AST300B Radiation & Matter
SPRING 2016 Syllabus

Instructor: Dr. Yancy Shirley **Phone: 626-3666**
yshirley@email.arizona.edu (*include "AST300B" in title*)
Office Hours: Th 3-4, Fr 1:30-2:30 or by appointment
N310 Steward Observatory

This is an Astronomy Majors class studying the physical processes that emit, absorb, and scatter light in the context of the physics of the interstellar medium. A goal of this class is to prepare students for a graduate course in radiative processes. Topic we shall cover in this class include: the basics of radiative transfer; continuum emission processes due to dust emission/absorption, free-free emission, and synchrotron emission; basic statistical mechanics (Boltzmann Equation) for bound states; atomic ionization and recombination, electronic transitions, and hyperfine transitions; molecular rotational and vibrational transitions; and nuclear transitions. It is expected that students have completed or are currently taking PHYS 331 (E&M I) and PHYS 371 (Quantum Mechanics I). The reference textbook for the course is **Astrophysics – Decoding the Cosmos** by Judith A. Irwin.

The course webpage is
http://eldora.as.arizona.edu:/~yshirley/Arizona/AST300B/
Please check the webpage for weekly reading assignments

Your grade in this course will depend on your performance on the homeworks (65% of total) and exams (35% of total). Exams are closed-note and no calculators are allowed. Exams are cumulative in content. Your lowest homework and your lowest exam will be discarded in the calculation of the final grade. There will be no extra credit. **No late homeworks will be accepted. Assignments are due at the beginning of class. No makeup exams with no exceptions. If you miss an exam, it will count as your lowest (dropped) exam.** The final grades may be curved. The maximum scale is set at: A(>90%), B(>75%), C(>60%), D(>50%).

POLICIES:

- Do your own work. Modern science is a collaborative, and people learn from talking to each other. Feel free to talk to the instructor, TA, or other students about homework assignments. But the work you turn in must be your own -- **don't just copy assignments**. Copying is cheating and will be handled according to the university policies. The instructor subscribes to the University's Code of Academic Integrity (http://deanofstudents.arizona.edu/academicintegrity). **The Code prohibits all forms of academic dishonesty, including cheating, plagiarism, and facilitating dishonesty by others. The repercussions for those found guilty of violating the Code will include loss of credit for the work and may include failure of the course or more extreme measures.**

- Attendance, participation, and conduct. Attendance and participation in class are important -- especially as the exam material will be drawn from the lectures, and only supplemented from the textbook. ***You are strongly encouraged to participate in class by asking questions.*** Please be courteous to your fellow classmates: please turn off cell phones; don't surf the Internet in class, etc.
- Grading. You have one week from the time an assignment or exam is returned to challenge any perceived errors. The exception is for the 4th exam- final grades will be submitted on May 11th.
- 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 or email drc.arizona.edu) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

IMPORTANT DATES (Subject to change – check course webpage)

Feb 08	EXAM #1
Mar 11	EXAM #2
Apr 08	EXAM #3
May 10	EXAM #4 (During final exam time slot 3:30pm)