

# ASTRONOMY 2801A: Stars, Galaxies & Cosmology

## 2013-2014: fall term

### General Information:

- **Lectures:**  
Tuesday 9.30-11.30am and Thursday 9.30-10.30am; Rm 117 PAB
- **Instructor:**  
Prof. Els Peeters  
Rm 206 PAB  
phone: 661-2111 ext. 80973  
epeeters [at] uwo.ca
- **Office Hours:**  
By appointment (set up by email or before/after class).
- **Teaching assistant:**  
Matt Shannon, Rm 312 PAB
- **Course website:**  
Sakai: <http://owl.uwo.ca>  
  
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.
- **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.
- **Prerequisites**  
(Physics 1028A/B or 1301A/B or 1401A/B or 1501A/B) and (Physics 1029A/B or 1302A/B or 1402A/B or 1502A/B), or the former Physics 1020 or 1024 or 1026; Calculus 1000A/B or 1100A/B, and Calculus 1501A/B (or Calculus 1301A/B with a minimum mark of 85%).
- **Note.** Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, 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 have the necessary prerequisites.

- **Course Content:**

- 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

Adjustments to the course content may be made at any time.

- **Evaluation:** Your final grade in this course will be derived according to:

- Assignments: 30%
- Three quizzes: 30%
- Final exam: 40%

The Department of Physics and Astronomy may, in rare cases, adjust the final course marks in order to conform to Departmental policy.

In order to pass the course, you must attain a grade of at least 50% on the weighted average of the quizzes and the final exam. Unless you achieve this criterion, your maximum grade in this course will be 40%.

Grades will be posted regularly on the class WebCT site. Any errors, or appeals to your scores, must be reported to your instructor within two weeks of their initial posting.

- **Description of examinations:**

- Three 1-hour quizzes during class hours on Oct. 3, Oct. 24, Nov. 21
- One 3-hour final exam during December exam period

The quizzes and final exam are closed book and can be [a combination of] short answers, essays and problems. The final exam is cumulative.

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

- **Assignments:**

Assignments are due **in class at the beginning of class** that day. Late assignments will not be accepted and get zero. Your final grade for assignments will be based on your best 4 (out of 5) assignments. Note that since you have 1 extra assignment, there will be no opportunity for a make up assignment. It is thus in your best interest to not waste an assignment.

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.

## Course Calendar/Schedule

- Assignment due dates are Sept. 19, 26; Oct 17; Nov. 7, 28.
- Quizzes: Oct. 3, 24; Nov. 21 during class hours in Rm 117 PAB.
- Final exam: during the December exam period. Details to be announced.
- Last day to drop this course: November 5
- Last day to add this course: September 17

## Make-up policy:

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 Dean's office 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 Dean's Office immediately.

For UWO Policy on Accommodation for Medical Illness, see:

[http://www.uwo.ca/univsec/handbook/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf). A student requiring academic accommodation due to illness should use the Student Medical Certificate [see: <https://studentservices.uwo.ca/> under the Medical Documentation heading for a downloadable SMC] when visiting an off-campus medical facility, or request a Records Release Form (available in the Dean's Office) for visits to Student Health Services. Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counseling office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department.

**Travel:** Students needing to make travel arrangements are advised to book a travel date after the end of the examination period. No make up exams will be given to accommodate travel!

**Missed assignments:** The assignments grade is based on your best 4 (out of 5) assignments. Since this schedule allows you to skip one assignment without penalty, 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.

**Missed quizzes:** The Department will provide one make up test that may be written only with the permission of the Associate Dean, Faculty of Science (or the Associate Dean of your faculty). Questions for the make up quiz may be different style, type and difficulty level as the quiz in class.

**Missed final exam:** In accordance with Senate Policy, a Special Examination will be held within thirty days of the regular final examination for students who are unable to write the regular examination for medical or other documented reasons. Requests for such a Special Examination must be made to the Associate Dean, Faculty of Science. Note that if you fail to write a scheduled Special Examination, permission to write another Special Examination will be granted only with the permission of the Dean in exceptional circumstances and with appropriate supporting documents. In such a case, the date of this Special Examination normally will be the scheduled date for the final exam the next time the course is offered.

## Support Services:

Students who are in emotional/mental distress should refer to Mental Health@Western:

<http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

## **Accessibility:**

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

## **Academic misconduct:**

**Cheating:** Cheating 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 Web site: [http://www.uwo.ca/univsec/handbook/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf)

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, PDA etc. accessible during tests or exams, not even to use it as a calculator.

**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 (see Scholastic Offence Policy in the Western Academic Calendar).

## **Religious holidays:**

When scheduling unavoidably 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), no student will be penalized for absence because of religious reasons, and alternative means will be sought for satisfying the academic requirements involved. If a suitable arrangement cannot be worked out between the student and instructor involved, they should consult the appropriate department chair and, if necessary, the student's Dean. It is the responsibility of such students to inform themselves concerning the work done in classes from which they are absent and to take appropriate action. A student who, for either of the situations outlined in paragraph one above (a or b), 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 15 for mid-year examinations and March 1 for final examinations, i.e., approximately two weeks after the posting of the mid-year and final 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. If a Special Examination is offered as an alternative means to satisfy the academic requirements, the instructor(s) in the case of mid-term tests and the dean in the case of mid-year and Spring final examinations will arrange for special examination(s) to be written at another time. In the case of mid-year and Spring 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. For purposes of this policy the University has approved a list of dates which are recognized religious holidays which require members of those religions to be absent from the University; this list is updated annually and is available at Departmental, Deans' and Faculty advising offices.

## **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.

### **Complaints and Suggestions:**

If you have a concern about something, please let us know. We rely on your feedback. Please contact initially the person most directly concerned; this will usually be your instructor. If that is not satisfactory, or if there is something more general bothering you, talk it over with the Physics & Astronomy Department Chair or the Associate Chair of Undergraduate Studies (for contact information see <http://www.physics.uwo.ca>).

### **Contacting us:**

The simplest way to contact us outside of lectures is via your UWO e-mail account. Please allow 2–3 working days for a response.

### **Advice for successful performance:**

To succeed in this course, you must be able to autonomously solve problem sets related to the course material. The best way to achieve this is to be prepared for lectures by reading up in the textbook; to actively participate in lectures and ask questions; to work out the many unassigned problems in the textbook; to work seriously on the assignments; and to ask for help as soon as you encounter even the slightest difficulty. Your classmates are a good first point of contact, but you should not hesitate to contact the TA or the instructor for help.