

## Syllabus for Astronomy 170 B1, Section 4 - Fall 2014

### *The Physical Universe*

**Lectures:** Monday, Wednesday, and Friday, 12:00 - 12:50 pm, Room N210 Steward Observatory

**Instructor:** Prof. John Bieging

Office: 224 Steward Observatory; telephone: 621-4878; email: [jbieging@as.arizona.edu](mailto:jbieging@as.arizona.edu)

**Office hours:** Mon, Tues, Wed, & Thur, 2-3 pm; or by appointment (call or email me)

**Teaching assistant:** Ms. Melissa Halford (Office: D215 Steward Observatory--*in the dome!*;

tel. 621-6523; email: [mhalford@email.arizona.edu](mailto:mhalford@email.arizona.edu); **office hours:** Mon, Tues 1-2 and Wed, Thur 10-11, or by appointment)

**Text:** Bennett, Donahue, Schneider, & Voit, *The Essential Cosmic Perspective, 7th edition.*

**Assigned reading:** The syllabus lists assigned chapters from the textbook for each of the lectures. I highly recommend that you read the assignment **before** the lecture. The text also has "learning goals" and an introductory paragraph relating the chapter to the themes of the course at the **beginning** of each chapter, and a *summary of key concepts* and set of review questions at the **end** of each chapter. It's a good idea to review these after you've done the assigned reading, and again as you review your notes after the lecture.

**Written homework, quizzes:** There will be several written homework assignments over the semester. Late homework will not be accepted. In-class quizzes will be given (without prior warning) approximately once per week to encourage attendance and preparation. Missed quizzes may not be made up.

**Campus telescope observing:** You'll use the 21-inch telescope here on campus (located in the dome across the courtyard from the lecture hall) to observe several celestial objects and will write a report on your observations. Details will be given in a future handout.

**Missed examinations** can only be made up by *prior* arrangement with Prof. Bieging and for a valid reason (e.g., out-of-town team event), or for a demonstrable emergency (e.g., medical, with doctor's written statement). (A car break-down is not a valid excuse--call a taxi.) In-class quizzes may **not** be made up.

**Final Examination:** Tuesday, Dec. 16, 1:00 pm - 3:00 pm, in Room N210, Steward Observatory. **(As stated in the Schedule of Classes, there will be no deviations from the published final examination schedule. Plan your post-semester travel accordingly!)**

**Course grade:** Each of the three midterms will count 10% of the total grade. The final exam counts 20% of the total grade. Written homework will count 15% of the total grade, and the campus telescope observing project will count 15%. In-class quizzes in total will count 20%. Letter grades will be assigned based on your total percentage score as follows: A: 90% or better; B: 80% or better; C: 65% or better; D: 50% or better; E: less than 50%.

**Extra Credit:** Projects which may be completed for extra credit will be offered. Hand-outs describing the projects will be available at the lectures. Extra credit will be limited to no more than three projects during the semester. One project may be turned in on or before each of three deadline dates during the semester, as indicated in the lecture schedule below. Each extra credit project completed is worth 2.5 additional percentage points out of the total of tests and homework. Extra credit projects will be added to your total test and homework scores (as percentages of a perfect score) to determine your course grade.

**Class web site:** This course is on the **D2L** web site, which will have the lecture slides in outline form available no later than the day of the lecture. Grades will also be posted there, and other material related to the course.

**The University Code of Academic Integrity** applies to all aspects of this course. See the website: <http://deanofstudents.arizona.edu/academicintegrity>

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#### Class Schedule, Reading Assignments, and Lecture Topics

<b>Dates</b>	<b>Assignment in text</b>	<b>Lecture Topic</b>
Aug 25	Chapter 1	Introduction: Themes of this course
Aug 27, 29	Ch. 2	The visible sky ( <b>meet at Flandrau Planetarium both days--northeast corner of Cherry Ave. and the mall</b> )
Sep 3, 5, 8	Ch. 3	Early history of astronomy; Copernicus, Kepler, Galileo
Sep 10, 12	Ch. 4	Newton's universal physics
Sep 15, 17	Ch. 5	Light and Matter; Telescopes and other tools of astronomers
Sep 19	Chs. 1 - 5	<b>Midterm #1</b>
Sep 22, 24	Ch. 6.1, Ch. 7	Intro. to our solar system; the terrestrial planets
Sep 26, 29	Ch. 8	Jupiter, Saturn, Uranus, Neptune
Oct 1, 3	Ch. 9	Pluto, TNOs
Oct 6	Ch. 9 (cont.)	Asteroids, Meteors, Comets
Oct 8	Ch. 6.2-6.5	Formation of our Solar system
Oct 10	Ch. 10	Other solar systems ( <b>Extra Credit #1 due</b> )
Oct 13	Chs 6 - 10	<b>Midterm #2</b>
Oct 15, 17	Ch. 11	The Sun
Oct 20, 22	Ch. 12	Stars: properties and patterns
Oct 24, 27	Ch. 13	How stars form and grow old
Oct 29	Ch. 14	How stars die
Oct 31, Nov 3	Ch. 14 (cont.)	White dwarfs, neutron stars and pulsars
Nov 5	Ch. 14.3	Black holes ( <b>Extra Credit #2 due</b> )
Nov 7	Chs. 11 - 14	<b>Midterm #3</b>
Nov 10, 12	Ch. 15	The Milky Way
Nov 14, 17	Ch. 16.1-16.3	The Universe of Galaxies
Nov 19, 21	Ch. 16.4	Quasars and other monsters
Nov 24, 26	Ch. 17	The Big Bang
Dec 1, 3, 5	Ch. 18	Cosmology: Dark Matter, Dark Energy, Cosmic Structure
Dec 8	Ch. 19	Life in the Universe
Dec 10	Ch. 19 (cont.)	more on Life in the Universe ( <b>Extra Credit #3 due</b> )

**Students with Disabilities:** If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (621-3268; [drc.arizona.edu](http://drc.arizona.edu)) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.