

UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS and ASTRONOMY
COURSE OUTLINE

1. **AST209, Lec 01, Introduction to Astronomy II: The Cosmos**

Lecture Sections:

L01: MWF, 14:00 – 14:50, ST 140, **Instructor: Dr. R. Plume, Office:** Science B 531, **Phone:** 220-6909, **email:** rplume@ucalgary.ca, **Office Hours: Wed 9:30-11am or by appointment**

Course Website: http://www.ism.ucalgary.ca/Star_Formation/AST209/AST209.html

BLACKBOARD IS NOT USED FOR THIS COURSE

2. **PREREQUISITES:** None. Not open to students with credit in AST 205 or 211 or Astrophysics 213. Not recommended for science majors.
3. **GRADING:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Assignments (approximately 6)	20%
Midterm Test 1	15% (1 hour: Feb 11, in-class.)
Midterm Test 2	15% (1 hour: March 18, in-class.)
Final Examination	50% (3 hours: To be scheduled by the Registrar)

A grade of 50% or greater on the final exam is necessary to obtain a passing grade in the course.

Each piece of work (assignment, laboratory report, midterm test or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade [bearing in mind that an F grade will result if the student does not pass the final exam with a grade of 50% or higher]. The conversion between course percentage and letter grade is given in the syllabus below.

NOTE – No individual component of the course will have its grade scaled or “curved”. However, the *final* grade for the course may be scaled or “curved” upwards at the discretion of the instructor. Final grades will never be scaled lower.

4. **Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>. It is the student's responsibility to familiarize himself/herself with these regulations. See also <http://www.ucalgary.ca/pubs/calendar/current/e-3.html>.
5. **REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.
6. **TEXTBOOK:** “*Astronomy Today, Volume II, Stars and Galaxies*”, Chaisson & McMillan, Pearson/Addison Wesley. Purchasing a copy of full (more expensive) edition of Astronomy Today is also fine but students should bear in mind that many chapters in the full edition will not be used. Purchasing copies of older editions of Astronomy Today is also fine, but students bear responsibility for any difference in material between the older editions and the current edition.
7. **EXAMINATION POLICY:** [Statement regarding aids allowed on tests and examinations (e.g., calculator, open book, etc.)] Students are encouraged to read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.

Department Approval _____

Date _____

11. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **ACADEMIC MISCONDUCT** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) to inform yourself of definitions, processes and penalties
- (b) **ASSEMBLY POINTS in case of emergency during class time.** Be sure to **FAMILIARIZE YOURSELF** with the information at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.
- (c) **ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>
Disability Resource Centre: <http://www.ucalgary.ca/drc/>
- (d) **SAFEWALK:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **FREEDOM OF INFORMATION AND PRIVACY:** This course will be conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, **students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.** For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **STUDENT UNION INFORMATION:** VP Academic **Phone:** 220-3911 **Email:** suvpaca@ucalgary.ca.
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca Website <http://www.su.ucalgary.ca/home/contact.html>.
Student Ombudsman: <http://www.su.ucalgary.ca/services/student-services/student-rights.html>
- (i) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

COURSE SYLLABUS

- Part 1 - Fundamentals of Astronomy & Physics (History, Parallax, Kepler's Laws, Newton's laws, Orbital Motion)
- Part 2 - Light, the Electromagnetic Spectrum, & Telescopes (Wavelength vs Frequency, Black Body Radiation, Hydrogen Atom, Spectral Lines, Kirchoff's Laws, Doppler Shift, Telescopes, Radio Astronomy, Interferometry)
- Part 3 – Stars (the Sun, Proton-Proton Chain, Stellar Classification & the HR Diagram, Distance Determination Methods, Binary Stars)
- Part 4 – The Interstellar Medium and Star Formation (the Atomic & Molecular ISM, Reflection & Emission Nebulae, Star Formation, Planet Formation, Extrasolar Planets)
- Part 5 – Stellar Evolution (Post Main Sequence Evolution, Giant stars, Planetary Nebulae, White Dwarfs, Novae, Supernovae,
- Part 6 – The Deaths of Stars and General Relativity (Neutron Stars, Pulsars, Black Holes, General Relativity and Spacetime)
- Part 7 (if time allows) – Galaxies (Spirals & Ellipticals, The Distance Scale and the Hubble Law, Quasars & Active Galaxies, Galactic Rotation Curves and Dark Matter, Galaxy Clusters & Super Clusters)
- Part 8 (if time allows) – The Big Bang (the Cosmological Principle, Cosmological Redshift and the Expansion of the Universe, the Big Bang, the Cosmic Microwave Background, Curvature of the Universe, Dark Energy, the End of Everything...)

Conversion between course percentage and letter grades:

95 - 100%	A+
90 - 94.9%	A
85 - 89.9%	A-
80 - 84.9%	B+
75 - 79.9%	B
70 - 74.9%	B-
65 - 69.9%	C+
60 - 64.9%	C
55 - 59.9%	C-
50 - 54.9%	D+
45 - 49.9%	D
0 - 44.9%	F