PHYS475 F11
Astrophysics III: Galaxies and Cosmology
https://uwangel.uwaterloo.ca

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Lectures: TR 2:00-3:30, third week of September-first week of December

Text: *Introduction to Cosmology* by Barbara Ryden  
(A copy is on reserve at the library, but I strongly recommend buying your own.) This text covers introductory cosmology at a fairly approachable level. I will supplement the material on galaxies with slides.

Other Materials: Lecture slides, supplementary notes and assignments will be posted on the course web page listed above, in the “Lessons” folder. Only students registered in the course will be able to see this material. Check the site at least once a week for announcements and updates.

Course Assignments and Grading: The final grade in the course will be based on weekly work (~7 short assignments), two quizzes, and a final exam. Assignments will be posted on the webpage a week or more in advance, and solutions will be provided after the due date. The quizzes will be held on approximately the 5th and 10th weeks of class. Grading will be based on whichever of the following options produces the higher mark individually:

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<tr>
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<th>Option 1</th>
<th>Option 2</th>
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<tbody>
<tr>
<td>Assignments</td>
<td>30%</td>
<td>30%</td>
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<tr>
<td>Quizzes (2)</td>
<td>30% (15% each)</td>
<td>10% (5% each)</td>
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<tr>
<td>Final Exam</td>
<td>40%</td>
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<td><strong>Total</strong></td>
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Course Outline:

1. The Nature of the Universe around us: Fundamental Observations  
   [2 lectures] text: chapter 1-2 + slides
2. Describing the Geometry of the Universe [2 lectures] text: chapter 3
3. Describing the Evolution of the Universe [2 lectures] text: chapter 4
4. Some Simple Examples: [4 lectures] text: chapters 5-6

7. Galaxy Properties; The Origin of Galaxies [~3 lectures] supplementary slides
8. Physics of the Late Universe: dark matter, gravitational lensing, the formation of structure [~4 lectures] text: chapters 8,12
The Fine Print:
The following rules will be repeated and clarified in class as the need arises.

Work expected: Students are expected to attend lectures, complete assigned readings, complete and submit assignments, and sit the mid-term and/or quizzes and the final. No exceptions to these requirements will generally be made in cases where students miss classes or do not complete assignments. The workload for the course should be roughly 3 hours of lectures, 2-3 hours of reading and 2-3 hours of other work (assignments/review) a week.
Students should also check the course web-site regularly for course announcements.

Group Work/Discussion of Results:

* Collaboration and/or discussion with other students is allowed on assignments. Assignments must nonetheless be written up individually; direct and/or un-attributed copies of other student’s work (or material from any other un-attributed sources) are not acceptable.

* No form of collaboration, copying, discussion nor use of notes or aids other than those provided with the test booklet is allowed on the final examination nor on the mid-term.

Graded Assignments: Graded assignments will be handed back in class. Uncollected assignments will generally be kept for 1-2 months after the end of the course, but no longer (exams are kept for longer, as per faculty requirements)

Examinations: Attendance at examinations is mandatory, and exams will not generally be rescheduled, except in cases of severe illness or personal trauma. 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.

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.