

PHYS 2070 Observational Astronomy 2011-2012

- Course Website:** <http://www.umanitoba.ca/faculties/science/astronomy/jwest/>
<http://www.umanitoba.ca/angel>
- Instructor:** Jennifer West
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- Observatory director:** Ian Cameron
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- Class times:** Tuesday & Thursday 19:00 to 22:00
- Location:** 385 University College, Machray Hall Computer Lab (Room 111), and Glenlea Astronomical Observatory. In general, all clear nights will be spent at the observatory. Cloudy nights will be spent in the classroom, computer lab, or occasionally the planetarium.
- Office Hours:** Thursdays 2:30-3:30 or by appointment
- Course description:** Students will undertake a project on galaxies or nebulae using the University of Manitoba's Astronomical Observatory at Glenlea. There will be several small observing projects throughout the year, one major project and two term tests. For the major project, students will learn to use the 40 cm telescope at Glenlea and will acquire their own data with the instrument. The data will be analyzed and presented both orally and in the form of a website.
- Textbook:** *2011 Observer's Handbook*
2012 Observer's Handbook (available in late November)
To Measure the Sky, Frederick R. Chromey
- Supplemental texts:** *Observational Astronomy*, 2nd Edition, D. Scott Birney, Guillermo Gonzalez, David Oesper
Observing the Universe, Edited by Andrew J. Norton
- The following are intended as reference texts:
Digital Image Processing, 2nd Ed., Gonzalez and Woods
Introductory Astronomy & Astrophysics, 4th Ed., Zeilik & Gregory
- Planetarium software such as "Stellarium" (free), "Starry Night" (recommended), or other similar program
- Required materials:** Hardcover Observing Logbook (Black Physics Lab Book is ideal; should have blank pages for sketches, graph paper for graphs, and lined paper for notes)
Pencil and eraser
Valid, reliable email address (preferably a UofM email address)
Clothing that is appropriate for cold weather
Flashlight with red filter (red balloons or red nail polish work well as filters; alternatively use a red LED flashlight) + extra batteries

Academic Integrity:

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offenses and may assess a variety of penalties depending on the nature of the offense. Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science web-page:

<http://umanitoba.ca/faculties/science/student/webdisciplinedocuments.html>

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.

Evaluation:

<i>Personal Logbook</i>	25%
<i>Assignments and Oral Presentations</i>	20%
<i>Tests</i>	25%
<i>Final Project</i>	30%

There will be two term tests, one near the end of each of the Fall and Winter terms. There will also be a practical component on using the observatory equipment. In the event of unusually poor weather, the mark distribution may be altered to give more weight to tests and assignments.

Policy on late assignments:

10% will be deducted for each day that an assignment is late. There will be **no make-up** for missed observing sessions/assignments. Please check your schedule for possible exam conflicts in other courses and notify me immediately.

Course Outline:

1. Light and its measurement (Chapters 1 & 2)
 - a. properties of light
 - b. quantifying light: magnitude system
 - c. uncertainty in measurement
2. Place, time, and motion (Chapter 3)
 - a. astronomical coordinate systems
 - b. units in astronomy
 - c. time systems
 - d. space motions
3. Names, catalogs, and databases (Chapter 4)
 - a. star names
 - b. catalogues of other objects
 - c. catalogues at other wavelengths
 - d. computer resources
4. Instruments (Chapters 5-8)
 - a. telescopes and optical systems
 - b. detectors
 - c. noise
5. Digital Images (Chapter 9)
 - a. digital image processing
 - b. data reduction
 - c. noise in images
6. Interpretations (Chapter 10 & 11)
 - a. photometry
 - b. atmospheric effects
 - c. spectroscopy
 - d. topics as time and interest allow... personal research for your projects!

Computer accounts

All PHYS 2070 students must claim computer accounts on the University of Manitoba central system. **Both UMnetID and INS** accounts are required. These accounts are required for accessing Angel, email, and creating webpages. Some classes will take place in the open area computer labs and an INS account is required to login to those machines.

All students are required to have a reliable email account that is checked regularly. All students have been subscribed to the class mailing list, class-16-207 using your University of Manitoba "cc" email account. The mail list is used primarily to communicate observing announcements, and to ask and obtain answers to questions, etc. You may subscribe to the mailing list with (an) additional email address(es) or forward the email from your "cc" account. You may only send mail to the list from a registered account.

NOTE: It is preferred that you use your University of Manitoba "cc" email account for this course as announcements regarding observing and class location are often time critical. Web based email clients such as hotmail, yahoo, and even gmail can be unreliable at times and the mail delivery times are sometimes slow. Any email missed due to the fault of a web service other than the University of Manitoba is the responsibility of the student.

Using ClaimID

To access your university computer accounts, you must first use "ClaimID". ClaimID can be accessed via the following webpage: <http://www.umanitoba.ca/claimid>

You will need your student number and you must have your fee payment completed and processed by the University.

Subscribing (or unsubscribing) to the class-16-207 mailing list for using an alternate email address

Go to:

<http://lists.umanitoba.ca/mailman/listinfo/class-16-207>

There is a section on the page for subscribing to the list. Fill in the form with your e-mail address, your desired subscription password, and confirmation of that password. After filling in this form, click the "Subscribe" button. You will then be shown a page with the status of the subscription attempt. E-mail will also be sent.

Angel

Angel is used in this course for posting grades, lecture notes, and other class related materials. To login to Angel, visit the following webpage: <http://www.umanitoba.ca/angel>

You will need your UMnetID and password to access Angel

Library Account

You will need to use your library account to access e-Journals and other materials. Please visit the libraries web page or speak to someone in the library for more information on your library account

<http://umanitoba.ca/libraries/>