

Astronomy 204 - Fall 2015

Description

This is a quantitative course about introductory astronomy. Topics include a survey of the sun, the solar system, stellar properties, stellar systems, interstellar matter, galaxies, and cosmology.

Much of the content of the course is online and access to an active internet connection will be required.

Instructor Information

Instructor: Shawn Langan

Office Hours: 139 Jorgensen Hall, Tuesdays and Thursdays 3:30p.m. - 4:30p.m. NOTE: I'm available to meet other times as well. It's often easier to email me and request a time to meet.

Contact Information: slangan@unl.edu, (402)472-2199

Course Materials

Required Text: *Fundamental Astronomy, 5th Edition* by Kartunnen et al. ISBN: 978354034137.

General Policies

Instruction: This is a traditional lecture-based course. While there will be a fair amount of lecturing, the learning-cycle implemented in this course will include demonstrations, group activities, and on-line supplements.

The instructor has the job of providing clear direction on what information a student should know to be “educated” in astronomy at a beginning level, assisting the student wherever possible, and assessing the understanding so the university can declare the student’s learning. Ultimately, however, it is the student who is responsible for learning the material. This is a rapidly paced course where much of the subject matter builds upon previously covered material. Some exercises will be done in class as group work, to help you master the material. Other times you may be asked to solve a problem for the class on the board. There are many inter-related activities in class, on-line, and out of class. If you miss class or fall behind in your work, it may be very difficult to catch up.

Time Commitment: You should expect to spend 6 to 12 hours per week engaged in the learning-cycle activities described above. You are responsible for covering all material in the assigned readings, handouts, and exercises presented in lecture. I will endeavour to keep the course Blackboard page updated, but you are required to complete all assigned activities whether posted on-line or assigned in class. All deadlines are firm. No late assignments will be accepted nor will make-up exams be given, except in the most extreme circumstances.

Attendance and Participation: It is essential that you attend every class period and participate fully. This means being attentive and engaged for the entire class. Please be seated and ready to participate at the beginning of class and wait until class is over before packing up your things. Disable and put away all electronic devices and anything else that might be an audible or visible distraction to you or other students. Cell phone use is prohibited in the classroom and laptop use is strictly limited to the course web pages and relevant reference material. Should an on-line demonstration or lab activity be needed to supplement the lecture, we will move the class to the computer lab. There is no need to bring any laptop or tablet to the classroom. Students who do not abide by these policies may be asked to leave.

Deadlines: Assignment deadlines are firm. Adequate time is allowed for all assignments and tests. Do not wait until just before the deadline to complete them. Late work will only be accepted with substantial documentation for an extreme circumstance, i.e. doctor's note for a severe illness or similar.

Instructor Availability: I will be available at the posted office hours or by appointment. You may drop in without an appointment, and I will be glad to help you at that time, if possible. You may also ask questions by email. This usually works best for short questions about a specific concept or fact.

Academic Integrity: Take your responsibilities as a student and a scholar seriously. This includes the *integrity and honesty* of your coursework. All materials submitted for a grade must be substantially your own product. It is plagiarism and therefore a violation of the Student Code of Conduct to represent as your own the work of others or to provide improper assistance to another student. Any information that you research or 'look up' should be cited. It is acceptable, even beneficial, to discuss course material and assignments with other students, as long as you work out and prepare the answers yourself. The one exception is during the exams, which you must work alone without the benefit of notes or outside assistance, unless otherwise stated. Academic dishonesty in any form will result in sanctions ranging from receiving zero points for a particular assignment, to failing the course, to facing University Disciplinary Proceedings.

Proper Conduct: It is the responsibility of all members of the University of Nebraska community to conduct themselves in a courteous manner respectful of the other students and instructional staff. This includes being an active participant in class and all that entails, being respectful of the rights and opinions of others, and not engaging in behavior disruptive to the class or detrimental to the learning experience of other students. It is the policy of the University of Nebraska, and the responsibility of the academic community, to not discriminate on the basis of sex, sexual orientation, disability, race, color, religion, national or ethnic origin in its educational programs.

Other Policies: It is the policy of the University of Nebraska to not discriminate on the basis of sex, sexual orientation, disability, race, color, religion, national or ethnic origin in its educational programs. Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 402-472-3787 voice or 402-472-0053 TTY.

Assessment

Assessment in this course will include the following methods – regular homework assignments, occasional in-class quizzes, class participation, and exams.

Homework: Homework will be assigned every couple of weeks, depending on the amount of material covered in lecture. Each homework assignment is due before 2p on the next class day after it is posted. Students may work together on homework but each student **MUST** write out their own work and submit it before the deadline.

Participation: One of the unique advantages of a university environment is the opportunity to interact with other students. The most effective and enjoyable learning experiences are those where you and your peers struggle with the subject together. Thus, a portion of class time will be spent on activities requiring students to cooperate. These activities will include:

- **Student Response Questions:** conceptual questions designed to be discussed and voted on giving both student and instructor immediate feedback.
- **Lecture Tutorials:** worksheets designed to correct and fortify astronomy concepts and skills.
- **Demonstrations, Simulations and Videos:** short media presentations giving a view that textbooks can not.
- **Group Discussions:** small groups of students discuss issues and present ideas to the rest of the class.
- **In Class Quizzes:** a short quiz meant to indicate to the student areas which they should work on before the next exam.

The participation grade will include an accounting of attendance, interactions recorded throughout the semester, plus the total of the scores from in-class worksheets/assessments that are collected at the instructor's discretion.

Midterm Exam: There will be a midterm exam given at mid-semester. the midterm exam will cover any material from lecture before the date of the exam.

Final Exam: There is a comprehensive final exam for this course. The scheduled final exam time is 1p-3p Tuesday December 15th. This date may change depending on the consent of the entire class.

Grade Summary

	Weighting	Approximate Letter Grade
Participation and In Class Quizzes	15%	$x \geq 85\%$ A-, A, A+
Homework	50%	$75\% \leq x < 85\%$ B-, B, B+
Midterm Exam	15%	$65\% \leq x < 75\%$ C-, C, C+
Final Exam	20%	$55\% \leq x < 65\%$ D-, D, D+
		$x < 55\%$ F

TOTAL	100%	

This approximate scale will give you a good indication of where you stand, but the exact divisions between, and within, letter grades will not be defined until the end of the course. Borderline cases will be carefully considered. Grades will be fair, impartial, and final. They cannot be negotiated. Incompletes will only be considered for verifiable extenuating circumstances, such as a long-term hospitalization, and only if you have satisfactorily completed most of the course. Although great care is taken in the recording of grades, errors do occur and it is your responsibility to notify the instructor of any errors that come to your attention.

ACE Certification

This class is certified for the following ACE Outcome: Student Learning Objective 4: Use scientific methods and knowledge of the natural and physical world to address problems through inquiry, interpretation, analysis, and the making of inferences from data, to determine whether conclusions or solutions are reasonable.

This course will provide students the opportunities to acquire the knowledge or skills necessary to achieve the Learning Outcome as follows: The core skill of the course is the scientific analysis of astronomical situations in order to connect the foundational science of astronomy to their understanding of the origin and nature of the physical universe beyond the reaches of our own small world. This is achieved through examination of the methods and tools used by astronomers to study the universe and how currently evolving model of the universe have developed logically and historically. Within each topic, data collection and model

development are illustrated to the students. Then the students are led through exercises where they interpret and analyze observations similar to those addressed by astronomers, evaluate the reasonableness of their conclusions and make predictions that can be checked using simulators.

The instructor will assess the students' achievement of the outcome with graded assignments as follows: Students' abilities for appraising physical situations are assessed in several ways. The course grade is based on a cumulative score that is derived from the following components, which are all graded and weighted according to the breakdown given in the syllabus. For each lecture assessment, activities include student responses to (i) quizzes, (ii) peer instruction/discussion posed during class, and (iii) in-class assignments. Progress in the course as a whole is assessed with (iv) midterm exams, (v) and the final exam. The group questions and the in-class exercises focus on both knowledge and comprehension. The students' integrative understanding of the material is assessed through the homeworks, quizzes, and exams.

Some assignment materials may be submitted to the ACE committee for assessment. The purpose of this assessment is to help faculty improve student learning opportunities, not to evaluate individual student work. Any students in ACE courses who are not willing to participate in this process should notify their instructor.