COURSE OBJECTIVE: Welcome to Astronomy Laboratory! This class is intended to introduce you to some of the basic techniques used by astronomers to better understand the wonders of our Universe. You will also gain experience in data collection, analyzing data, and implementing the scientific method. We will be exploring an exciting range of topics including telescope design, properties of light, impact craters, planets and moons, the composition of stars, and the large-scale properties of the Universe itself. While no previous knowledge of physics or astronomy is required, this course will involve the use of basic mathematics. Any required mathematics for a lab will be reviewed prior to the start of the lab, and assistance will always be provided where needed.

AST-1022L Astronomy Laboratory counts for one (1) credit of Physical Science (P) towards the General Education requirement. It introduces students to the scientific method as applied to the field of Astronomy. The students are introduced to the process of making astronomical observations, quantitatively analyzing those observations, extracting information about astronomical bodies such as the Sun, Moon, planets, stars, nebulae, and galaxies, and understanding the basic physical processes that take place in these bodies. The students will also be introduced to the process of writing a report on an experiment, communicating the details, results, and conclusions to a reader not necessarily familiar with the experiment.

REQUIRED TEXT: You must purchase the Hands on Astronomy Laboratory Manual. It is available at Target Copy for $10.00 (perhaps the cheapest textbook you will ever buy). There are two Target Copy locations in Gainesville. One is located on W. University Ave. (1412 W. University Ave.), the other is located in Butler Plaza right next to Blockbuster Video (3422 SW Archer Rd.). You must have this manual by our second class!
MATERIALS: You must bring the following materials to every lab:

- Hands on Astronomy Lab Manual
- Pen/Pencil (preferably pencil or pen with eraser)
- Ruler with cm/mm markings
- Notebook
- Scientific calculator (one that can do square root, log, sine, etc.)
- FOR NIGHT LABS: Bring bug spray and a flashlight.

COURSE REQUIREMENTS: We will be performing 13 day labs and 3 nighttime observing labs. You must read the lab manual for each lab before that class. A short quiz will be given before each lab. The quizzes will involve no calculations or formulae. They will quiz you only on basic concepts of the lab, the purpose of the experiment, etc. If you are diligent and read the lab manual entries before class, these should be free points that can help boost your grade to the next higher level at the end of the semester, so do not take them lightly.

Attendance is mandatory. NO MAKE-UPS WILL BE ALLOWED FOR ANY LAB unless you have an official excuse with proper documentation. If you are seriously ill and cannot come to class, you must provide me with an official doctor’s note. If you do have a valid, excused absence, please inform me of this as early as possible beforehand so that arrangements can be made for you to make-up the day lab. There are NO make-ups allowed for night labs unless you provide me with proper documentation at least one week in advance. Lab reports are due at the beginning of class the following week. You are, of course, more than welcome to HAND them to me IN PERSON earlier if you choose. DO NOT, however, just leave them on my office door, or on my desk. If you will be absent from a lab period, you MUST turn in your lab report for the previous lab early. NO LAB REPORTS will be accepted late, so be sure to have them with you and to turn them in at the beginning of the following lab. I will not accept lab reports as email attachments; I require a hardcopy printout that is stapled.

Prior to beginning each lab, I will present a brief (20-25 minute) lecture to review any mathematics you may need to use during the lab, as well as provide the background behind the experiments themselves. It is sometimes easy to lose sight of the fact that the numbers you see on the ruler or computer screen represent real physical phenomenon, whether it be a distant planet, a massive star, a beam of light or the Universe itself. I hope these introductory lectures will serve to both clarify the astronomy and physics involved in the experiment, as well as excite you about what all those numbers and figures are really representing.

NIGHT LABS: We are scheduled to have our night labs for this section on TUESDAY nights. I will notify you of the exact dates and times soon, but you should keep your Tuesday nights open for the night labs. Even professional astronomers have to deal with bad weather, and unfortunately weather is often unpredictable (especially here in Florida!). IF we are canceling the night lab session, I will email you as soon as a decision is made. I do NOT receive an email, you MUST assume the observing session is a GO. I will do everything I can to notify you in advance if a session is to be canceled, but sometimes a decision must be made at the last second, so it is quite possible you may need to go to the observatory only to find that we did have to cancel. Again, I apologize in advance if such a thing happens, but you must assume the lab is on unless explicitly told otherwise by me. If there is a severe thunderstorm, hurricane or...
tornado **warning** for the night, you may assume night lab is canceled even if you don’t receive an email from me (but I will still send one out). Just because it is cloudy, however, does not necessarily mean night lab is canceled. We will try and finish the night labs as soon as possible in the semester, but we may end up having to go right up to the end.

**GRADES:** Your grades will be based upon the following formula:

- **Attendance:** 10%  
  - A: 90-100  
  - C: 70-74
- **Pre-lab quizzes:** 10%  
  - B+: 85-89  
  - D+: 65-69
- **Night Labs:** 20%  
  - B: 80-84  
  - D: 60-64
- **Lab reports:** 60%  
  - C+: 75-79  
  - E: 0-60

The College of Liberal Arts and Sciences has a strict policy on incomplete grades. Because of that, no incomplete grades can be assigned to this course. If you are worried about failing the class, talk to me as soon as possible. If you have missed several labs, I recommend that you talk to an advisor about dropping the course. Also, grades are not given, they are computed…“You get what you earn.”

**ATTENDANCE:** As stated above, attendance is absolutely mandatory. Upon entering the class you will sign a sign-in sheet that will serve as proof you attended the lab. **Simply by signing this sheet you will earn points towards your grade.** Notice that attendance contributes 10% of your final grade. **If you do arrive late, you will be marked as “LATE” on the sign-in sheet and will receive zero Attendance credit!** So be on time to receive your Attendance points, as they may boost your grade up to the next higher level when grades are computed.

When you are finished collecting data and performing any necessary calculations, you must bring your lab data sheet to me BEFORE LEAVING. I will then place a check mark next to your name on the sign-in sheet. **You will receive ZERO credit for any lab reports handed in if your name does not have a check mark on the sign-in sheet. NO EXCEPTIONS.** If you are marked as “LATE” to class, you can still earn full credit for your lab report, but you must show me your data and work before leaving! Being marked as “LATE” will only cause you to lose your Attendance points. Please note that no extra time whatsoever will be provided to finish your lab if you are late, however.

**ACADEMIC DISHONESTY:** Cheating will not be tolerated in any way, shape or form. University regulations will be strictly followed regarding academic dishonesty. For many of the labs you will be working in small groups, in which case you can (and in some cases must) share your collected data, however, ALL calculations must be done by yourself. All lab reports are to be your own written work. Any violations will be punished via grade deduction and/or handled through the University’s Honor Court system. I hope you will find this course informative, intellectually stimulating and fun, and I am willing to make myself available as much as possible to help you.
LAB POLICIES: University and departmental regulations strictly forbid all food and drink in the laboratory. This rule will be fully enforced, and must (and will) be followed by the Instructor as well. Please eat or drink outside in the hallway prior to entering the classroom.

All electronic devices, including (and especially) cell phones, must be turned off or silenced and kept in your backpacks at all times during the lab.

DISABILITIES: Students requesting classroom accommodations must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. No accommodations will be made without proper documentation from the Dean of Students Office.