

SYLLABUS FOR ASTRONOMY 103

Introductory Astronomy
Randolph College, Summer

PROFESSOR:

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OVERVIEW:

This course is a one-session, online 3-credit course in astronomy for non-science majors and anyone else who wants to gain a better understanding of the amazing, fantastic and awe inspiring universe we inhabit. We will cover the birth and death of stars, the origin of the planets, the structure and evolution of galaxies and the beginning and ultimate fate of the cosmos itself. Along the way we will encounter wondrous objects like neutron stars, black holes, wormholes, quasars and exploding stars. We will learn how the elements created in the hearts of these exploding stars has made life as we know it possible. We will also learn about the practices and methodologies that astronomers use to probe the universe around us. This course on its own satisfies the IB math requirement. For this course to satisfy the IID Laboratory Science requirement you must also complete the corresponding laboratory course Astronomy 101L or Astronomy 103L

COURSE GOALS:

1. Spark students' curiosity and wonder about astronomical objects, astrophysical phenomena, and the physical world in general.

2. Develop students' understanding of the physical processes, astronomical objects and astronomical phenomena studied by astronomers.
3. Familiarize students with modern astronomical research methods and some of the most ground breaking recent astronomy research results.
4. Develop students' skills in making conclusions using logical, evidence based reasoning.
5. Develop adequate skills in mathematical concepts and quantitative reasoning.
6. Learn how scientists acquire, organize and apply knowledge about nature based on experiments and observations.

These goals will best be accomplished by your attention to lectures, and through quizzes, activities, and exams. Most importantly, these goals will be accomplished by your participation and involvement in the class!

COURSE MATERIALS:

1) Text: Astronomy: At Play in the Cosmos

Adam Frank

W. W. Norton & Company, Inc.

ISBN: 978-0-393-60298-2

OR

Ebook: <https://digital.wwnorton.com/cosmos>

Required.

2) At Play in the Cosmos Video Game

Goto

<https://digital.wwnorton.com/cosmosgame>

Use Student Set ID: **144872** to purchase access to the video game.

This game can be run on any platform.

Required.

Online course information system: We will use Randolph College's Moodle system, <https://moodle.randolphcollege.edu/>, to post information about the course. The information on Moodle will include the all lectures, activities, quizzes and tests, and announcements. I expect you (within the first few days of class) to read and familiarize yourself with all the links on the Moodle course site. You will be expected to check Moodle regularly for announcements and course materials.

OFFICE HOURS:

I will have two hours a week for office hours. You can log into the Zoom video chat room for these hours. Schedule TBA.

LECTURES:

Lectures are posted on Moodle. Each week we will have 4 lectures, of varying lengths, each covering 2-4 sections of your book. These lectures are set up like quizzes with questions for you to answer after parts of the lecture. These lectures are worth 15% of your grade so please pay close attention to them!

Tentative List of Topics

The Night Sky
The Science of Astronomy
Motion, Energy, Gravity
Moon Phases
Light in Astronomy

Seasons, Tools of the Trade
Extra-Solar Planets, Our Sun
Surveying the Stars
HR Diagram, Star Birth and Lifetime
Stellar Death
Galaxies and Cosmology
Hubbles Law and the Dark Universe
Search for ET and Interstellar Travel

Quizzes and Tests:

There will be several quizzes, one per chapter, and several simulation based quizzes as well. There will also be video game assignments.

In addition, there will be 2 tests.

HONOR CODE:

Please note that all tests, quizzes and activities in this class are pledged work under the Randolph College Honor Code. You can feel free to study with other students but your tests and homework assignments should be your work alone. If you have any questions about how the honor code applies in this class I will be happy to discuss it with you.

GRADING:

Course grades will be based on the two tests (25%), the chapter quizzes (20%), Lectures with quizzes (15%), Simulation Quizzes (20%), Video game assignments (20%).

Students with a disability requiring special consideration: Students with disabilities needing

accommodations in summer online classes at Randolph College may send any requests for accommodations and accompanying documentation to accessibility@randolphcollege.edu.

Students enrolled at other colleges or universities may submit current letters of accommodation from their home school.

Students who are not currently receiving accommodations and would like to inquire about receiving them in summer online classes at Randolph College can send any pertinent documentation or inquiries to the Coordinator of Disability Services at the email address listed above.