PHYSICS 270: Astronomical Observations, Instrumentation and Data Analysis
(Mon., Wed., 10:00 – 11:30 in DWE 1502)
NO CLASS MONDAY MAY 25 and WEDNESDAY MAY 27

This is a general and broad introduction to observational astronomy. It is not meant to provide an in-depth study of any one aspect of this topic: e.g. CCD cameras or data-analysis software.

Instructor: Mike Fich
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Office: 255 Physics (ext 32725)
Office Hours: Tues. 3:00 - 4:30pm (or by appointment at other times)
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Textbook: Measuring the Universe by G. Rieke
Additional materials will be posted on course webpage on UW Learn

PHYS270L: the lab course companion to this course is compulsory for all students, but is graded separately. Tues, Wed., or Thurs 7 – 10 pm, PHYS 321, starts May 12/13/14.

Grading: Assignments = 30%, Midterm = 30%, Final Exam = 40%
OR: Assignments = 15%, Midterm = 15%, Final Exam = 70%
(whichever gives the better grade)

There will be five assignments in this course: due dates (subject to change): May 13, June 3, June 17, July 8, July 22. Note that overdue assignments are accepted, but only until the moment when solutions are posted (expected no more than one week after stated due date, but could be sooner – if you are going to be late handing in an assignment it is your responsibility to determine the cut-off time and submit before then).

MIDTERM EXAM: June 24 in class

Course Outline (# lectures is approximate)

Calendar description: Telescopes, instrumentation and observations at different wavelengths (radio, sub-millimetre, infrared, optical, X-ray). Probability and statistics. Data archives and data analysis.

1) Properties of light, Telescopes (3 lectures)
2) Instruments, Detectors, CCDs, spectroscopy - prism, grating, echelle, FTS, Fabry-Perot, heterodyne, interferometry (4 lectures)
3) Observing (4 lectures)
4) Statistics (4 lectures)
5) Data Analysis (4 lectures)
6) Data archives and Project management (1 lecture)

Revised: 28 April, 2015
**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.

**Grievance:** Students, who believe that a decision affecting some aspect of their university life has been unfair or unreasonable, may have grounds for initiating a grievance. Students should read Policy #70, Student Petitions and Grievances, Section 4. When in doubt, students must contact the department's/school's administrative assistant who will provide further assistance.

** Discipline:** Students are expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about ‘rules’ for group work/collaboration should seek guidance from the course instructor, academic advisor, or the Associate Dean of Science for Undergraduate Studies. For information on categories of offenses and types of penalties, students should refer to Policy #71, Student Discipline. For information on typical penalties, students should check Guidelines for the Assessment of Penalties.

**Appeals:** A decision or penalty imposed under Policy 33 (Ethical Behavior), Policy #70 (Student Petitions and Grievances) or Policy #71 (Student Discipline) may be appealed, if there is a ground. Students, who believe they have a ground for an appeal, should refer to Policy #72 (Student Appeals).