Winter 2013
Science 238: Introductory Astronomy
https://learn.uwaterloo.ca/
http://www.masteringastronomy.com/ [course ID: UWSCI238WINTER2013]

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TA Office hours: Mon 1-2, Fri 11-12

Lectures: Tue/Thu 2:30-3:50 @ PHY 145

Required Text: The Cosmic Perspective (6th Ed.) by Bennett, Donahue, Schneider & Voit

Course Description: A survey course in Astronomy intended primarily for Mathematics, Engineering, and Science students, but also accessible to interested students in other programs. Topics covered will include early astronomy, motions in the sky, planetary systems, modern physics of light and matter, properties of stars and stellar evolution, the Milky Way galaxy, other galaxies, the nature of the universe (see below for a more detailed outline). It will involve a combination of powerpoint and chalkboard presentations. [Antireq. : PHY 175]

Course Learning Objectives:

1) We are a part of the universe and thus can learn about our origins by studying the universe.
2) The universe is comprehensible through scientific principles that anyone can understand.
3) Science is not a body of facts but rather a process through which we seek to understand the world around us.
4) A course in astronomy is the beginning of a lifelong learning experience.
5) Astronomy affects each of us personally with the new perspectives it offers.

Other Materials: Lectures, supplementary notes, tutorials, and assignments will be posted on the Mastering Astronomy webpage, linked above. However, you have to purchase access to this website (if it is not already included with your textbook), in order to be able to complete assignments. Check the site once a week for announcements and updates.

Weekly Assignments: are due every Tuesday @ 2:30pm EST. They are to be filled out on the masteringastronomy.com website, and become available 7 days prior to their due date. Note that assignments CANNOT be submitted after their due times.

Grading: The final grade in the course will be based on 12 online assignments, a midterm and a final exam. Assignments will be posted on the Mastering Astronomy webpage a week in advance, and solutions will become available after the due time. The midterm will be held in the 7th week of class. The final exam will be during April 11th-25th.
period, and will be set by the 6th week of the semester. The final grade will be
determined using the following scheme:

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<tr>
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<th>Percentage</th>
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<tbody>
<tr>
<td>Online Assignments</td>
<td>40%</td>
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<tr>
<td>Midterm I</td>
<td>30%</td>
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<tr>
<td>Final Exam</td>
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<td><strong>Total</strong></td>
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Up-To-Date schedule of the course (lectures/assignments/exams) can be found at: [https://www.dropbox.com/s/toptf28blvqx88i/Schedule.pdf](https://www.dropbox.com/s/toptf28blvqx88i/Schedule.pdf)
(Don't forget to refresh your browser to get the latest version)

Outline of the Course Lectures:

1) Our Place in the Universe
2) Discovering the Universe for Yourself
3) The Science of Astronomy
4) Motion, Energy, and Gravity
5) Light and Matter
6) Telescopes
7) Our Planetary System
8) Other Planetary Systems
9) Life in the Universe?
10) Space and Time
11) Spacetime and Gravity
12) Quantum Universe
13) The Sun
14) Surveying the Stars
15) Star Formation
16) Stellar Evolution
17) Bizarre Stellar Graveyard I
18) Bizarre Stellar Graveyard II
19) Our Galaxy
20) Galaxies and Modern Cosmology I
21) Galaxies and Modern Cosmology II
22) Galaxy Evolution
23) Dark Universe, and its Fate
24) The Big Bang

**Work expected:** Students are expected to attend lectures, complete assigned readings,
work through the weekly online assignments, and sit the mid-term and the final. No
exceptions to these requirements will generally be made in cases where students miss
classes or do not complete assignments. The general workload for the course should be
(on average) 3 hours of lectures, 3 hours of reading, and 3 hours of online assignments,
plus additional study time for exams. Students should also check the course website
regularly for course announcements.

**Group Work/Discussion of Results:** Collaboration and/or discussion with other
students are allowed on assignments. Online assignments must, nonetheless be
completed individually by each student, using his/her own account.
No form of collaboration, copying, or discussion is allowed on the final examination, nor on the mid-term. However, pink tie calculators, as well as textbook/notes can be used in the exams.

Examinations: Attendance at examinations is mandatory, and exams will not generally be rescheduled, except in cases of severe illness or personal trauma. Student travel plans are not considered acceptable grounds for granting an alternative examination time. Any medical exceptions must be documented by a signed medical note from a doctor or clinic, indicating the date and severity of the illness, and will only be accepted at the instructor’s discretion. Exams will not be excused for minor complaints. Students with chronic health problems should consult with the Office of Disabilities for alternate exam arrangements.

Please be aware that that starting with the Winter 2013 term, only Verification of Illness forms (VIF’s) issued from our campus Health Services (https://uwwaterloo.ca/health-services/) will be acceptable documentation when the service is available (https://uwwaterloo.ca/health-services/student-medical-clinic/hours). Obviously a student who is sick on a weekend, during off-hours, while out of town or receiving ongoing care from a family physician or specialist may have to provide valid and suitably informative VIF from other health service providers. Information should include: 1) date of the physician assessment, 2) dates of illness, 3) level of incapacitation, and 4) whether the diagnosis was made by the physician or based on description by the student. You must register the VIF at the Science Undergraduate Office.

Drop-dates: Students concerned about the level of the course, course requirements, or their performance should keep in mind cut-off dates for dropping courses without penalty. Please check these with the undergraduate advisor or the Faculty of Science office: http://ugradcalendar.uwaterloo.ca/page/uWaterloo-Calendar-Events-and-Academic-Deadlines

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check http://www.uwaterloo.ca/academicintegrity/ for more information.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department’s administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline,

**Appeals:** A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals, http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

**Note for students with disabilities:** The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.