

INTRODUCTION TO ASTRONOMY 103: THE EVOLVING UNIVERSE, STARS, GALAXIES, AND COSMOLOGY (last updated on Jan 23 08)

1. BASIC INFORMATION

Instructor: Professor Snežana Stanimirović

- Lectures: 9:55-10:45 am Tue, Thr in 3425 Sterling Hall
- Contact:
 - Office: 6520 Sterling Hall
 - Phone: 608 890 1458
 - E-mail: [sstanimi@astro.wisc.edu](mailto:ssstanimi@astro.wisc.edu)
 - Mailbox: 5th floor Sterling Hall
 - Office hours: 11-noon Tue and Thr, or by appointment.
- Course web page: <http://www.astro.wisc.edu/~sstanimi/103.html>
- Lecture notes, homework & solutions will be provided through Learn@UW.

Teaching Assistant: Andrew Schechtman-Rook

- Discussions: in 6515 Sterling Hall; START ON FEB 28
 - Section 407, at 9:55am, Mon
 - Section 408, at 4:35pm, Thr
 - Section 409, at 2:25pm, Wed
 - Section 410, at 2:25pm, Thr
 - Section 411, at 2:25pm, Tue
 - Section 412, at 2:25pm, Mon
- Contact:
 - Office: 4524 Sterling Hall
 - E-mail: andrew@astro.wisc.edu
 - Mailbox: 5th floor Sterling Hall
 - Office hours:
 - * Mon 3:15 - 4:15
 - * Tue 3:15 - 5:15
 - * Wed 1:15 - 2:15
 - * Wed 3:15 - 4:15
 - * Thr 3:15 - 4:15

2. COURSE LITERATURE

Textbook: “Pathways to Astronomy” by Schneider & Arny, 1st edition.

3. COURSE STRUCTURE

Homework:

There will be about ten homework assignments, mainly focusing on problem solving and exploring lecture material in depth.

Late Homework Policy:

Up to two days, with 20 points (1/5 of the total number of points) taken off for each day.

Clickers:

We will use clickers for this class. Clickers are available with the textbook or separately at the UW Bookstore. They must be registered online at www.einstruction.com before you can use them in class. The registration code for the class is Class Key: F37659N751. Directions for registering the clickers are provided on the course web page.

Grading:

There will be two midterm (one hour) exams, and one final exam. These exams will contain computer graded multiple choice questions. The final grade will be determined using the following weights.

1st exam 20% (Feb 28)

2nd exam 20% (Apr 15)

final exam 30% (May 16, 10:05 am)

homework 20%, the lowest homework score will be dropped

discussion quizzes, and participation 10%.

4. COURSE DESCRIPTION

Discover the nature of stars, black holes, luminous nebulae, supernovae, galaxies (including the Milky Way), and other cosmic phenomena. In this concept-focused course you will learn what these objects are, how they formed, and how astronomers find all this out.

5. HONORS CREDIT

Honors credit for this course will be awarded on the basis of the successful completion of the following: (1) Written notification from the student to the instructor indicating the student will be taking the course for honors credit. This notification must be provided before the end of 3rd week of classes. (2) A final grade of AB or better in the course. (3) An optional project to be defined by the student in consultation with the instructor. The student will contact the instructor to set up appointment(s), nominally during the instructor’s office hours.

6. COURSE SCHEDULE

Astronomical framework:

- 01 Jan 22: Intro, Beyond the Solar system, Unit 2 and 4
- 02 Jan 24: Kepler's laws, Unit 12
- 03 Jan 29: Gravity, Unit 16
- 04 Jan 31: Light, matter and energy, Unit 21, 22
- 05 Feb 05: Thermal radiation, Unit 23
- 06 Feb 07: Atomic spectra, Unit 24
- 07 Feb 12: Telescopes, Unit 26, 27

Stars and stellar evolution:

- 08 Feb 14: The Sun, Unit 49, 50, 51
- 09 Feb 19: Surveying the stars, Unit 52, 54
- 10 Feb 21: Temperature and composition, Unit 55, 57.1
- 11 Feb 26: Review
- 12 Feb 28: Midterm 1
- 13 Mar 04: The HR diagram, Unit 58
- 14 Mar 06: Stellar evolution, Unit 59
- 15 Mar 11: Star formation, main seq. stars, Unit 60, 61
- 16 Mar 13: Death of low and high-mass stars, supernovae, Unit 64, 66
- Spring recess Mar 15-23 (S-N)
- 17 Mar 25: Neutron stars and black holes, Unit 67, 68

Milky Way and galaxies:

- 18 Mar 27: Discovering the Milky Way, Unit 70
- 19 Apr 01: Stars in the MW, Unit 71
- 20 Apr 03: Gas and dust in the MW, Unit 72, 73
- 21 Apr 08: Mass and motions in the MW
- 22 Apr 10: Review
- 23 Apr 15: Midterm 2
- 24 Apr 17: A universe of galaxies, Unit 74, 75
- 25 Apr 22: More on galaxies
- 26 Apr 24: Galaxy clustering, AGN, Unit 76, 77

Cosmology:

- 27 Apr 29: Dark matter, Unit 78
- 28 May 01: Cosmology, edges of the universe, Unit 79, 80
- 29 May 06: The beginnings and the fate of the Universe, Unit 81, 82
- 30 May 08: Astrobiology, Unit 83, 84