

## U188-100: Survey of Astronomy

**Course Format:** Online

**Course Author/s:** Mark Quigley, Ph.D.

**Course credits:** 4

**Pre/Corequisites:** Math skills equivalent to first-year high school algebra are required; Appropriate for advanced high school and first-year or higher college students.

**Course Description:** Modern astronomy for both science and non-science majors, with eight laboratory activities. You will work with animations, basic astronomical exercises, and practice exams, to study classical astronomy, sun and stellar astronomy, galactic astronomy and cosmology, and the solar system.

### Required Course Materials

- Seeds, Michael A., and Dana Backman. *Foundations of Astronomy*. 11<sup>th</sup> ed., Cengage, 2011.
- Online astronomy labs available free from the Nebraska Astronomy Applet Project, located at <http://astro.unl.edu/naap>.

### Hardware Requirements

You will need a webcam, speakers, and a microphone. You will complete your exams through an online proctor, requiring all three components.

### Course Learning Objectives

- Acquire a good overview of the current knowledge of the planets and stars, galactic astronomy, and cosmology.
- Acquire a deep understanding of the scientific method and practical knowledge applied in astrophysical research in the present day.
- Acquire a deep understanding of the influence of the study of classical astronomy and history of astronomy on the development of modern physics and technology.

### Course Overview

MODULE #	MODULE TOPIC	EVALUATED ACTIVITIES
Section 1	Classical Astronomy and Astronomical Tools	
Unit 1	The Night Sky	Written assignment 1-1, 1-2, and 1-3.
Unit 2	Classical Astronomy	Written assignment 2-1 and online lab 1 and 2
Unit 3	Gravity, Relativity, and Telescopes	Written assignment 3-1 and 3-2
Unit 4	Information from Distant Objects: Fundamentals of Spectroscopy	Written assignment 4-1 and online lab 3 and 4
		Exam 1
Section 2	The Sun and Stellar Astronomy	
Unit 5	The Sun and Astrometrical Tools	Written assignment 5-1 and 5-2 and online lab 5
Unit 6	The Interstellar Medium and the Formation of Stars	Written assignment 6-1 and 6-2
Unit 7	Stellar Evolution	Written assignment 7-1 and 7-2
Unit 8	Compact Stars	Written assignment 8-1
		Exam 2

Section 3	Galactic Astronomy and Cosmology	
Unit 9	The Milky Way	Written assignment 9-1
Unit 10	Galaxies	Written assignment 10-1 and online lab 6
Unit 11	Galaxies with Active Nuclei	Written assignment 11-1
Unit 12	Cosmology and Life in the Universe	Written assignment 12-1 and 12-2 and online lab 7 and 8
		Exam 3
Section 4	The Solar System	
13	Origins of the Solar System and the Earth	Written assignment 13-1 and 13-2
14	The Inner Planets: The Moon, Mercury, Venus, and Mars	Written assignment 14-1 and 14-2
15	The Outer Planets: Jupiter, Saturn, Uranus, Neptune, and Pluto	Written assignment 15-1 and 15-2
16	Comets and Meteors	Written assignment 16-1
		Exam 4

### Evaluation Methods

Your final grade will be based on your performance on the following:

- 1) Written Assignment (40%)
- 2) Labs (20%)
- 3) Exams (40%)

#### *Written Assignment (40%)*

There are 16 written assignments (short-essay questions and mathematics-based problems) in this course. At the end of the course, all the percentages for each unit will be added up, and that will count for 40% of the final grade. Each unit counts equally (2.5% of the final grade), regardless of the number of homework questions or problems it contains.

#### *Labs (20%)*

There are 8 online astronomy labs in this course. Each lab counts for the same number of points. At the end of the course, all the grades (recorded percentages) for all the labs are added together, and the sum counts for 20% of the final grade.

#### *Exams (40%)*

There are 4 exams (multiple-choice and short-essay questions as well as problems). The exams are not cumulative but assume basic knowledge of the preceding material. Each exam consists of 40 to 60 multiple-choice questions (1 point each), 2 to 4 short-essay questions (10 points each), and 2 to 6 problems (5 points each), for a total of 100 points. At the end of the course, all the exam grades (recorded percentages) are added together, and the sum counts for 40% of the final grade.

### **Exam Method: Online with Proctoring**

This course requires all students to complete exams online with a proctoring service. Students receive two attempts on each exam. If you elect to take a second attempt, the average score of both exams will be recorded.

#### *Online Proctoring*

Online exam proctoring policies can be found on our Web site:

- Proctoring information: <https://il.wisconsin.edu/current/examity.aspx>

If you have questions about examination procedures, contact Student Services at [il@uwex.edu](mailto:il@uwex.edu).

### Grading Scale

The following grading scale is used to evaluate all course requirements and determine your final grade:

A = 93–100	B = 83–87.9	C = 70–77.9	D = 60–69.9
AB = 88–92.9	BC = 78–82.9		F = Below 60

### Pass/Fail Option

Students who enroll in an Independent Learning (IL) course under the pass/fail option will receive a final grade of S in place of a final grade equivalent to an A, AB, B, BC, or C and a final grade of U in place of a final grade equivalent to a D or F.