



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE OUTLINE

1. **Course:** ASTR 209, Introduction to Astronomy II: The Cosmos Summer 2016

Lecture Sections: L01 | TR 13:00 - 15:45 | ST 135

Instructor: Mehrnoosh Tahani | Phone: (403) 220-2251 | SB B538 | email: mtahani@ucalgary.ca | Office Hours: **Wednesday 13:00-15:00 or by appointment.**

Course Website: d2l.ucalgary.ca

Required Course Website for Assignments: masteringastronomy.com: Course ID: MTAHANI48172

Departmental Office: SB 605, 403-220-5385, phasugrd@ucalgary.ca

2. **Prerequisites:** None. Not open to students with credit in Astronomy 205 or 211 or [Astrophysics 213](#). Not recommended for science major.
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)	25%
Midterm test (120 minutes)	25% (Thursday, <u>August 4th</u> , during class)
In-Class Participation (TopHat Monocle)	2% (Bonus Credit based on Participation)
Final Examination (180 minutes)	50% (To be scheduled by the Registrar)

All percentage marks that appear on the d2l website will be used to determine each student's overall grade. Overall ASTR 209 percentages will be converted into a final course letter grade using the following thresholds.

>= 95 %	A +	>= 80 %	B +	>= 65 %	C +	>= 50 %	D +
>= 90 %	A	>= 75 %	B	>= 60 %	C	>= 45 %	D
>= 85 %	A -	>= 70 %	B -	>= 55 %	C -	< 45 %	F

A grade of 50% or greater on the final exam is necessary to obtain a passing grade in the course. Percentage grades will be given for all assignments and examinations. A weighted course percentage will be calculated for each student after the final exam is written.

The exams in ASTR 209 are cumulative.

Students are responsible for accurately and completely entering their personal information in the Mastering Astronomy system. Failure to do so may result in a delay of posting the course grade or a zero grade for the assignments.

In-class participation. We will use the TopHat Monocle system during class time for in-class questions that will only be open to submit answers during the lecture in which they are presented. The grade for in-class participation will be calculated on the participation rate as follows: Less than 30% of answers provided: 0% bonus credit. More than or equal to 30% but less than 60% of answers provided: 1% bonus credit. More than 60% of answers provided: 2% bonus credit. The in-class participation credit does not depend on the submitted answers. The calculation of credit will commence on Thursday, July 12, and continue until the last day of classes. In-class questions asked before July 12 will be considered practice questions that do not count for the bonus credit.

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](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.6](#) of the University Calendar.

5. Course Materials:

"Astronomy Today", 7-th or 8-th ed, Volume II – Stars and Galaxies by 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 edition and the current edition.

Online Course Components:

TopHat Monocle: ASTR 209 will make use of the TopHat Monocle system under a campus site license. This means that there will be no fee to students, but students are required to register at the TopHat Monocle website in order to obtain access to the course questions. Instructions for use of TopHat Monocle will be given in class. Students are responsible for accurately entering their complete information in the TopHat Monocle system. Failure to do so may result in a delay of your course grade, or loss of the bonus credit.

Homework Assignments in Mastering Astronomy: Students who buy a new copy of the textbook through the Campus Bookstore may receive an enclosed access code to the MasteringAstronomy.com website. In ASTR 209 we will use Mastering Astronomy for assignments, and it is available as a study aid for those who choose to use it.

6. 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, Kirchhoff'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) (If the time allows)

Part 6 – The Deaths of Stars and General Relativity (Neutron Stars, Pulsars, Black Holes, General Relativity and Space-time) (If the time allows)

7. **Examination Policy:** Examinations are closed book. Formulae sheets will be provided as part of the exam material. Calculators must not have wireless communication. Students should also read the Calendar, [Section G](#), on Examinations.
8. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**
- (a) **Misconduct:** 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 [Section K](#). Student Misconduct 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 on [assembly points](#).
- (c) **Student Accommodations:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf. Students needing an Accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Physics and Astronomy, Dr. David Feder, by email (dfeder@ucalgary.ca) or by phone (403.220.3638).
- (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 is 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: suypaca@ucalgary.ca.
SU Faculty Rep: Phone: 220-3913 Email: science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca
Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; <http://ucalgary.ca/provost/students/ombuds>
- (g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. 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.
- (h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval _____ Date _____