

Franklin & Marshall College - Physics and Astronomy Department  
Astronomy 100: Survey of Astronomy (Section B)  
F. Crawford  
Fall 2017 General Course Information and Policies

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## Welcome

Welcome to the Fall 2017 edition of Astronomy 100: Survey of Astronomy (Section B). In this class, we will study a wide range of topics in astronomy. Since this class is not designed for those who might major in physics or astrophysics, we will try to take a broad view of these topics. However, in order to make sense of the topics we will cover, we will need to establish a solid background in basic scientific and physical principles that underlie these topics. For instance, we will discuss the nature of light and gravity, and other similar supporting physics topics. Also, **we will use math in this course at the level of algebra and trigonometry/geometry (no calculus), so be prepared for that.** If this is beyond your math background, then you should consider taking another class.

The web page for the course is [http://venus.fandm.edu/~fcrawfor/teaching\\_fall\\_2017\\_a100.html](http://venus.fandm.edu/~fcrawfor/teaching_fall_2017_a100.html). Assignments and announcements will be posted here, so you must check it regularly.

## Lectures

- The class meets Tue and Thu 10:00 - 11:20 a.m. in Kaufman 204.
- 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.**
- Also, please leave the laptops at home – you won't need them while you are in class (if you plan to actually take notes with a laptop, please come talk to me individually about it). Also, lay off the texting and phone calls during class since it is pretty distracting (even if you think nobody can notice it).

## Labs

- Labs meet weekly on either Mon, Tue, or Wed from 7:30 to 9:20 p.m., usually in Hackman 425. You should be signed up for one of these sections. The labs will be taught by Beth Praton, Ryan Trainor, and Mike Pagano and will begin in the second week of classes. 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 for purchase from the department coordinator (Lynn Johnson) in Hackman 200, and you must have one prior to the first lab meeting. The default location for lab is Hackman 425, but sometimes the lab will meet in the North Museum Planetarium or elsewhere. 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 Sunday evenings from 7:00 - 10:00 p.m. in the astronomy seminar room (Hackman 420). This clinic is a valuable resource for clearing up confusing issues from class and for getting help with the homework.

## **Textbooks and Supplies**

- *The Cosmic Perspective* (8th 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)). You can register at this site for free using the access code provided with your textbook. I encourage you to use the material on this web site to supplement your reading and the class discussion, but I am not requiring you to use it.
- There are previous editions of this same textbook around. Be aware that although most of the material in these older editions is the same as the new edition, there are some changes (such as problem numbers and details about recent developments in the field) which will be different. Also, if you have a used copy of the textbook or a different edition, you will need to purchase a license if you want to access the Mastering Astronomy web site.
- You will need to purchase the Astronomy 100 Lab Manual from the department coordinator (Lynn Johnson) in Hackman 200.
- A pocket scientific calculator will be needed for homework assignments, tests, and the laboratory.

## Instructors

**Lectures:** Froney Crawford  
**Office:** Hackman 421 or Weis 104 (Weis Don's Office)  
**Phone:** (717) 358-4499  
**Email:** fcrawfor@fandm.edu  
**Office Hours:** Mon 1:30-2:30, Fri 11-12

**Mon Labs:** Beth Praton  
**Office:** Hackman 221  
**Phone:** (717) 358-7174  
**Email:** epraton@fandm.edu

**Tue Labs:** Mike Pagano  
**Office:** Hackman 423  
**Phone:** (717) 358-4673  
**Email:** alommen@fandm.edu

**Wed Labs:** Ryan Trainor  
**Office:** Hackman 227  
**Phone:** (717) 358-4812  
**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 problems or material, 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!

## Assignments and Tests

- Written work will be assigned for each chapter and is due at the specified time and date. Assignments will usually be posted electronically on the course web page for download. This work will be graded on a 2-point basis per problem: 2 points for a complete or mostly complete effort and answer (where the work is shown), 1 point for a reasonable attempt, and 0 points for minimal or missing work on the problem. Note that anything that is illegible or too difficult to follow will get 0 points!
- There will also be assigned reading before each class to prepare you for class discussion (do these readings in advance). These readings are listed on the course schedule.
- Labs will be conducted weekly during the scheduled lab times, We will have more to say about the labs in the first lab session.

- There will be five 30-minute in-class quizzes and a scheduled final exam. See the course schedule for more details for when these quizzes will occur. The quizzes will be given at the start of the lecture period and will cover the material since the last quiz. The final exam will cover the final part of the course (the part not covered with a quiz).

## Grading

A breakdown of the grading is as follows:

Quiz #1	10%
Quiz #2	10%
Quiz #3	10%
Quiz #4	10%
Quiz #5	10%
Final Exam	20%
Laboratory	15%
Homework Assignments	10%
Participation/Attendance/Effort	5%

- The participation grade is based on your questions and comments, either in class or after class, your attendance record, and your demonstrated effort to do the best you can in the class. Essentially, being present prevents you from losing points, and sustained active participation and involvement in the course as a whole on top of being present will help you gain points. Active participation in discussions will be noted and rewarded.
- Grades will be “curved” in the following sense. At the end of the semester, I will compute the overall final grade (out of 100) for each student, based on the above formula. Then I will map these scores onto a letter scale which will translate these number grades into letter grades.
- 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 quiz/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.
- Late homework will not be accepted since solutions will be posted when the homework is due.
- Quizzes and 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.
- Quizzes and exams must be entirely your own work. Detailed instructions will be given on the tests themselves and discussed in advance. You must use only those materials allowed in the instructions given on the test. No collaboration of any sort is allowed once you start a test.

Even though F&M does not have an official honor code, some elements of an honor code can have quite a positive impact on the 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 it can lead to a more rewarding and vibrant learning experience for everybody. Please consider yourself invited to engage with me and the class as an equal, and please don't be timid about speaking your mind (respectfully). You'll get the most out of the class if you adopt this attitude and approach with me and make yourself comfortable in this class.

## 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 assignments (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 me if you have questions or suggestions.
- Study for the quizzes *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.