Welcome to Astro 111
Instructor: Jessica Rosenberg, Ph.D.

Tom Glazer, Planet Minuet:
http://www.acme.com/jef/singing_science/
Course Goals:

• Teach you about Earth’s place in the cosmos, the scale of the universe, and the nature of the solar system in which we live
• Engender you with an appreciation of science in general and astronomy in particular
• Help you learn the scientific method and the nature of scientific inquiry
• Show you some of what we know about the universe and the tremendous amount that we still have to learn

My promise:

I take my teaching duties very seriously and will work hard to help you achieve these goals.

I will make myself as accessible as possible – attend office hours or, if you can’t, contact me to make an appointment that fits into your schedule.
Contact Information
Jessica Rosenberg, Ph.D.

e-mail: jrosenb4@gmu.edu
office: 219 Science and Technology I
phone: 703-993-9551

Office Hours: Mondays 10:30-12:00 in the Johnson Center atrium
Come with questions or to discuss The Planets by Dava Sobel

Course web site:
http://physics.gmu.edu/~jrosenb4/astronomy111.html
http://webct.gmu.edu

Course Textbook: Universe, by Freedman and Kaufmann 8th edition

Course Materials: iclickers are required for this class purchase them at the bookstore and register them at:
http://www.iclicker.com/registration/

Enter your G number as your student ID number!
Venus
Uranus
Pluto

![Pluto and its moons](image)
Course Structure:

This course will be fun but it will not be 100% lecture. If you are looking for a course where you can show up only for the exams or doze in the back of the classroom this is not the class for you! You will be expected to be an active participant in all class meetings. Some group work will be required and will be part of your grade. Before most class meetings you will be expected to read the textbook and answer 4 questions online so that you come to class prepared to discuss the material. I do not want to spend the semester reading the textbook to you – that would be extremely boring for both of us. In class you will be expected to use your clickers to answer questions and to discuss these answers with your neighbors. This means that you have to remember to bring the clicker to every class. The exam questions will, mainly, be derived from these reading and clicker questions. See below for a detailed breakdown of the course grading.
Active Learning:

Learning, and specifically learning science and astronomy is not simple the memorization of a series of facts. Science is about analyzing information and making sense out of it. This kind of learning requires integrating new information with your own knowledge and experiences. Because learning requires integration I cannot simply transmit the requisite information to you. Instead you must take an active role in the learning process. What this means is that I will ask you to ponder questions and develop your understanding rather than focusing only on the rote memorization of facts which makes astronomy a boring, dead topic. Research has shown that students learn more when they are active participants in their coursework.
Classroom Courtesy:

It takes only a few discourteous people to make it nearly impossible for the rest of the students to follow the classroom discussion. So please, follow the following simple rules in the classroom:

• Don't read newspapers or magazines
• Don’t play computer games, check e-mail, surf the web, etc.
• Don't carry on conversations with your fellow students except when you are asked to do so
• Don't begin to pack up your books and papers before the end of class
• Don't arrive late
• Don't leave early
• Turn off your cell phones

People who violate any of these rules will be asked to leave class
Academic Honesty:

Mutual trust between student and teacher is a key component to the learning process. Cheating destroys that bond of trust. You are all adults and I hope you are all here to get an education, but unfortunately cheating does occur. Knowingly permitting a fellow student to copy from you is as serious an infraction as copying off one of your fellow students. If a student is caught cheating on a quiz or exam, the minimum penalty will be a grade of F on that exam (which will not be dropped) and the maximum will be an F in the course. Moreover, I will report any such incident to the Honor Committee. The honor code states that you will not cheat, plagiarize, steal, or lie in matters related to academic work. While it is not required, I would appreciate it if you would sign a pledge of your academic honesty on exams as a way of affirming this bond of trust.
Grading

10% iclicker reading quizzes
10% iclicker class questions
10% Group projects
50% Semester exams (best 2 out of 3, 25% each)
20% Cumulative final exam

Letter grades will be assigned on an absolute scale:

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<td>A+</td>
<td>97-100</td>
<td>C+</td>
<td>75-79.9</td>
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<td>A</td>
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Student Contract

1. I will carefully read the syllabus before asking questions about course policies.
2. I will include a clear subject line, my name, and my G# in all messages.
3. I understand that there will be 3 in-class exams on Sept. 21, Oct. 19, and Nov. 19, and a cumulative final at 7:30AM on Dec. 17.
4. I will bring a #2 pencil and student ID to all exams.
5. No make-up exams will be given for any reason.
6. I understand that part of my grade is based on using a functioning iclicker. I will register my iclicker online and bring it to each class.
7. I will submit only my own iclicker answers. Submitting answers for anyone else will automatically receive a zero for iclicker class questions for the semester and possible referral to the Honor Committee – this is considered cheating!
8. I will not represent anyone else's work as my own or assist anyone else in submitting work that is not their own, unless the instructor has explicitly stated that cooperative work is acceptable. I understand that failure to observe the rules of academic honesty is likely to result in a failing grade for the course.

If you do not agree to these terms, you must see the instructor and explain in writing your objections in order to remain enrolled in this course.
Powers of Ten Video - Charles and Ray Eames
If the Earth were 2” in size

• How big would the moon be?
• How far would the moon be from the Earth?
• How big would the sun be?
• How far would the sun be from the Earth?
If the Earth were 2” in size

• How big would the moon be?
  – 1/2”

• How far would the moon be from the Earth?
  – 5’ Hold your arms wide, this is the distance

• How big would the sun be?
  – 16’ across, imagine a yellow ball the size of a minivan

• How far would the sun be from the Earth?
  – 1800’, about 6 soccer fields
If the Sun were 2” in size

- How big would the Earth be?
- How far would the sun be from the Earth?
- How far would Pluto be from the sun?
- How far would the nearest star be to the sun?
If the Sun were 2” in size

- How big would the Earth be? A grain of salt
- How far would the sun be from the Earth? 20’ or about 10 paces
- How far would Pluto be from the sun? 2.5 soccer fields
- How far would the nearest star be to the sun? 900 miles
If the Solar System were 2” in size

• How big would the sun be?
• How far would the Earth be from the sun?
• How far would the nearest star be from the sun?
If the Solar System were 2” in size

- How big would the sun be?
  - microscopic
- How far would the Earth be from the sun?
  - 1/2mm
- How far would the nearest star be from the sun?
  - 2 soccer fields away