

Astronomy 1073
Astronomy Laboratory I
Summer 2010

Instructor: Larry DeWarf
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610-519-4824

Office Hours: 2:00 - 3:00pm (Tuesday, Friday); or by appointment

Assistant: TBA (610-519-7485)

Co-Requisites: Ast1072, Ast2120, Ast2122, or through special dispensation

Purpose:

The purpose of this laboratory course is to provide the student with an understanding of some of the basic laws of nature as revealed by the motion of celestial objects, thereby to show in general how the scientific method can be used to learn about the universe. Although ancient civilizations required many centuries to interpret these motions correctly (primarily due to insufficient sampling), we may now replicate these motions on a computer and understand their nature in a semester or two. This is accomplished by using computer software that can take us back in time, to any place on Earth, and show us the sky as it was. We may also speed up this clockwork so that many years may pass in each minute of real time, thus revealing important laws of nature usually hidden in the normally subtle and imperceptible real motions of celestial objects.

Lab Materials:

Lab books **must** be purchased from your instructor (cost - \$5.00). If your lab book is forgotten or lost, the current weeks' lab can be purchased in class for \$1.00 . In addition, you **must** bring a pencil (*with eraser*) to class. All labs should be completed in pencil.

Schedule:

- A) The Sky
- B) Working with Numbers, Graphs, and the Computer
- C) Magnitudes and Colors: Taking a Star's Temperature
- D) The Hydrogen Atom
- E) Classification of Stellar Spectra
- F) Obtaining and Analyzing Stellar Spectra
- G) Parallax
- H) Solar Energy Transport
- I) Photoelectric Photometry of the Pleiades
- J) Eclipsing Binaries - Radial Velocity Curve Analysis
- K) Eclipsing Binaries - Preliminary Light Curve Analysis
- L) Galactic Rotation
- M) Expansion of the Universe

To successfully complete the course, you will complete all thirteen (13) of the above lab experiments. Should it become necessary to miss a lab, you must notify your instructor as soon as possible (preferably before the absence) so that arrangements can be made to complete the missed assignment.

Grading:

Each lab will be graded individually on a numerical basis according to the following scale:

A	93 +
A-	90 - 92.99
B+	87 - 89.99
B	83 - 86.99
B-	80 - 82.99
C+	77 - 79.99
C	73 - 76.99
C-	70 - 72.99
D+	67 - 69.99
D	63 - 66.99
D-	60 - 62.99
F	00 - 59.99

The final Astronomy Laboratory grade will be based on the average of these labs as well as lab performance. If there is a problem with the course, a grade, or with the computers, please see one of us to discuss the problem **immediately!**

A Word on Academic Integrity

As a community committed to the Augustinian ideals of truth, unity, and love, Villanova University prides itself on maintaining the highest standards of academic integrity and does not tolerate any form of academic dishonesty or misconduct. As is true with all work done at Villanova (or anywhere else for that matter), there is a well-defined policy that applies to Academic Integrity. This policy can be found in its entirety in your Echiridion (see *Policy on Academic Integrity* and the Appendix I). You should read and understand this policy. To paraphrase, there are seven specific sections addressed by this policy: Cheating, Fabrication, Assisting in or Contributing to Academic Dishonesty, Plagiarism, Multiple Submission of Work, Unsanctioned Collaboration, and Other Forms of Dishonesty. To paraphrase the stance of this course on these issues: There will be **NO** Cheating, Fabrication, Assisting in or Contributing to Academic Dishonesty, Plagiarism, Multiple Submission of Work, Unsanctioned Collaboration, **OR** Other Forms of Dishonesty tolerated in this class!

If it comes to pass that an Academic Integrity infraction occurs, the Instructor may (but is not limited to) reduce the score on the offending assignment, reduce the course grade, and/or refer the individual to the Board of Academic Integrity.

Disability Policy

It is the policy of Villanova to make reasonable academic accommodations for qualified individuals with disabilities. If you are a person with a disability please contact me after class or during office hours and make arrangements to register with the Learning Support Office by contacting 610-519-5636 or at Nancy.Mott@Villanova.edu as soon as possible. Registration is needed in order to receive accommodations.