

ASTRONOMY 111: Introduction to Astronomy I

Spring 2008

Instructor: Keith “Kilo” Watt, M.A., M.S.

Email: kilo@KeplerEducation.com

Room: PS-167

Date/Time (Section 1896): Tuesday/Thursday, 10:00 – 11:15 AM

Office Hours: In *Second Life*: Tuesday & Thursday, 8:00 AM – 9:00 AM

In Person: Before and after class or by appointment

Email: Most any time, though there will be several hours delay

Textbook: Required: *Mastering Astronomy* Online Tutorial System

(<http://www.MasteringAstronomy.com>)

Lecture-Tutorials for Astronomy, 2nd Edition, Prather, Slater,
Adams, and Brissenden

Optional: *Astronomy Today*, Chaisson and McMillan

Prerequisites: Introductory Algebra (MAT 092) - You’re gonna need it!

Course Description

From the 2006-2007 Catalog:

Introduction to astronomy for the non-science major. History of astronomy, properties of light, instruments, the solar system and nearby stars.

Oooooo-kay.

So what is this class really about? Basically you’re going to learn about our Solar System, how it was formed, what the planets and other small bodies in it are like, how we have studied it in the past, and what we are doing to explore it today. I am a former NASA engineer, so I’ll be providing some perspectives and up-to-date information as well. In addition, by the time you complete this course, you will become intimately familiar with telescopes of all types, how they are made, how to use them, and the advantages and disadvantages of each. You will have the knowledge you need to competently purchase any telescope and know exactly how to use it, care for it, and how it works. My hope is that while not everyone will be motivated to actually buy (or build) a telescope, you will continue to take advantage of the observatory's telescopes to continue observing on your own. Astronomy is a wonderful hobby, and you will be better educated than many (if not most) amateur astronomers by the end of this course!

Expectations

I fully realize that many of you are here only to satisfy a basic science requirement. But in order for you to satisfy that requirement you have to learn something! If you aren't here to learn astronomy, if you have little or no interest in astronomy, drop this course!

We have a lot to do and a very limited amount of time in which to do it, so you can expect that we are going to work pretty hard. That said, I think you will find this course to be one of the more enjoyable ones you've taken so far. We will have a lot of fun during the course of the semester.

This class meets only twice per week. For that reason, attendance is mandatory at all class sessions unless I tell you otherwise. If you decide to skip my class, I assure you my feelings will not be hurt - it's your dollar, after all - but you almost definitely won't pass the class either. As any of my previous students can tell you, missing even one class can put you so far behind that it's very difficult to catch up. Caveat emptor...

Each week you should have the following with you:

Pencil (NOT a pen!)

Paper or notebook for taking notes

Calculator with scientific notation and trig functions (a cell phone calculator is not enough!)

Please keep your cell phones off during class. And please, don't text in my class...

Office Hours

I am generally not on campus unless students have made arrangements to meet with me. Traditionally, students often set up a study session immediately before class where I offer tutoring on specific problems. The main way to get in touch with me has been through email – you should contact me *before* you get frustrated with the homework, not after!

Email always entails a delay of several hours and it can be difficult to have a discussion over email. GCC has therefore established a “virtual student center” in the online world of *Second Life*. *Second Life* is a virtual world that is accessed through your computer (much like a massively multiplayer online game such as *Everquest* or *World of Warcraft*). *Second Life* is free to everyone, and the client used to access the world can be copied from any GCC computer or downloaded directly from <http://secondlife.com/community/downloads.php> (it runs on PC, Mac, and Linux). Once you download the client, you'll be prompted to register and choose a name for your “avatar” (yourself in *Second Life*). My name in *Second Life* is “Kilo Raymaker”. Simply send me a message (by email or in *Second Life*) and I'll add you to the group for our course, as well as send you a landmark that will allow you to teleport directly to the GCC campus in *Second Life*.

As an experiment, I will be in the *Second Life* “grid” at the GCC student center (search for GCCaz in-world or type in <http://slurl.com/secondlife/GCCAz/37/221/30> in your web browser) Tuesday and Thursday mornings from 8 AM to 9 AM. Now you can attend my office hours in your PJ's and no one will ever know. You are in no way required to use *Second Life*! I'm simply trying this as a service to you, my students. *Second Life* has the advantage that I can display diagrams and equations that can be seen by everyone present in the virtual world, something that is often hard to do over email. There are a lot of

things that we can do in *Second Life*, some of which might be difficult or impossible to do in the real world. It could be fun!

Withdrawal Policy

You may withdraw from the course by submitting a withdrawal form to the Admissions Office. All withdrawals must be accomplished before the last week of class, or you will be stuck with the grade you've earned!

Grading

Grades will be assigned based upon the following items:

<i>MasteringAstronomy</i> Homework (daily)	= 25%
In-Class Quizzes (daily)	= 25%
Midterm	= 25%
Final	= 25%

Note that the actual number of homeworks and quizzes may change due to holidays and other external factors. Yes, I do curve, but I will guarantee that an uncurved 90%+ will be an A, 80-89% at least a B, 70-79% at least a C, etc.

As indicated above, we will be having a quiz every day. Yep, get up off the floor, it's not that bad. If you have done the reading for that day, I promise you'll have no problem whatsoever.

Make-ups

As a general rule, assume it can't be done. Other than GCC-approved activities, there are no excused absences. As I said before, while I don't count attendance against you, you aren't likely to pass the class if you aren't here *every day*. All work is due either in my hand or in my email box at midnight on the due date. Late work isn't accepted for any reason, so plan ahead!

Academic Dishonesty

I take the academic integrity VERY seriously. If you are caught, you're history. End of story. In this course, academic dishonesty includes: copying another person's homework, looking at another person's quiz or test, fabricating data, and utilizing material from previous years. While I do allow you to work together, each person must do their OWN work. If I get two papers that are substantially the same, then neither person will get credit for the work. Additionally, GCC may impose disciplinary actions on you for misconduct or violations of law or GCC rules and policies. You could be subject to temporary exclusion, disciplinary probation, suspension, or expulsion from class. Sound like fun? I didn't think so. All of these policies are outlined in the official GCC Student Handbook, so you are responsible for knowing them – read and heed!

Special Circumstances

Students with a documented disability should see me ASAP to discuss accommodations. The Disability Services and Resource Office at GCC Main is in room SPS 31 (623-845-3080). It's no big deal, obviously I have one too....

Course Objectives

Here are the objectives for this course, as laid out in GCC's official course description:

1. Apply the scientific method and other critical thinking models to astronomical phenomena for hypotheses development, experimental design, data acquisition, and data analysis.
2. Explain the application of fundamental physical principles to various astronomical phenomena.
3. Outline the history of astronomical thought.
4. Describe in terms of energy, wavelength, and frequency the various portions of the electromagnetic spectrum.
5. Describe instruments used to detect radiation from the various portions of the electromagnetic spectrum.
6. Compare the physical properties of the earth with its moon.
7. Give an overview of the components of the solar system.
8. Compare and contrast the physical properties of the major planets.
9. Describe the minor components of the solar system.
10. Explain possible models of solar system formation.
11. Describe the physical properties of the sun.
12. Compare solar system dimensions with nearby stars dimensions.

Tentative Course Schedule

This schedule is subject to change from day to day as I may talk more about things that are interesting to the class and less about things that we find aren't so fascinating. This will give you a rough guide, though:

- Introduction, Charting the Heavens
- History of Astronomy (and Astronomers)
- Radiation and Spectroscopy
- Telescopes
- Introduction to the Solar System
- Earth
- The Moon and Mercury
- Venus, Mars
- Jupiter, Saturn
- Uranus, and Neptune, Pluto, Asteroids, and Comets
- The Sun
- Extrasolar Planets
- Life in the Universe

Subject to Change – Your Mileage May Vary

Good education means adapting my instructional techniques to the particular needs of my students. The purpose of the quizzes and the homework is to let me make those adaptations. As a result, any or all of this information is subject to change as necessary!

AST 111: Introduction to Astronomy I SYLLABUS ACKNOWLEDGEMENT

Spring 2008
T/R

AST111 SEC. 1869
10:00 – 11:15 AM

KEITH "KILO" WATT
ROOM PS167

I acknowledge that I have received a course syllabus for the course described above. I have read it and understand the attendance, withdrawal, grading and other policies. I recognize that to successfully complete this course, it may require 2 to 3 hours out of class for each hour spent in class.

Printed Name: _____

E-mail address or some way to contact you:

Signature: _____

Date: _____

Have you ever had a course in astronomy prior to this one?

If yes, when and where (list all courses including labs)?

How much Physics, Physical Science, Chemistry, and Math have you had?

What do you hope to get out of this course?

What (if any) part of astronomy do you think will be most interesting to you?

How did you select this and other courses for which you are registered this semester (on-line schedule, paper schedule, a campus advisor, etc.)? If an advisor, what assistance did you receive from this person?