

Franklin & Marshall College - Physics and Astronomy Department  
Astronomy 120: Introduction to Stars and Galaxies (Section A)  
F. Crawford  
Fall 2008 General Course Information and Policies

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## Welcome

Welcome to the Fall 2008 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 [http://venus.fandm.edu/~fcrawfor/teaching\\_fall\\_2008\\_a120.html](http://venus.fandm.edu/~fcrawfor/teaching_fall_2008_a120.html). 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

The class meets MWF 10:00 - 10:50 a.m. in Hackman 412.

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 or failure/removal from the course** (see the Grading section below – I’ll use my judgment as to what “excessive” is here). Basically, as long as you come to class, keep up on the reading, and put forth your honest and best effort in the class, this shouldn’t be an issue.

## Labs

Labs meet weekly on Tue, Wed, or Thu 7:30 - 9:20 p.m., usually in Hackman 425. You should be signed up for one of these lab sections.

Labs begin in the second week of classes (i.e., the week beginning Mon Sep 8), and our first lab meeting will be in the North Museum planetarium. Please do not switch lab sections without approval since we need to keep the sections 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 since things can change from week to week with the lab schedule.

You must pass the lab portion of the course in order to get a passing grade for the course (see the Grading section below).

## 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 Wed Labs:** Froney Crawford  
**Office:** Hackman 421  
**Phone:** (717) 358-4499  
**Email:** fcrawfor@fandm.edu

**Tue Labs:** Beth Praton  
**Office:** Hackman 225  
**Phone:** (717) 291-3813  
**Email:** epraton@fandm.edu

**Thu Labs:** Andrea Lommen  
**Office:** Hackman 424  
**Phone:** (717) 291-3810  
**Email:** alommen@fandm.edu

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 me (Froney) 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. 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* (5th edition) by Bennett et al. is the textbook for this section (Section A) of 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 just about every week 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 each lab instructor will handle grades in their lab section. We will have more to say about the labs in the first lab session.
- There will be four in-class exams throughout the semester plus a final exam. See the course schedule for more details.

## Grading

Exam #1	10%
Exam #2	10%
Exam #3	10%
Exam #4	10%
Final Exam	15%
Laboratory	15%
Homework Assignments/Written Work	20%
Participation/Attendance/Effort	10%

Note that **you must have a passing grade in every area of the course in order to pass the course** (but I'll be more lenient with the exam criteria here).

## 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, Beth, or Andrea. 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 dropped 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.

## Unofficial Honor Code

Even though F&M does not have an official honor code, I think it is important to try and implement some elements of an honor code in our classroom setting. This goes beyond just the obvious "no cheating" policy (see above). You are an important participant in this educational journey, and as such you deserve to be trusted and to have a significant share of the freedom and responsibility that comes with that trust. From my previous experience as an instructor both at F&M and elsewhere, I know that when students accept this challenge, it leads to a more rewarding and vibrant learning experience for everybody.

In this class, we are all adults and, as far as I am concerned, are on equal footing in terms of how we interact with each other. Please take that to heart and consider it an invitation to engage with me and the class as an

equal. You'll get the most out of the class if you adopt this attitude and approach. Therefore, I hope that as a class we can consider the following suggestions to make our experience more enjoyable, educational, and rich (this is adapted in part from the Haverford College Honor Code):

- Make possible a climate of trust, concern, and respect to exist among us, a climate conducive to personal growth. Growth arises from honest exploration and analysis.
- Participate in constructive, engaging discussion by means of respectful communication to achieve a common understanding (this really means making your concerns known if you have them). That doesn't always mean reaching agreement, however.
- Strive to foster an environment that generally encourages respectful expression of values/opinions rather than unproductive self-censorship.

See also my "Code of Conduct" handout, which has more suggestions along these lines. It is up to *you* (and me) to uphold these ideals in our class – I hope you'll take these suggestions to heart and help make it a great experience for all of us!

## Advice

*This is designed to be a challenging course!* 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.