

Syllabus

Spring 2009

Astronomy 191: Contemporary Astronomy

Instructor: Dr. Gregory Rudnick

Time: MWF 1pm-1:50pm

Place: Malott 1001

My Office: 5069 Malott, Phone: 785-864-4099

E-mail: grudnick@ku.edu

Office Hours/open review sessions: To be announced and by appointment

Course Description: This course presents an overview of the field of astronomy as a physical science. The material will encompass the basic physical principles that underlie our understanding of the Universe: the laws that govern motion and thermodynamics, the nature and behavior of electromagnetic radiation, even the structure the Atom. Emphasis will be placed on how to apply these principles in the context of astronomy and how to use them to understand the characteristics and evolution of planets, stars, galaxies, and the Universe as a whole.

Texts and Media:

Required (for purchase):

Lecture Tutorials for Introductory Astronomy, by Prather, Slater, Adams, & Brissenden, Pearson Addison-Wesley – Note: Bring this to class everyday!!

Personal access kit for *Mastering Astronomy online software* and e-book. If you purchased your Lecture Tutorials somewhere other than the bookstores then you can buy access online at www.masteringastronomy.com.

Optional (for purchase):

The Essential Cosmic Perspective, 5th Edition, by Bennett, Donahue, Schneider, & Voit, Pearson Addison-Wesley

This book follows the course content and may serve as a useful reference for those of you who prefer to have a physical copy of the book in front of you instead of reading off of a computer screen. I will **not** be assigning readings from this book but if you ask I will tell you the relevant sections.

The preceding three items can be purchased in bundles at the bookstore. Buying the items together should save you money as opposed to buying them individually. One

bundle contains the required material and one contains both the required and optional material. You only need to purchase **one** of these packages.

Other required material:

Free online textbook. “Astronomy Notes” available free of charge at www.astronomynotes.com

Colored voting card. These will be distributed early in the semester and you will be required to bring them to class every day.

A valid e-mail address that you regularly check.

Instructional philosophy and goals for this course: The overarching goals of this course are that you should understand the nature of science, as seen through the eyes of an astronomer, understand the fundamental concepts and “big picture” ideas in astronomy, and develop a lifelong interest in astronomy and current events surrounding the subject. The concepts of astronomy are fundamental to how we view the world, but are not always easy to grasp. Key to your success will be how much effort you put into learning the material in this class.

Collaborative learning: It is my belief (supported by extensive research) that there is a limited amount of understanding that you can receive from lecture alone, regardless of how clear or entertaining it is. For this reason, many of the classroom experiences will contain a mini-lecture and will be accompanied by a set of collaborative classroom activities called Lecture Tutorials (LT) and Ranking Tasks (RT). The LT and RT activities target specific ideas presented in lecture and are designed to be completed in pairs during class by talking through the questions and writing a detailed, consensus response. You will not submit these for grading. However, the questions are quite similar to the questions you will find on the course exams and you are therefore strongly encouraged to consider these activities as a critical component to your success in the course. The LTs are available at the bookstore and they must be brought to class each day. The RT activities will be handed out in class on the day the activity is scheduled to be done (the RT will also be made available on Blackboard).

Attendance at all classes is REQUIRED: The key to understanding the course material is by attending class and taking part in the in-class activities. Regular attendance will not be taken but there will be periodic announced in-class quizzes and unannounced writing assignments. You will be given an all-or-nothing grade depending on whether you complete these assignments and this will make up your participation grade in the class. How well you perform on the quizzes will determine your quiz grades. You will not be allowed to make up any missed in-class assignments. Therefore to allow for the unavoidable periodic absences which naturally arise during the semester, without heavily

penalizing your overall course grade, the lowest score for two quiz and two participation grades (which may be quizzes or writing assignments) will be dropped.

Quizzes and participation grades contribute to your final grade as described in the “Grading Scale” section of this syllabus.

Careful studying of the online textbook is REQUIRED: The mini-lectures and lecture tutorials are designed to focus on the most difficult concepts of the course. To take full advantage of the in-class activities, it is crucial that you complete the assigned background readings BEFORE class on the dates listed under the “Required Reading” section of Blackboard. Otherwise you will not be able to effectively use the in-class activities to increase your understanding of the course material. The online textbook can be accessed free of charge at www.astronomynotes.com. Material covered in the assigned reading may appear on quizzes and exams, even if that material was not covered explicitly in class.

Periodic homework is REQUIRED: There will be periodic homework assignments during the semester. These will be used to solidify the knowledge covered in your in-class activities. The dates for homework assignments will not be announced ahead of time. We will communicate all information about assignments in class and on Blackboard. The homework will mostly be done online through the *Mastering Astronomy* web site and *must* be done individually. There will be a 15% penalty on homework assignments for every day they are handed in late.

Completion of a project is REQUIRED: There will be a project during the semester that will involve going out at night when it is clear and making some observations. This project will consist of a planning component, and execution component, and a creative communication component.

What you will need to know for this class:

If you have not completed or are not eligible for College Algebra at KU, you may wish to make more progress in math before tackling this course or another physical science course. Please feel free to talk with me about this if you have any concerns. That said, you’ve probably learned any math we might want to use. You will need to be familiar with arithmetic, scientific notation, and a little algebra. Math is the language of physical science and the use of some math is essential for a deeper understanding of astronomy, and science in general. We can offer assistance and practice opportunities to help you dust off your math skills.

You will also need to use your writing skills in this class. Being successful at science is dependent on your ability to exercise your reasoning skills in solving problems, form logical connections and arguments, justify your reasoning, and communicate your

thoughts in a coherent and persuasive manner. Scientists must do this on a daily basis, both in oral and written form. As part of your in-class assignments, homework, and exams you may therefore be asked to write short passages and may be graded on the quality of writing as well as on the correctness of the material.

General rules of conduct:

Please make sure to turn off your cell phones and pagers when entering the class. This is disruptive and inconsiderate to everyone. This may also sound obvious, but do not wear headphones in class or during tests.

Bring only drinks that are capped or covered. If you bring something in (food wrappers, newspapers, etc.), please dispose of your trash as you leave.

Chatting during class is a distraction as is unfair to your fellow students. Not paying attention will also hurt your grade in the class! In short I expect appropriate behavior, participation, and preparation.

University of Kansas standards of conduct must be adhered to at all times. I will pursue the maximum punishments in cases where misconduct has occurred. Misconduct includes completing any homework or exam problems with the help of another student or turning in work that is not your own.

If any required class activity conflicts with a mandated religious observance, you should identify yourself to me near the beginning of the semester so other arrangements may be made.

If you ever feel that you have been subjected to sexual harassment in this class and do not feel you can deal with me directly, you should discuss it with the Department Chairman (Dr. Sanders) without delay.

Grading Scale:

All grading will be done on an absolute scale with no curve. It is therefore in all of your best interests to work together and help each other get the highest grade possible.

The breakdown of grades is as follows:

Three exams (<i>drop lowest</i>)	30%
Final exam (<i>cannot drop</i>)	30%
Homework (<i>cannot drop</i>)	10%
Quizzes (<i>drop two lowest</i>)	10%

Participation (<i>drop two lowest</i>)	10%
Project (<i>cannot drop</i>)	10%

There will be plus and minus grades in this class. Letter grades will be assigned with the following percentages:

90.0-100%	A
86.6-89.9%	B+
83.3-86.5%	B
80.0-83.2%	B-
76.6-79.9%	C+
73.3-76.5%	C

70.0-73.2%	C-
66.6-69.9%	D+
63.3-66.5%	D
60.0-63.2%	D-
0-59.9%	F

No make up exams will be given for this class. If you miss an exam it will be counted as your lowest grade and dropped. The dates of the exams are listed in the table below and you are responsible for insuring that your schedule is compatible with these dates. There will be no opportunity to make up the final exam.

All grades in the class are final 72 hrs after they have been posted on Blackboard and/or the assignment or Scantron forms have been returned. Please make sure if you have any grading dispute that you contact me **before** this 72 hour period is over.

Exams and Testing Circumstances:

Because of the large lecture nature of this course, you will take several examinations throughout the term on the dates scheduled below. Please do not make any plans that interfere with scheduled exams as there are no late or make-up exams given. If you need to miss an exam, you will not be allowed to make up this exam without a valid excuse as defined by university rules and regulations, e.g. for a medical emergency for you, a friend, or a relative. Proof must consist of a signed doctor's note with the doctor's contact information. Without this proof, the missed exam will be dropped as your lowest score. If the exams conflict with any mandated religious observances you must tell me by **September 5th**.

You cannot be excused from the final exam and there are no opportunities to take it at a different time. The University has scheduled the time for the class final exam and this is the only time it is to be offered. If you have an irresolvable conflict with other courses'

final exams, you must see the instructor well in advance to make other arrangements. All the exams are closed-book and closed-notes. You must bring a photo ID, number 2 pencils, and erasers. You are not allowed to wear headphones, no hats are allowed, and you are not allowed to communicate with anyone in the classroom except for the course instructors and exam proctors. Cell Phones must remain off at all times during exams. If you have been certified as needing to take an exam under special circumstances, please make the necessary arrangements with Disabilities Resources well in advance of the exam date (at least 10 days).

<u>Exam</u>	<u>Date</u>
Midterm 1	September 21st
Midterm 2	October 23rd
Midterm 3	November 23rd
Final Exam	Wednesday, December 16th, 10:30am-1pm

Important Dates:

Last day to add a class without written permission: August 26
 Last day to drop a class online: September 10
 Last day to drop a class: November 16
 Holidays (that means no class): September 7, October 16,
 November 25, November 27

ASTR 191 – Contemporary Astronomy
Fall 2009
STUDENT INFORMATION AND AGREEMENT SHEET

Name _____

Student ID Number _____

By signing below, I acknowledge I understand that:

(a) The policies, rules, regulations, dates and deadlines outlined within this course syllabus apply in all ways directly to me and my conduct in the course.

(b) This course has a fixed schedule for midterm examinations and a final examination as shown in the syllabus and listed in the University course/examination schedule and that I will not make plans that interfere with these scheduled examinations. In addition, I will bring my photo-student ID to each examination and show it to the test administrator if asked.

Signature

Date