

**Franklin & Marshall College - Physics and Astronomy Department**  
**Astronomy 120: Introduction to Stars and Galaxies**  
**F. Crawford**  
**Fall 2006 General Course Information and Policies**

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## **Welcome**

Welcome to the Fall 2006 edition of Astronomy 120: Introduction to Stars and Galaxies. In this class, we will study basic astronomy with a focus on stellar and extragalactic astronomy. This includes the origin and evolution of stars and stellar systems, including the interstellar medium, star formation, supernovae, black holes, neutron stars, and star clusters. We will also study the structure, origin, and evolution of galaxies and the universe itself. In order to make sense of these topics, we will discuss the nature of light and gravity, and other supporting topics. We will use math in this course, but only at the level of algebra and trigonometry/geometry (no calculus), so be prepared for that.

The web page for the course is linked from the blackboard site and will be given out in class. You can also access this page through links from the F&M physics and astronomy department web site. Assignments and announcements will be posted here, so you must check it regularly.

## **Lectures**

Section A meets MWF 11:00 - 11:50 a.m. in Hackman 412.

Section B meets MWF 1:30 - 2:20 p.m. in Hackman 412.

Please do not switch lecture sections without approval since we need to keep the sections approximately equal in size for logistical reasons. It is essential that you come to all classes to master the concepts and material in this course. All absences, for any reason (including illness, athletic events, etc.) should be discussed *in advance* with the instructor. Excessive absences can result in a significant lowering of your grade.

## **Labs**

Labs meet on Tuesday or Wednesday 7:30 - 9:20 p.m., usually in Hackman 425.

Labs begin in the second week of classes (i.e., the week beginning Mon Sep 4). Please do not switch lab sections without approval since we need to keep the sections approximately equal in size for logistical reasons. Lab manuals are available in the bookstore, and you must have one prior to the first lab meeting. The default location for lab is Hackman 425, but sometimes we will meet in the North Museum Planetarium or the Mac Lab in the basement of the Martin Science Library. Be sure to watch the schedule and your email.

## **Astronomy Clinic**

An optional Astronomy Clinic staffed by experienced and friendly astro majors will be run weekly on Monday evenings from 7:00 - 10:00 p.m. in the physics lounge (Hackman 215). This clinic is a valuable resource for clearing up confusing issues from class and for getting help with the homework.

## **Instructors**

**Lectures and Labs:** Fronefield Crawford  
**Office:** Hackman 421  
**Phone:** (717) 358-4499  
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**Labs:** Elizabeth Praton  
**Office:** Hackman 424  
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Come see us anytime. Office hours will be announced shortly after the start of the course. Please do not hesitate to contact us; no question or topic is too small. If you are having a lot of trouble with the homework, be sure to come to see one of us as *soon* as possible. A good way to get together is to arrange a mutually agreeable time with us, either by email or in person after class. We expect you to read your email and check the course web page regularly as we will make announcements and answer some questions in this way. You should feel free to send us email when you have a question or comment.

We will issue course evaluations part-way through the semester. However, if you have concerns about the course or ideas about how to make it better, you should let us know immediately, either in person or by email. Don't wait!

## Textbooks and Supplies

- *The Cosmic Perspective* (4th edition) by Bennett et al. is the textbook for the course. This textbook is available in the bookstore and comes with an associated web site ([www.masteringastronomy.com](http://www.masteringastronomy.com)) which is linked from the course web page. You can register at this site for free using the access code provided with your textbook. (Note: If you have a used copy of the textbook, you will need to purchase a license to access the site.) The first assignment provides more details about registering here. I encourage you to use the material on this web site to supplement your reading and the class discussion. You can shop around for used copies of the textbook, but be careful that the edition is the same.
- *The Night Sky* (star chart) by David Chandler. This is available in the bookstore.
- You will also need to purchase the Astronomy 120 Lab Manual from the bookstore.
- A pocket calculator will be needed for homework assignments and tests and in the laboratory.

## Assignments and Tests

- Written work will be assigned weekly and is due at the specified time and date. Assignments will usually be posted electronically on the course web page for download. Only a portion of each assignment will be graded. The portion to be graded will be determined randomly each week. There will also be assigned reading before each class to prepare you for class discussion. These readings are listed on the course schedule.
- Labs will be conducted weekly during the scheduled lab times, and we will assign grades according to a check-off system. Essentially, you will receive full credit, half credit, or no credit for each lab, depending on performance. We also plan to have independent projects toward the end of the semester which will count as part of your lab grade.
- There will be two hour exams and a final exam. See the course schedule for more details.

## Grading

Hour Exam #1	15%
Hour Exam #2	15%
Final Exam	20%
Laboratory	20%
Homework Assignments/Quizzes	25%
Participation and Attendance	5%

## Late Policies

- Labs are expected to be done during the lab time on the week they are scheduled, and late labs will not be accepted without prior arrangement with Froney or Beth. However, your lowest lab grade will be dropped at the end of the semester.
- Late homework will not be accepted since solutions will be posted soon after the homework is due. However, your lowest homework grade will be graded as full credit at the end of the semester.

- Exams must not be taken or turned in later than the stated times, except by prior agreement. You may get an extension on an examination **ONLY** with a Dean's excuse.

## Academic Misconduct

The important guiding principle of academic honesty is that you must never represent the work of others as your own. Cheating and plagiarism are very serious offenses that can have dire consequences. The following guidelines should govern your behavior in the course; please request clarification if you find yourself in any doubtful situations.

You may seek assistance from the instructors, the Astronomy Clinic, or your fellow students in doing the weekly assigned exercises and preparing for class discussions. You may also work together with other members of the class on these assignments (unless specified otherwise), and this is often quite beneficial. For your own good, avoid situations in which you are either contributing either too much or too little to such collaborations. *Just copying someone else's work is clearly a representation of another student's work as your own and is a violation.* This applies to copying down results worked out on a blackboard by other students as well as solutions written down on paper. Please be cautious about loaning your work to others, since this can also lead to problems for both parties.

Exams must be entirely your own work. Detailed instructions will be given on the exams themselves and discussed in advance. You must use only those materials allowed in the instructions given on the exam. No collaboration of any sort is allowed once you start an exam.

## Advice

You may need to improve your study habits in order to do well in this course. The following suggestions are based on the experience of previous students:

- *Review* your class notes between lectures, and come prepared to ask questions. Annotate your class notes as you read them. When you take notes in class, *don't just write down equations!* Qualitative information is often essential!
- *Stay up to date* on the reading; preferably read the assigned material twice; for example, once before the relevant lecture, and once after.
- *Read with pen in hand* to work out things described only briefly in the text or lecture. Ask yourself what is the main point of each section, and answer the question. Highlighting the text as you read is no substitute for this exercise in thinking and reinterpreting what you have read!
- *Make drawings* of the physical situations we discuss in class or the ones you encounter in problem sets (and real life!). This helps you understand just what is going on much more than merely thinking about it.
- Use supplemental resources such as the web-based material as extra practice to enhance your understanding.
- Don't spend more than one hour on a single homework problem. Show clearly where you're stumped and just move on. Don't feel bad if this happens occasionally, or worry about the effect on your grade. Consistency in doing the homework is more important.
- Try the homework problems first yourself, but do get help in clinic or during office hours if you need it. That's why these resources are provided. We expect you will make use of them as one more learning tool.
- Do stop in to see one of us if you have questions or suggestions.
- Study for the exams *in advance*. Your brain tackles problems differently if you have given it time to mull over new material and new approaches to problem-solving. You really think differently (and better) once you have literally slept on new ideas.
- Remember that if the material is new or unfamiliar for you, learning will take time, just as learning a new language takes time. Try not to become discouraged if the going is rough at times, and don't prejudge your ability to master the material. Generations of students have done it before you.