Astronomy 112

Fall 2021

Assignments Grading scale Course schedule Policies University help and links

Instructor: Rebecca Ericson (coordiinator)
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Phone:
Office hours: By appointment

February 1 Last day to add classes
February 12 Last day to drop classes without penalty
February16 Last day to drop (50% tuition penalty)
March 2 – April 1Selective withdrawal period
May 3 -May 10 Final exams
May 14 Commencement
See GMU Fall 2020 Calendar for complete schedule at
https://registrar.gmu.edu/calendars/spring_2021/

Course Description

This is the laboratory that goes along with the introductory course Astronomy 111. The purpose of this course is to help students understand the process of science through astronomy investigations and the use of realistic simulations. An important learning goal is to help students understand and practice the rudiments of scientific reasoning as a model for investigations in other disciplines.

Blackboard Login Instructions

Access to My Mason and GMU email are required to participate successfully in this course. Please make sure to update your computer and prepare yourself to begin using the online format BEFORE the first day of class. Check the IT Support Center website. Navigate to the Student Support page for help and information about Blackboard. In the menu bar to the left you will find all the tools you need to become familiar with for this course. Take time to learn each. Make

sure you run a system check a few days before class. Become familiar with the attributes of Blackboard and online learning.

Required Textbooks

There are no required textbooks for this course. All materials will be found in the course on Blackboard. If you are currently enrolled in Astronomy l11 the assigned textbook will be useful for background information. In addition the course has a link to the text, ***Astronomy***, a free, open education resource from OpenStax.

Course Learning Outcomes

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1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
    a. evolves based on new evidence
    b. differs from personal and cultural beliefs
2. Recognize the scope and limits of science.
3. Recognize and articulate the relationship between natural science and society and the application of science to societal challenges
4. Evaluate scientific information (e.g., distinguish primary and secondary sources; assess credibility and validity of information).
5. Participate in scientific inquiry and communicate the elements of the process, including:
    a. Making careful and systematic observations
    b. Developing and testing a hypothesis
    c. Analyzing evidence
    d. Interpreting results

Technology Requirements

Hardware: You will need access to a Windows or Macintosh computer with at least 2 GB of RAM and access to a fast and reliable broadband internet connection (e.g., cable, DSL). A larger screen is recommended for better visibility of course material. You will need speakers or headphones to hear recorded content and a headset with a microphone is recommended for the best experience. For the amount of Hard Disk Space required taking a distance education course, consider and allow for:

the storage amount needed to install any additional software and

space to store work that you will do for the course.

If you consider the purchase of a new computer, please go to Patriot Tech to see recommendations.

Software: You will need a browser and operating system that are listed compatible or certified with the Blackboard version available on the the myMason Portal. See supported browsers and operating systems. Log in to myMason to access this course. Labs may use Acrobat Reader, Flash, Java, and Windows Media Player, QuickTime and/or Real Media Player.. Your computer should be capable of running current versions of those applications. Also, make sure your computer is protected from viruses, see some possibilities here: Mason IT suggested anitvirus software

Students owning Macs or Linux should be aware that some courses may use software that only runs on Windows. You can set up a Mac computer with Boot Camp or virtualization software so Windows will also run on it. Watch this video about using Windows on a Mac. Computers running Linux can also be configured with virtualization software or configured to dual boot with Windows.

Note: If you are using an employer-provided computer or corporate office for class attendance, please verify with your systems administrators that you will be able to install the necessary applications and that system or corporate firewalls do not block access to any sites or media types.

Course-specific Hardware/Software
Check the syllabus for your course or contact the instructor prior to the start of the course to find out about specific technical requirements for your class. Hardware or software required for your course or program may be available for purchase at Patriot Computers (the University's computer store that offers educational discounts and special deals).

Course Schedule – ***Instructor will set due dates for each lab. Lab topics may change during the semester.***

Assignments week of	Lab Topic (subject to change)	Overview
January 25	**Introduction to the lab – syllabus and schedule overview – Check in**	Orientation to lab procedures and introductory activity
February 1	**1-GMU virtual observatory tour**	Take a virtual tour of the GMU observatory with a small group of students on a real time but distanced tour
February 8	**2-Solar system walk**	Understand size and scale of solar system and its place in the universe. Practice with

Assignments week of	Lab Topic (subject to change)	Overview
		spreadsheet.
February 15	**3-Navigating the sky**	Orienting earth in space. Practice with coordinate systems.
February 22	**4-The Moon**	Practice analyzing evidence, graphing data, and making connections from fundamental measurements
March 1	**5-Planetary motion**	Focus on Kepler's laws and motion of objects around the Sun
March 8	**6-Measuring the planets**	How we can know the mass, radius, and density of planets
March 15	**7- Solar system formation**	Exploring the theory of how the solar system came to be and looking at supporting data
March 22	**8-Exploring Mars geology**	Searching for geological features, similar to those on earth, to understand similarities and differences.
March 29	**9- Planning a science mission to Mars**	Examining previous and upcoming science missions and how they use data from orbiters to develop a proposal for a mission to answer a science question
April 5	**10-Near-Earth objects**	Evidence based reasoning to develop and refine hypotheses
April 12	**Make-up Lab - TBA**	If a replacement lab is needed
May 3 – 10	***Final exam week - No final exams for Astronomy 112 labs***	

Instructor-Student Communication: I will respond to your emails as quickly as possible. Before sending an email, please check the following (available on your Blackboard course menu) unless the email is of a personal nature:

1. Syllabus
2. Ask the Professor
3. On-demand Blackboard videos on how to use Blackboard features, and Technical Requirements.

Feel free to respond to other students in the Ask the Professor forum if you know the answer.

Technology. You will need a reliable computer and internet access to view course materials in Blackboard. You may also need to download programs, or use an application such as Flash to complete lab assignments.

In case of difficulties: Contact the instructor if you run into problems with the materials. Email is generally the best way to get in touch, but your instructor may also offer other options.

Grading Scale

Your grade is based on the points from 10 lab exericses. Each lab is worth a maximum of 100 points for a possible total of 1000 points. Grades are assigned according to the table below.

Points	Letter grade
930 - 1000	A
900 -929	A
870 - 899	B+
830 -86	B
800 -829	B-
750 -799	C+
700 -749	C
670 -699	C-
600 -669	D
Below 60	F

University Policies and Resources

a. Academic Honesty: You are expected to be familiar with and abide by the University's Honor Code. The Code can be found here. It is your responsibility to see me if you have questions about these policies. George Mason University has an honor code that states the following:

> *To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the University Community have set forth this:*

b. Students must follow the university policy for Responsible Use of Computing.
c. Student services: The University provides range of services to help you succeed academically and you should make use of these if you think they could benefit you. I also invite you to speak to me (the earlier the better).
d. Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.
e. The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling,

workshops and outreach programs) to enhance students' personal experience and academic performance. Counseling Center: Student Union I, Room 364, 703-993-2380.

f. Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester. All academic accommodations must be arranged through that office. Please note that accommodations MUST BE MADE BEFORE assignments or exams are due. I cannot adjust your grade after the fact.
g. Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.
h. The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing. University Writing Center: Robinson Hall Room A114, 703-993-1200. The writing center includes assistance for students for whom English is a second language.
i. Diversity: George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.