

SYLLABUS
VISIONS OF THE UNIVERSE
ISP 205, SECTION 101, SUMMER 2008
TuTh, 12:40-3:30PM, Room 136 Chemistry Bldg.

The Integrative Studies courses are intended to illustrate and explore the methods, results, and limitations of scientific inquiry. ISP 205 uses astronomy as the science example. It takes non-science majors through an outline of what we do (and don't) know about the universe on size scales from planets on up, and of what sorts of thinking has led us to these concepts. Major topics will include the scientific method, the laws of physics, the solar system, galaxies, and cosmology (the overall structure and evolution of the universe). Simple algebraic equations will be used.

Instructors:

Professor Jack Baldwin, Room 3270 Biomedical Physical Sciences Bldg. (BPS),
Phone (517) 884-5611 (baldwin@pa.msu.edu)
Office hours: 11-12 Tuesday or by appointment.

Professor Arunav Kundu, Room 3215 Biomedical Physical Sciences Bldg. (BPS),
Phone (517) 884-5609 (kundu@msu.edu)
Office hours: by appointment.

Web site: <http://www.pa.msu.edu/courses/isp205> contains a copy of this syllabus plus some useful links, and will hold announcements, grade curves, etc in the future.

Text: "THE ESSENTIAL COSMIC PERSPECTIVE (4th EDITION)" by Bennett, Donahue, Schneider & Voit.

Clickers: You must have an "i-Clicker" brand clicker. You should immediately register your clicker ID number at www.iclicker.com/registration; when filling out the form at that website, enter your MSU net ID (the part of your MSU email address before "@msu.edu") where you are asked for "Student ID". Then always bring the clicker to class with you. You should use only your own clicker, and nobody else should use your clicker for you.

In-class questions: Multiple-choice questions will be asked from time to time in class. You will answer them with your clicker. The goals are to encourage you to pay attention and to take decent notes, as well as for us to find out if we are getting the information across to you. Starting with the second week, you should always have a working clicker with you in class. It will *not* be possible to make up these questions if you miss the class in which they are asked, but we will drop your lowest two scores, plus sessions missed due to certified (note from doctor) medical emergencies, or for religious holidays for which you have given us advance notice.

Homework. There will be 7 homework assignments, which you will complete using the web-based ANGEL system (www.angel.msu.edu). Their due dates are listed on the reverse side of this sheet. We do not accept late homework assignments.

Midterms: 2 Midterms, each for the first hour of class, on May 22 and June 10.

Final exam: The final exam will be held on the last day of class, which is Thursday June 26. About 2/3 of the questions will be from the material covered after the third midterm, but the other 1/3 will cover the rest (first 2 parts) of the course.

Grading system: Homework: 5%. In-class questions: 5%. Each midterm: 25%. Final exam: 40%. **The final course grade will then be based on a to-be-determined curve.** But the following grade scale is a guaranteed worst-case: 0.0 - 0.0% to 47.5%, 1.0 - 47.5% to 55.0%, 1.5 - 55.0% to 62.0%, 2.0 - 62.0% to 68.0%, 2.5 - 68.0% to 76.0%, 3.0 - 76.0% to 83.0%, 3.5 - 83.0% to 90.0%, 4.0 - 90.0% and above.

The actual scale may change from these values, but if so it will only be in the direction of you needing a smaller score to earn the same grade. For example, you are guaranteed to get a 4.0 if your score is above 90%, no matter what.

Academic Integrity. *Exams:* closed-book, closed-notes, no cell-phones, calculators or other electronic devices permitted, no talking, eyes on your own work only. Bring photo-ID to all exams. *Homework:* it's OK to get help from others, but it should be you sitting at your computer typing in the answers. *In-class Questions:* You are encouraged to talk with your neighbors about the answers, but nobody else is permitted to click in an answer for you. Nor you for anybody else. *Failure to meet these standards:* Grade 0.0 for assignment/exam in question, or possibly for entire course depending on circumstances.

APPROXIMATE COURSE SCHEDULE

VISIONS OF THE UNIVERSE

ISP 205, SECTION 101, SUMMER 2008

This schedule is subject to change.

Chapter numbers from the text are indicated in square brackets.... [8] means the material is covered in chapter 8 of the textbook, [2.4] means it is covered in section 2.4, etc. The midterms and final will be on the material actually covered in the lectures, but the lectures usually will be on material found in the book.

1. Background: The Laws of Physics.

May 13. The size of the Universe. [1] The laws of motion: Epicycles [2.4]; Ptolemy, Copernicus, Kepler [3.1 → 3.3]. The scientific method, “laws” in physics, [3.4].

May 15. The laws of motion: Newton [4]. Radiation and spectra [5].

May 20. Radiation and spectra [5]. Telescopes [5]

May 22. MIDTERM (1st hour)

2. The Solar System.

May 22. The solar system [6.1].

May 27. Earth as a planet, The Moon, Mercury, Venus, Mars [7].

May 29. The giant planets (Jupiter, Saturn, Uranus, Neptune). Moons and rings [8].

June 3. Comets, asteroids and Pluto [9]. The origin of the Solar System [6.2→6.4].

June 5. Planets around other stars [6.5]. Search for life elsewhere [18].

June 10. MIDTERM (1st hour)

3. Stars, Galaxies and the Universe.

June 10. The Sun: an example of a star [10].

June 12. Stellar evolution summary (draws from [11,12,13]). Our Galaxy (the Milky Way) [14]

June 17. Other galaxies, evolution of galaxies [15].

June 19. Cosmology... the nature and evolution of the universe [16,17].

June 24. Cosmology (continued)

June 26. REVIEW,

THEN FINAL EXAM STARTS AT 2PM

Homework Due Dates

Each homework assignment must be *submitted* on Angel by the following due date/time. **No assignments will be accepted late.** But you can do them early, and repeat them as many times as you want up until the due date. Your highest score on each assignment will be used for computing your grade.

Homework 1. Due by **Friday May 16** late at night (actually, by 3AM on May 17).

Homework 2. Due by **Tuesday May 20** late at night (actually, by 3AM on May 21).

Homework 3. Due by **Friday May 30** late at night (actually, by 3AM on May 31).

Homework 4. Due by **Sunday June 8** late at night (actually, by 3AM on June 9).

Homework 5. Due by **Friday June 13** late at night (actually, by 3AM on June 14).

Homework 6. Due by **Friday June 20** late at night (actually, by 3AM on June 21).

Homework 7. Due by **Tuesday June 24** late at night (actually, by 3AM on June 25).