

# Physics 10140/20140 Descriptive Astronomy

University of Notre Dame - Summer 2019

When: M/T/W/R (10:30 am - 12:10 pm)  
Where: 123 Nieuwland Science Hall  
Instructor: Vinicius Placco  
Office: 334 Nieuwland Science Hall  
Contact: [vplacco@nd.edu](mailto:vplacco@nd.edu) / 574-631-2865  
Office Hours: M/T/W/R 9:00-10:00 am, or by appointment

Book: Astronomy from OpenStax ([openstax.org/details/books/astronomy](https://openstax.org/details/books/astronomy))  
Notes: Sakai and [class website](#)

TA: Derek Shank (341 Nieuwland Science Hall – [dshank1@nd.edu](mailto:dshank1@nd.edu))  
Office Hours - M/T/R 2:30-3:30 am, or by appointment

Final Exam: July 25<sup>th</sup>, 2019 (Thursday)

## Goals

The class explores our current knowledge of the Universe from stars to cosmology. It emphasizes the techniques we have used to reach the scientific theories that are popular today. It will explore the difficulties and problems with astronomical observations to demonstrate the limits of scientific knowledge and the possibility of further evolution in our understanding of the Universe.

## General Education Learning Outcomes

Think Critically – identify, define, analyze, interpret, and evaluate ideas, concepts, information, problems, solutions, and consequences. This includes the ability to compute and comprehend quantitative information and to engage in the scientific process.

## Topics (subject to revision)

- The Sky and Motions of the Sun, Moon, and Planets
- Historical Development of Astronomy
- Telescopes and the Multi-Wavelength Universe
- Distances and Distance Measurement Techniques
- Stars and Stellar Evolution
- The Sun as a Star
- The Milky Way
- The Origin of the Elements
- Galaxies and Clusters of Galaxies
- Dark Matter, Dark Energy, and the Unseen Universe
- Life in the Universe
- Black Holes and stellar remnants

## Course Grading

(40%): Final exam

(40%): Weekly assessments and projects

(10%): Astronomy Diagnostics Test (5+5)

(10%): Class-assessment and Self-assessment

(XX%): Extra credit activities TBD

- Grades will be based on exams, assignments, observing projects, and reaction essays.
- In-class assignments are short problems that are solved in small groups and are meant to help get everyone to understand astronomical concepts.
- An article from the current news that deals with some aspect of astronomy should be printed out and summarized in a paragraph, emphasizing the relevance to topics discussed in class. More information will be given in class.

## Textbook

Good news: your textbook for this class is available for free online, in web view and PDF format! You can also purchase a print version, if you prefer, via the campus bookstore or from OpenStax on Amazon.com. You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable.)

Astronomy from OpenStax (Print ISBN: 1938168283 / Digital ISBN: 1947172247)

[www.openstax.org/details/astronomy](http://www.openstax.org/details/astronomy)

## Honor Code

Entering the University of Notre Dame, you were required to study the on-line edition of the *Academic Code of Honor*, to pass a quiz on it, and to sign a pledge to abide by it. The full *Code* and a *Student Guide to the Academic code of Honor* are available at: <http://honorcode.nd.edu>. Perhaps the most fundamental sentence is the beginning of section IV-B:

*“The pledge to uphold the Academic Code of Honor includes an understanding that a student’s submitted work, graded or ungraded – examinations, draft copies, papers, homework assignments, extra credit work, etc. -must be his or her own.”*