

Astronomy 405: Introduction to cosmology

Section A01, Spring 2015

Jon Willis, Elliot 211, Tel. 721-7740, email: jwillis@uvic.ca

Website for lecture notes and assignments: <http://www.astro.uvic.ca/~jwillis/teaching/teaching.html>

Lectures: Location MacLaurin D114, Monday and Thursday 10.00 – 11.30am.

Office hours: Monday 2.00pm – 3.00pm.

Course text: Introduction to cosmology by Barbara Ryden. See over for additional reading.

Course outline:

Topic	Description	Textbook
1	A mathematical model of the universe	Chapters 3 to 6 inclusive
2	Measuring the universe	Chapter 7
3	The cosmic microwave background	Chapter 9
4	Big Bang Nucleosynthesis	Chapter 10
5	Dark Matter in the universe	Chapter 8
6	Large-scale structure	Chapter 12
7	Galaxy evolution	Covered in lectures only
8	Lambda	Chapters 4 and 6

Course assessment:

Assignments: 20%

Mid-term exam: 30%

Final exam: 50%

Approximately eight assignments will be issued through the semester. Assignments will typically be due one week after the issue date. Late assignments will be accepted up to 24 hours after the due date (with a 25% grade penalty) at which point solutions will be posted on the web and no more assignments will be accepted. The mid-term exam will take place at 10.00am on Thursday February 5th.

Astronomy 405: Introduction to cosmology

Section A01, Spring 2015

Use of calculators: On all examinations the only acceptable calculator is the Sharp EL-510R. This calculator can be bought in the Bookstore for about \$10.

DO NOT bring any other calculator to examinations

Additional reading: not compulsory, just useful. All texts should be available in the UVic library

1) Carrol and Ostlie: An Introduction to Modern Astrophysics (excellent general textbook).

2) Peebles: Physical Cosmology (excellent general textbook).

3) Gunn, Longair and Rees: Observational Cosmology, 1978 Saas-Fe conference proceedings (good description of basic cosmological ideas, some sections are rather dated).

4) Rees: Perspectives in Astrophysical Cosmology (though not employed directly in the course, this book provides excellent additional reading).

5) Mo, van den Bosch and White: Galaxy formation and evolution. Very comprehensive graduate text.

6) Weinberg: The First Three Minutes (excellent reading material for early Universe physics).

7) Berry: Principles of Cosmology and Gravitation (a good introductory text for cosmology and GR).