

ASTRONOMY 100 – 01

Unveiling the Universe

Summer 2024

Instructor: Dr. Adriana Durbala
B-203 SCI Bldg.
Email: adurbala@uwsp.edu

Office Hours (virtual-via Zoom):

The office hours days/times and Zoom links will be displayed on the homepage of the course on Canvas at the beginning of every week. If those times don't work for you, I am also available by appointment (please email adurbala@uwsp.edu to schedule a meeting time that works best for your schedule).

Instructions about Online (Virtual) Office Hours: via Zoom

You will receive an email invitation for the Zoom Virtual office hours at the beginning of every week. The Zoom links will also be displayed on the homepage of the course on Canvas. The purpose of the office hours is to allow students to ask any kind of questions related to ASTR 100 (lectures, labs, homework, exams, etc.) or Astronomy in general. You can also schedule an individual meeting by emailing the instructor. If your schedule conflicts with all listed time intervals, I am also available by appointment; you would have to send me an email and we can decide accordingly.

ASTR 100. Unveiling the Universe. 3 cr. An encounter with ideas concerning the physical universe, from earth to intergalactic space. 2 hrs lec, 2 hrs lab per wk. You may not take both 100 and 311 for credit. Also, you may not take 100 for credit if you have already taken 205 or 206. GDR: NS; GEP: NSC

Delivery format: ONLINE ASYNCHRONOUS (both lecture and labs)

Session: 05/28/2024 - 07/19/2024 (8 Week – First)

Course website: Canvas <https://www3.uwsp.edu/canvas/Pages/default.aspx>
<https://uwsa.instructure.com/courses/684169>

Log on using your UWSP login and password. ***This website will be used for posting grades, lecture and lab notes/videos, homework assignments, laboratory assignments, study guides, practice problems, and, very importantly, class announcements; for example, change of due dates for assignments, comments on a homework problem, exam dates, etc.***

Textbook: *The Cosmic Perspective (9th Ed.) by Bennet, Donahue, Schneider & Voit*
(available at the campus bookstore through the UWSP Text Rental program)

Other required materials: *a portable scientific calculator (graphing capabilities not needed)*

Course Learning Outcomes:

Upon completing this course, students will be able to:

- Develop a sense of scale in space and time pertinent to the Universe as a system.
- Understand the historical development of Astronomy as a science and genuinely grasp the scientific approach in acquiring knowledge.
- Explain major concepts, methods, or theories used in the natural sciences to investigate the physical world.
- Put the objects of study (planets, stars, galaxies, etc.) into a larger perspective: formation, evolution, and interactions.

- Understand phenomena and describe their relevance to our lives and society; e.g., seasons, eclipses, tides, keeping track of time, etc.
- Humbly appreciate the fragility of the Earth's ecology
- Interpret information, solve problems, and make predictions/decisions by applying natural science concepts, methods, and quantitative techniques.
- Describe the relevance of aspects of the natural sciences to their lives and society.

Grading Policies:

You will have the following contribution to your final grade:

Laboratory work 22%

Three midterm exams each 15%

Final exam 17%

Homework 10%

Written project 3%

Literature report 3%

TOTAL: 100%

Your current grades will be updated typically every week on the class website (Canvas). If you have any questions about the listed grades or if you see any errors, please contact us immediately.

The final letter grade will be assigned according to the following scale:

A → 93-100%	A- → 90-92.99%	
B+ → 87-89.99%	B → 83-86.99%	B- → 80-82.99%
C+ → 77-79.99%	C → 73-76.99%	C- → 70-72.99%
D+ → 67-69.99%	D → 60-66.99%	F → less than 60%

Lectures: All lectures will be pre-recorded and posted in Canvas under Home→Lecture Notes/Videos. Lecture notes (ppt slides) will be also available under Home→Lecture notes/Videos. Any questions you might have, please post them under Discussions/Lectures in Canvas or participate in the Virtual office hours (see more info under Virtual Office Hours).

Watching the lecture videos is strongly recommended. It is extremely important for an effective learning process. Although the lecture slides are available on the course website, they are not necessarily complete. They are meant only as an outline of a particular subject. Not everything that I talk about in the video is on the slides and what is on the slides is not always self-explanatory.

Laboratory work: The laboratory is an integral part of the Astronomy 100 course. A missed lab will automatically bring a zero contribution to the corresponding lab grade. All labs contribute equally towards the final grade, with an overall 22% contribution.

All lab assignments will be available ONLINE in CANVAS for 4-7 days with no time limit. There will be a short video providing instructions for each lab. Lab notes and the introductory video with lab instructions will be available under Home→Laboratory Helpful Notes/Videos. There are about two labs per week. Even if both labs are due toward the end of the week, my advice is to complete the first lab in the first half of the week, and the second lab in the second lab of the week.

The lowest lab score will be dropped at the end of the semester. No laboratory assignment will be accepted after the indicated due date/time. Any questions you might have, please post them under Discussions/Labs on Canvas or participate in the Virtual office hours (see more info under Virtual Office Hours).

Midterm Exams: There will be **three** midterm exams during the semester. They will be available online on the days/ noted in the tentative schedule. The duration of each midterm will be 50 minutes and will include multiple-choice questions. The exam will be available on Canvas under Home→Exams for 48 hours. The moment you start the exam you will have 50 minutes to complete it. The correct answers will be available after the due date/time if you click on your attempt on the midterm exam.

The dates are subject to change. Each midterm is worth 15% of your final grade and is based on the material covered in lectures, labs, and homework over the past weeks. There will be an optional practice quiz on Canvas available one week before every exam. Any questions you might have, please post them under Discussions/Exams on Canvas or participate in the Virtual office hours (see more info under Virtual Office Hours).

Final exam: A **comprehensive/cumulative** final exam will be given online on July 17-19. as noted in the course attached schedule. The exam will be available on Canvas under Home→Exams for 72 hours. The duration of the final exam will be 120 minutes and will include multiple-choice questions. The moment you start the exam you will have 120 minutes to complete it. It is worth 17% of your final grade. There will be an optional practice quiz on Canvas available one week before the final exam. The correct answers will be available after the due date/time if you click on your attempt on final exam.

There are no make-up exams. *In the case of an unfortunate event (illness, death in the family, accident, etc.) please contact me **before the exam** (if at all possible) so that we could make proper arrangements. It is your responsibility to provide the instructor with a valid doctor excuse for any illness that prevents you from fulfilling the requirements of this class.*

Notes: 1) The lowest grade of the three midterm examinations will be replaced by the grade of the final exam (preserving the predefined contribution of 15%). This will be done only if the final exam grade is greater than the lowest grade of all three midterms. However, if you miss a midterm, this rule does not apply (a zero will not be replaced by the final exam grade!!!). Only one midterm grade can be replaced!

2) The exams will consist of multiple-choice questions.

Homework: The homework assignments will be posted on Canvas under Home→Homework Assignments almost every week. Homework assignments will be **submitted online** by the due date/time. Each homework will be available for a week with no time limit. See the tentative schedule at the end of the Syllabus for due dates. **The lowest grade of all homework assignments will be dropped.** All homework will account for 10% of your final grade. Any questions you might have, please post them under Discussions/Homework on Canvas or participate in the Virtual office hours (see more info under Virtual Office Hours).

Written Project: The project will be worth 3% of your final grade. The guidelines for its completion will be handed out later in the semester after we will have introduced and explained several fundamental topics. The project will require students to describe the relevance of aspects of the natural sciences to their lives and society (this is one of the General Education programming learning outcomes). It will be due on Monday, July 15.

Literature report: The project will be worth 3% of your final grade. The guidelines for its completion will be handed out later in the semester after we will have introduced and explained several fundamental topics. The project will require students to read a short article from the Astronomy magazine related to a topic covered in this class. It will be due on Tuesday, July 16.

Bonus questions (Optional – Extra-Credit): Bonus quizzes in Canvas will be assigned at the end of every chapter (will contain multiple-choice questions). They will be available in Canvas under Home→Lecture Notes/Videos or "Assignments" for a week and they will be due at the end

of the week. If you watch the lecture videos you should be able to answer all the questions correctly. You are allowed two attempts for each bonus quiz. The highest attempt will be recorded in your gradebook as extra credit. All bonus questions this semester will account for a maximum of 3%.

Suggestions for Studying:

1. Watch the lecture videos and complete assignments on time.

The tests are predominantly based on lectures, lab and homework material. If a particular subject has not been taught/lectured, it will not be on the test. We will often lecture around a picture or slide, and you are responsible for material discussed in the video even if it is not written out on the slide. The bonus questions not only allow you to get bonus points, but they also offer you examples of questions reasonably similar to those that you'll see on exams.

2. Study regularly and constantly.

There is a lot of material covered, most of it probably a complete novelty. The course builds up sequentially and adds a substantial number of new terms to your vocabulary. It is more and more difficult to keep up with the flow of the course if you do not grasp the new concepts as they arise. Postponing study for the night before an exam rarely pays off.

3. Take advantage of the Zoom virtual office hours, Discussions in Canvas.

Do not hesitate to ask us any kind of question related to the lecture, labs, homework or any other subject related to Astronomy.

4. Do the practice questions provided online in Canvas before every exam.

Absences due to Military Service

You will not be penalized for class absence due to unavoidable or legitimate required military obligations, or medical appointments at a VA facility, not to exceed two (2) weeks unless special permission is granted by the instructor. You are responsible for notifying faculty members of such circumstances as far in advance as possible and for providing documentation to the Office of the Dean of Students to verify the reason for the absence. The faculty member is responsible to provide reasonable accommodations or opportunities to make up exams or other course assignments that have an impact on the course grade. For absences due to being deployed for active duty, please refer to the <https://www3.uwsp.edu/finaid/veteran-services/Pages/Call-Up-Guidelines.aspx>.

Equal Access for Students with Disabilities:

Students with special needs should contact the Disability Resource Center (DRC) as soon as possible (<https://www.uwsp.edu/disability-resource-center/>) in order to request suitable accommodation. UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such an evaluation must demonstrate the student's achievement in the academic activity, rather than describe their disability.

If modifications are required due to a disability, please inform the instructor and contact the Disability and Assistive Technology Center to complete an Accommodations Request form. Phone: 715-346-3365 or Room 108 Collins Classroom Center (CCC).

Religious Beliefs Accommodation

It is UW System policy to reasonably accommodate your sincerely held religious beliefs with respect to all examinations and other academic requirements.

You will be permitted to make up an exam or other academic requirement at another time or by an alternative method, without any prejudicial effect, if:

- There is a scheduling conflict between your sincerely held religious beliefs and taking the exam or meeting the academic requirements; and
- You have notified your instructor within the first three weeks of the beginning of classes (first week of summer or interim courses) of the specific days or dates that you will request relief from an examination or academic requirement.

Academic Honesty: Students are expected to maintain the highest standards of academic integrity. Common examples of misconduct include but are not limited to copying the homework from others, looking at notes while taking an exam, talking to others while taking an exam. Just to avoid the embarrassment and severe consequences of misconduct it is strongly advised that if you need some clarification during an exam or while working on homework, you should ask the instructor/proctor for help. More information on your rights and responsibilities are available at: http://docs.legis.wisconsin.gov/code/admin_code/uws/14.pdf

UWSP 14.01 Statement of principles

The board of regents, administrators, faculty, academic staff and students of the University of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the University of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors.

UWSP 14.03 Academic misconduct subject to disciplinary action.

Academic misconduct is an act in which a student:

- (a) Seeks to claim credit for the work or efforts of another without authorization or citation;
- (b) Uses unauthorized materials or fabricated data in any academic exercise;
- (c) Forges or falsifies academic documents or records;
- (d) Intentionally impedes or damages the academic work of others;
- (e) Engages in conduct aimed at making false representation of a student's academic performance; or
- (f) Assists other students in any of these acts.

Help Resources

Tutoring	Advising	Safety and General Support	Health
Tutoring-Learning Center helps with Study Skills, Writing, Technology, Math, & Science, 234 CCC, 715-346-3568 tlctutor@uwsp.edu	Academic and Career Advising Center, 209 CCC, 715-346-3226	Dean of Students Office, 212 Old Main, 715-346-2611	Counseling Center, Delzell Hall, 715-346-3553. Health Care, Delzell Hall, 715-346-4646

UWSP Service Desk

The Office of Information Technology (IT) provides a Service Desk to assist students with connecting to the Campus Network, virus and spyware removal, file recovery, equipment loan, and computer repair. You can contact the Service Desk via email at itsvdesk@uwsp.edu or at (715) 346-4357 (HELP) or visit: <https://www3.uwsp.edu/infotech/Pages/ServiceDesk/default.aspx>

Lecture materials and recordings for ASTR 100 are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Tentative Schedule—ASTR 100-01, summer 2024

Week	Lecture topics	Textbook Chs.	Lab Ex.	Homework
May 28- June 1 (Week 1)	What does Astronomy study, the modern view of the Universe. A sense of scale in a Universe where all things are in motion.	1	The Sky from Stevens Point (Lab 1)	HW 1 begins Wednesday, May 29
	Celestial sphere, patterns, and motions in the sky. Seasons, early observations of planetary motions, Moon's phases, eclipses.	2	Daily Motions in the Sky Around the Globe (Lab 2)	HW 1 due/HW 2 begins Friday, May 31
June 3-9 (Week 2)	Ancient roots of science, ancient Greek science. Copernican revolution, Brahe and Kepler, Galileo. Astronomy as a science.	3	Phases of the Moon (Lab 3)	HW 2 due/ HW 3 begins Tuesday, June 4
	Describing motion with simple examples, mass and weight, conservation laws, tides.	4	Mass of Jupiter (Lab 4)	HW 3 due/ HW 4 begins Friday, June 7
June 10-16 (Week 3)	MIDTERM 1 (June 9-10)			
	Basic properties of light.	5	Planetary cratering (Lab 5)	HW 4 due/ HW 5 begins Tuesday, June 11
	Clues to how and when our solar system formed. Formation of our solar system	7,8	Telescopes (Lab 6)	HW 5 due/ HW 6 begins Friday, June 14
June 17-23 (Week 4)	Other planetary systems	13	Planet Video 1 (Lab 7)	HW 6 due/ HW 7 begins Tuesday, June 18
	Features and geology of the terrestrial planets.	9, 10	Spectra and Light (Lab 8)	HW 7 due/ HW 8 begins Friday, June 21
June 24-30 (Week 5)	MIDTERM 2 (June 23-24)			
	Jovian planets: structures, moons, and rings.	11	Stars and nebulae (Lab 9)	HW 8 due/ HW 9 begins Tuesday, June 25
	Asteroids, comets, and dwarf planets. Spectroscopy	5, 12	Planet Video 2 (Lab 10)	HW 9 due/ HW 10 begins Friday, June 28
July 1-7 (Week 6)	Properties of our Sun Solar cycle, Sun-Earth connection. Measuring the properties of stars.	14, 15	Stars Video (Lab 11)	HW 10 due/ HW 11 begins Tuesday, July 2
	Holiday – July 4 Patterns among stars, Star clusters Evolution and death of low/high mass stars	15,17	NO 2nd lab this week	NO HW due on Friday Holiday– Happy 4 th of July!

July 8-14 (Week 7)	MIDTERM 3 (July 7-8)		Morphology of galaxies (Lab 12)	HW 11 due/ HW 12 begins Tuesday, July 9
	Stellar Remnants	18		
	Milky Way Galaxy A universe of galaxies	19, 20	Hubble's Law (Lab 13)	HW 12 due/HW 13 begins Friday, July 12
July 15-19 (Week 8)	Measuring distances in the Universe Introduction to cosmology; the Big Bang Model Dark Matter, Dark Energy Review Session Written Project due Monday, July 15 Literature Report due Tuesday, July 16	20, 22	Dark Energy Video (Lab 14)	HW 13 due Tuesday, July 16
	FINAL EXAM – July 17-19			

Note:

If you would like to visit the Planetarium on the UWSP campus, to find out more please go to:

http://www3.uwsp.edu/physastr/plan_obs/Pages/Public-Programs.aspx