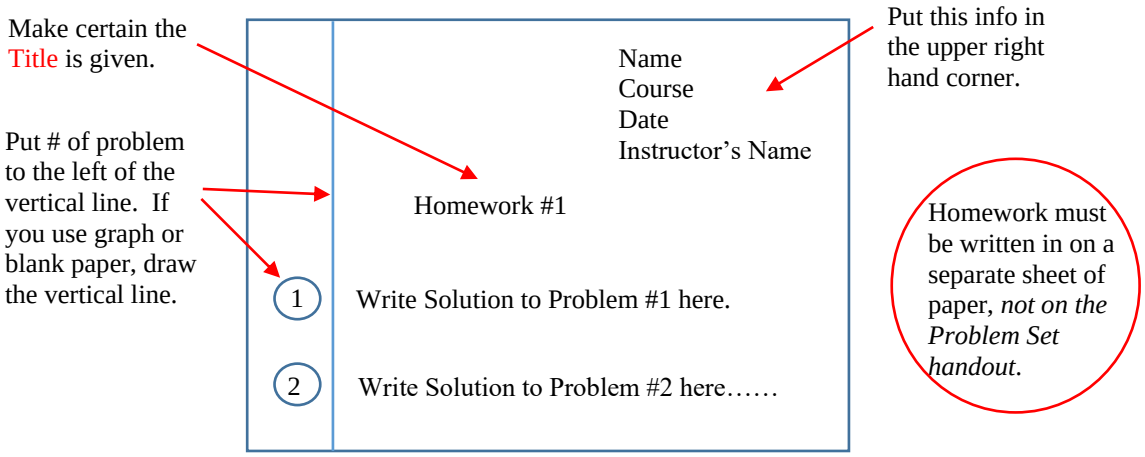
(2) When the homework solutions are posted on Expert TA, late homework will be allowed but will start at a low base of 30%—thus you can still get some credit.

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 the following week. ***Exceptions:*** Homework #3, #6, #9 (the homework just before the Quiz) will be accepted late until Friday (midnight)[the ***End*** date] with solutions viewable on Saturday (morning). Late homework will still be accepted at any time during the semester after the ***End*** date, but the scoring will start at a low base of 30%—thus you can still get some credit.

Blackboard:
Hardcopy solutions will be due on Blackboard on Thursdays (midnight) [the ***Due*** date], and late homework accepted until the next Thursday (midnight) with a penalty of 10% per day. ***Exceptions:*** Homework #3, #6, #9 (the homework just before the Quiz) will be accepted late until Tuesday (midnight) which will be the day of the Quiz. 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 question and solution. 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

Answer:

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

Example for True/False:

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

Answer:

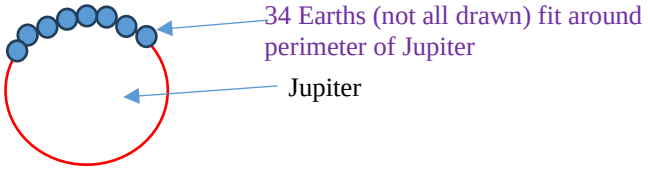
An astronomical hypothesis is a piece of knowledge that every astronomer accepts: False

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?

Answer:

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



Example for graphical questions:

Just draw the picture you make in Expert TA

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 / 89-80: B / 79-70: C / 69-60: 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.

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 on the 4th floor of the Health Services Building, 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://niu.edu/conduct/_pdf/niu-scc-final.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.