

# ASTRONOMY 2801A: Stars, Galaxies & Cosmology

## 2009-2010: fall term

### General Information:

- **Lectures:**  
Tuesday 9.30-11.30am and Thursday 9.30-10.30am; Rm 34 PAB
- **Instructor:**  
Prof. Els Peeters  
Rm 213 PAB  
phone: 661-2111 ext. 80973  
e-mail: epeeters-at-uwo.ca
- **Office Hours:**  
Tuesday 2-3pm or by appointment.
- **Teaching assistants:**  
Wolf Dapp  
Rm 213A PAB  
  
Talayeh Hezareh  
Rm 207 PAB
- **Course website:**  
WebCT OWL: <http://owl.uwo.ca>
- **Course email:**  
a2801-at-astro.uwo.ca
- **Required textbook:**  
“Foundations of astrophysics” by B. Ryden & B. Peterson (Pearson Addison-Wesley, 2009). The textbook is on reserve in the Allyn & Betty Taylor library.

### Course Description:

- **Calendar description:**  
The sun; stars, including distances, magnitude scale, interiors and evolution; binary stars; white dwarfs, neutron stars, and black holes; supernovae; the Milky Way Galaxy; the interstellar medium; external galaxies; Hubble’s Law; large-scale structure of the universe; the Big Bang, and the early universe.
- **Prerequisite/Antirequisite:**  
Antirequisite(s): The former Astronomy 020.  
Prerequisite(s): Physics 1020 or 1024 or 1026 or the former 025; Calculus 1000A/B or 1100A/B, and 1501A/B (or 1301A/B with a minimum mark of 85%).  
**Note.** It is your responsibility to make sure you either comply with the antirequisites/prerequisites for this course or to have written special permission from your Dean to enroll in it. If not, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to comply with the antirequisites/prerequisites.

- **Course Outline:**

- Interaction of radiation and matter
- The Sun
- Properties of stars
- Stellar atmospheres
- Stellar Interiors
- The interstellar medium
- Formation and evolution of stars
- Stellar remnants
- Our Galaxy
- Galaxies
- Active galaxies
- Clusters and superclusters
- Cosmology
- History of the Universe

Course content may vary.

- **Mark distribution:**

- Assignments (5): 20%
- Midterm test: 20%
- Final exam: 50%
- Term report: 10%

- **Description of examinations:**

- One 2-hour midterm (short answers, essays and problems; closed book)
- One 3-hour final (short answers, essays and problems; cumulative; closed book)

## Course Calendar/Schedule

- Assignment due dates will be announced in class.
- Midterm: Oct. 20 during class hours in Rm 34 PAB.
- Term report: Nov. 12
- Final exam: during the December exam period. Details to be announced.
- Last day to drop this course: October 15
- Last day to add this course: September 18

## Course policies & friendly reminders from UWO:

- **Assignments:** Assignments must be turned in at the requested date *in class* unless notified otherwise on the assignment handout. Remember that clarity is essential for getting partial or full credit for problems. Please show all steps leading to your final answer. Answer the questions in the order assigned. Finally, remember to include the appropriate units for any numerical answer and take care of the significant digits.

- **Missed assignments:** A student may miss an assignment due date *once* during the semester, and hand in the late assignment during the following class without incurring any penalty. Otherwise, there is no grace period. You will receive a mark of zero.

Because this schedule allows you to delay an assignment temporarily, no make-up assignments will be provided. If you are ill for an extended period of time, you must provide documentation to the Associate Dean, Faculty of Science as soon as possible.

- **Term report:** The term report must be submitted by hardcopy *in class* and electronically through WebCT.

- **Missed term report:** There is no grace period. You will receive a mark of zero.

- **Calculator:** A basic scientific calculator (e.g. the Sharp EL-510RB calculator used for first year physics courses) is allowed during the exams.

- **Missed mid-term exam:** Documentation must be provided to the academic counselors in your faculty in order for you to receive permission to write a make-up exam (see item on medical or other serious circumstances below). If you miss the make-up, again documentation must be provided in order for you to obtain a new evaluation scheme as follows: assignments - 20%; term report - 10%; final exam - 70 %.

- **Missed final exam:** Documentation must be provided to the academic counselors in your faculty in order for you to receive permission to write a make-up (see item on medical or other serious circumstances below). If you miss the make-up, again documentation must be provided in order to receive permission to write the exam at the next sitting of this course's final exam (typically one year later).

- **Medical or other serious circumstances:** If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the academic counselors in your faculty as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a Recommendation of Special Examination form must be obtained from the Deans office immediately. For further information please see:  
<http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>.

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Deans Office) for visits to Student Health Services. The form can be found here:

[https://studentservices.uwo.ca/secure/medical\\_document.pdf](https://studentservices.uwo.ca/secure/medical_document.pdf).

- **E-mail:** When sending an e-mail, please use your UWO account to make sure your message is not treated (i.e. deleted) as spam. If you want your message to be read, use only the course e-mail address (listed above); i.e. do not use our personal e-mail addresses at Western. Please allow 2-3 working days for a response.

- **Course Website:** The course website will be the only medium where course materials are distributed, where announcements are made, where you can access your marks for various components of this course. It is your responsibility to check the course website frequently.

- **Classroom Conduct:** Disruptive behavior will not be tolerated in class or on the course website. Please respect the rights of your classmates to benefit from the lecture by limiting your conversations to those essential to the class. Students who persist in loud, rude or otherwise disruptive behavior will be asked to leave.

- **Academic misconduct:**

**Cheating:** University policy states that cheating is a scholastic offense which can result in an academic penalty (which may include expulsion from the program). If you are caught cheating, there will be no second warning. Cheating includes having available any electronic devices other than an approved calculator. You may not have a cell phone accessible during tests or exams, even to use it as a calculator. Complete information on the University policies on academic offenses can be found in the Undergraduate section of this document: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>. Computer-marked multiple-choice exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

**Plagiarism:** Students must write their essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing (such as footnotes or citations). Plagiarism is a major academic offense.

Scholastic offenses are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offense, at the following website: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

- **Religious holidays:** A student who, due to unavoidable conflicts with religious holidays which (a) require an absence from the University or (b) prohibit or require certain activities (i.e., activities that would make it impossible for the student to satisfy the academic requirements scheduled on the day(s) involved), is unable to write examinations and term tests on a Sabbath or Holy Day in a particular term shall give notice of this fact in writing to his or her Dean as early as possible but not later than November 15th for mid-year examinations i.e., approximately two weeks after the posting of the mid-year examination schedule respectively. In the case of mid-term tests, such notification is to be given in writing to the instructor within 48 hours of the announcement of the date of the mid-term test. The instructor(s) in the case of mid-term tests and the dean in the case of mid-year final examinations will arrange for special examination(s) to be written at another time. In the case of mid-year final examinations, the accommodation must occur no later than one month after the end of the examination period involved. It is mandatory that students seeking accommodations under this policy give notification before the deadlines, and that the Faculty accommodate these requests. The list of approved dates is given in <http://www.uwo.ca/equity/docs/mfcalendar.htm>.

## Advice for successful performance:

Read your textbook. Follow the course outline, and read the relevant chapters once ahead of time. You don't need to follow all the details in this reading. After we have covered the material in class, read the chapter again more carefully. You must work out the problem sets to succeed in this course. Merely attending lecture and reading the textbook will not do it! In addition, there are many unassigned problems in your textbook. If you encounter difficulties in doing the problems, ask your fellow students, the TAs or the instructor for help.