

Physics 152-03: Astronomy (Spring 2008)

What is this class about?

PHYS 152 is an introduction to astronomy and perhaps even to science (at any real level) for some of you. It is also a goal V course at ISU and as such is quite special. Why? Because this may be the only exposure that those of you who are non-science majors have to how scientists think and work and that is a huge component of general intellectual inquiry. That is why you are here.

We will cover a wide variety of topics in what might seem like fairly rapid succession for some of you. I don't expect you to know much about astronomy, physics or mathematics (though if you do it's a bonus). I *do* expect you to be willing to read, listen and learn. Although this course is predominantly *qualitative* in nature and has no formal mathematical prerequisite, a comprehension of high school general math is expected (the equivalent of MAT 015). *You will encounter some remedial math in this class.* This is simply unavoidable in this or any science class. If, for instance, we want to discuss something even as mundane as the distance to the Sun we have to use some numbers to do it: a mean distance of 93,000,000 miles, 149.6×10^6 km, 1 AU. We will have to examine some graphs. This is all math! There is simply no other way to describe things *quantitatively* in science that is not impossibly clumsy. We simply have to grapple with some simple math and that's that.

Now the good news! Homework will not be assigned, collected or graded. Your only assignments outside of class are reading and study. If you attend class regularly, pay attention during lectures, participate in class discussion, read the textbook *before* coming to class, and put forth a reasonable amount of effort, I believe that you will find this course rewarding and not very difficult.

Professor

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Office Hours

M F 3 pm – 5 pm and by appointment.

Text

Explorations by Thomas T. Arny, 4th edition

Website

Check the website for lecture notes, announcements and grades:
<http://www.physics.isu.edu/%7Estarvale/152/phys152-03.html>

Grading

There will be 4 hourly exams (50 points each, 200 points in total), a final (100 points), and quizzes (100 points). Thus 400 points available. Bonus points will be available at every quiz and every exam. Final grades will be based upon the following scale:

A – above 350

B – above 300

C – above 250

D – above 200

No makeup exams or quizzes will be given! If you have an official excuse, please, let me know as soon as possible.

Tentative dates of the exams

February 5th

February 21st

March 18th

April 10th

Academic integrity

A vital part of your college experience is developing a good set of personal and professional ethics. We, as faculty, are painfully aware that a good number of you view college as a means to an end and ethical lapses as, at best, necessary to level the playing field and at worst, only bad if you get caught. We know all of this because it's what you tell us when you do get caught. No matter how prevalent you think cheating is it is simply wrong for you to either participate in it or not to report those you know are doing it.

Please be forewarned that your instructor, lab supervisor, and the Department of Physics all take an extremely dim view of cheating. Everything in the structure of this course is designed to help you succeed on your own with a good honest effort. What constitutes cheating? Basically if you have to ponder the ethics of what you are doing you are probably already over the line. If you are unclear about what constitutes cheating please either ask me or consult the ISU student handbook: <http://www.isu.edu/references/st.handbook/>

Addenda

Don't be afraid of asking questions in class or to email me with questions or comments about anything on your mind. My office door is generally open. If you are having a problem with this course (or with anything else for that matter) do not hesitate to come by. I hope that you all do well. Best of luck!

PHYS 152-03			
Lecture	Date		Reading Assignment (Chapters)
1	15-Jan	Intro+ Scientific thinking	
2	17-Jan	Prehistoric Astronomy, Modern Astronomy	1.1-1.5
3	22-Jan	Space Station Movie	
4	24-Jan	Quiz1 (Ch 1), Gravity, Newton's Laws	2.1-2.8
5	29-Jan	Light duality, EM spectrum	2.9-3.1
6	31-Jan	Atoms, emission & absorption, Doppler shift	3.2-3.7
7	5-Feb	Exam1 (Ch 1-3)	
8	7-Feb	Telescopes	4.1-4.8
9	12-Feb	Quiz2 (Ch 4), The Earth (structure, age)	5.1-5.4
10	14-Feb	The Earth (atmosphere, magnetic field)	5.5-5.7
11	19-Feb	The Moon	6.1-6.7
12	21-Feb	Exam 2 (Ch 4-6)	
13	26-Feb	Solar System	7.1-7.3
14	28-Feb	Quiz 3 (Ch 7), Mercury & Venus	8.1-8.3
15	4-Mar	Mars and Bove's Law	8.5-8.6
16	6-Mar	Outer Planets	9.1-9.5
17	11-Mar	Satellites Movie	
18	13-Mar	Meteors, Asteroids, Comets	10.1-10.4
19	18-Mar	Exam 3 (Ch 7-10)	
20	20-Mar	The Sun (size & structure), Internal Balance	11.1-11.3
21	1-Apr	Nuclear Fusion, Magnetic Activities	11.3-11.5
22	2-Apr	Quiz 4 (Ch 11), Prop. of the Stars, HR diagram	12.1-12.8
23	8-Apr	Star Formation and Evolution, Stellar Remnants	13.1-13.9
24	10-Apr	Exam 4 (Ch 11-14)	
25	15-Apr	The Milky Way	15.1-15.8
26	17-Apr	Quiz 5 (Ch 15), Galaxies	16.1-16.6
27	22-Apr	Unfolding Universe Movie	
28	24-Apr	Cosmology	17.1-17.5
29	29-Apr	Review	
30	1-May	Review	