



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

1. **Course:** ASTR 207 IntroToAstrl-TheSolarSystem

Dr. Denis Leahy | SB 529 | (403) 220-7192 | leahy@ucalgary.ca | office hours MW 15:00-16:00

Lecture Sections: LEC 1 | TR 15:30-16:45 | ST 140

**Course Website:** [d2l.ucalgary.ca](http://d2l.ucalgary.ca)

**Departmental Office:** SB 605, 403-220-5385, [phasugrd@ucalgary.ca](mailto:phasugrd@ucalgary.ca)

2. **Prerequisites:** None. Not open to students with credit in ASTR 205 or ASTR 213, or ASPH 213. Not recommended for physical science majors.

Note: The Faculty of Science policy on pre- and co-requisite checking is outlined in the 2013-2014 Calendar. A student may not register in a course unless a grade at least "C-" has been obtained in each pre-requisite course; it is the responsibility of students to ensure that their registrations are in order.

See <http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html> for details.

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:

Midterm (Oct.22): 25% (During regular lecture time in ST 140)

Homework (Mastering Astronomy): 25% (See instructions below)

In-class Participation (TopHat Monocle): 2% (Bonus credit based on participation)

Final Examination: 50% (To be scheduled by the Registrar)

A passing grade for the final exam is required in order to obtain a letter grade higher than D+ for this course.

Students who do not score a passing grade on the final exam can only obtain a letter grade D+ or less for the course.

Exams are **cumulative**. The final exam will cover all course material.

The midterm exam and the final exam will cover **every component of the course**, including sections of the text book, lectures and notes posted on D2L. This also includes topical lectures that explore subjects in more detail than the textbook. Refer to notes posted on D2L.

**Grading:**

The midterm exam will be written during regular class time in the regular lecture theatre, ST 140. It will be a multiple-choice test with a writing time of 60 minutes. The percentage score is calculated as the number of correct answers, divided by the number of questions on the test, expressed as a percentage. The score for the test is used in the calculation of the final course grade according to the weights listed above. University of Calgary exam regulations apply during the in-class test. **The test is closed-book**. Use of a calculator is recommended.

The **Final Exam** will be scheduled by the registrar. The final exam will be a 2-hour multiple-choice exam. The score for the final exam will be calculated as the number of correct answers divided by the number of questions on the exam, expressed as a percentage. The percentage grade for the final exam will be used in the calculation of the course

grade with the weight given above. Students must obtain a passing grade for the exam in order to receive a letter grade for the course higher than D+. **The exam is closed-book.** Use of a calculator is recommended.

**Homework.** There will be eight web-based homework assignments in **Mastering Astronomy**. Students can obtain access to the Mastering Astronomy system in one of three ways:

1. **Normal access.** Purchase a new textbook at the Campus Bookstore. An Access code for Mastering Astronomy will be included. You can do the assignments from any location with internet access with this option.
2. **Electronic Text.** Purchase an electronic version of the text plus access to Mastering Astronomy. You can do the assignments from any location with internet access with this option.
3. **Campus computers only.** Access the Mastering Astronomy homework assignments through a public computer on campus free of charge. Public computers are available in the Taylor Family Digital Library and some other locations on campus. You will not be able to work from home if you choose this option, because the free access is coupled to University of Calgary computers on campus. You will not be able to use your own laptop, even if you are on campus. You will only have access to the assignments, not to the E-text or study centre. **There will be no extensions of the due date granted for reasons related to the accessibility of public computers on campus.**

Students must decide whether to choose option 1, 2, or 3 for Mastering Astronomy by Friday, September 18.

If you choose option 3 (free access on campus only), follow carefully the instructions given in the first day of class, and posted on the ASTR 207 D2L site.

Late Assignments will be awarded a zero grade. There will be a 24 hour period after the due date over which the maximum obtainable grade will decrease to zero. Extensions of the due date require justification in the form of a doctor's note or equivalent.

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 Tuesday, September 22, and continue until the last day of classes. In-class questions asked before September 22 will be considered practice questions that do not count for the bonus credit. See section 6 of this document for instructions if you do not own a portable device for use with TopHat Monocle in class.

#### **Conversion of percentage grade to letter grade for the course.**

A Conversion table to convert final percentage grade into a letter grade for the course is provided at the end of this document. Important: the conversion table lists the minimum percentage grade you must obtain in order to receive the listed letter grade. For example, if your percentage grade for the course, calculated from the different course components with the weights posted above, is 77%, your letter grade will be B, because the minimum percentage score to obtain a B+ is 78%.

#### **Use of mathematics in ASTR 207**

Some math will be used in this course. Most questions on the tests and the final exam will focus on knowledge and understanding of concepts. A few questions will require math, but remember that all questions will be multiple-choice. We will spend time in the lectures to explain mathematics that may appear on the exam.

Percentage to letter grade conversion scale:

> = 93 %	A +	> = 78 %	B +	> = 63 %	C +	> = 48 %	D +
> = 88 %	A	> = 73 %	B	> = 58 %	C	> = 44 %	D
> = 83 %	A -	> = 68 %	B -	> = 53 %	C -	< 40 %	F

YOU MUST PASS THE FINAL EXAM TO GET A LETTER GRADE HIGHER THAN D+ FOR THE COURSE

- 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.
- Scheduled out-of-class activities:** There are no scheduled out-of-class activities associated with this course.

**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.

- Course Materials:**

*The Cosmic Perspective - The Solar System*, Bennett, Donahue, Schneider & Voit, Addison-Wesley.

**WARNING: Be sure to buy the Solar System edition of this book, or the complete edition that includes all chapters. You may notice some missing chapter numbers in the Solar System edition. This is normal, because it is just a part of a complete, more expensive, text. We do not cover chapters outside the Solar System edition in ASTR 207.**

**Calculators:** A pocket calculator is recommended for the in-class tests and the final exam. Scientific calculators with advanced mathematical functions are not required, but they may be helpful to those who know how to use them. Use of calculator applications on mobile communication devices or other devices with data storage or access to the internet on the tests and the final exam is strictly prohibited. When in doubt, students should check with the instructor well before the first in-class test. Graph capabilities of calculators are not used in ASTR 207.

**Online Course Components:**

**TopHat Monocle:** ASTR 207 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 who do not have access to a cell phone or portable device for use of TopHat Monocle in class, can apply to the instructor to transfer the 2% bonus credit for in-class participation to the final exam. For example, if your final exam grade is 70%, you receive a bonus credit that is 70% of the maximum 2%, or 1.4%. **Requests for the bonus credit transfer must be received by the instructor by email stating your full name and student ID before the date of the midterm exam. You will receive a confirmation by email. Once granted, the weight transfer cannot be reversed.**

**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 207 we will use Mastering Astronomy for assignments, and it is available as a study aid for those who choose to use it. Purchase of access to MasteringAstronomy.com is not required for ASTR 207 (see section 3-Homework above).

- Examination Policy:** Use of books is not allowed during in-class tests and during the final exam. Use of a pocket calculator during in-class tests and the final exam is recommended. Some may find the use of a ruler helpful in case a graph must be interpreted. Students should also read the Calendar, [Section G](#), on Examinations.

8. **Approved Mandatory and Optional Course Supplemental Fees:** None. Please note that TopHat Monocle is used under a campus license. You should NOT purchase a subscription for TopHat Monocle.
9. **Writing across the curriculum statement:** In this course, the quality of writing is not evaluated. See also [Section E.2](#) of the University Calendar.
10. **Human studies statement:** Not applicable. See also [Section E.5](#) of the University Calendar.

11. **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](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 fulfil 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. Michael Wieser, by email ([mwieser@ucalgary.ca](mailto:mwieser@ucalgary.ca)) or by phone (403.220.3641).
- (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 (FOIPPA). 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](mailto:suvpaca@ucalgary.ca).  
SU Faculty Rep: Phone: 220-3913  
Email: [science1@su.ucalgary.ca](mailto:science1@su.ucalgary.ca), [science2@su.ucalgary.ca](mailto:science2@su.ucalgary.ca) and [science3@su.ucalgary.ca](mailto:science3@su.ucalgary.ca)  
Student Ombuds Office: 403 220-6420  
Email: [ombuds@ucalgary.ca](mailto: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](http://www.ucalgary.ca/usri)). Your responses make a difference - please participate in USRI Surveys.

#### Assignment Due Dates ASTR 207 Fall 2015:

Assignment 1 Sunday, 20 September 23:59  
Assignment 2 Sunday, 27 September 23:59  
Assignment 3 Sunday, 4 October 23:59  
Assignment 4 Sunday, 18 October 23:59  
Assignment 5 Sunday, 1 November 23:59  
Assignment 6 Sunday, 7 November 23:59  
Assignment 7 Sunday, 22 November 23:59  
Assignment 8 Sunday, 29 November 23:59

#### Course Syllabus

##### ASTR 207

(Introduction to Astronomy – the solar system) gives an overview of the solar system that includes history of astronomy, observational aspects such as time keeping, eclipses, motion of the moon and planets, planetary geology, and the formation of the solar system. ASTR 207 contains some mathematics in the formulation of concepts such as angular size, time keeping, radiometric dating of the age of the solar system and Kepler's Third Law. Science literacy and the process of science will be discussed in the context of solar system science and planetary geology.

We discuss the Earth's place in the universe, and the Sun as the star of the solar system. The apparent and orbital motion of the moon and planets are discussed, along with basic celestial coordinates, and eclipses and tides. The history of astronomy from antiquity to the modern age will be discussed. The nebular hypothesis for the formation of the solar system and the origin of terrestrial planets and gas giants will be presented. We will discuss radiometric dating of the solar system. Planetary geology will discuss similarities and differences between the terrestrial planets, including different forms of tectonics, impact craters and geological age of a surface, erosion, volcanism, chemical differentiation, planetary atmospheres and magnetism. Composition, weather and magnetism of gas giants are discussed, as well as the composition and geology of the moons of the jovian planets. Small solar system objects including dwarf planets, asteroids, and comets (time permitting) are discussed. If time permits, we will also discuss other planetary systems.

##### Approximate Course Outline:

Chapters 1, 2, 3, supplementary chapter S1, and Chapter 7 will be covered completely for the midterm exam. We will cover the Sun Briefly (Chapter 14.1 only) between Chapters 1 and 2.

Chapters 8, 9, parts of 10 and 11 will be covered after the midterm. A few select subjects from chapters 4 and 5 and special topics in the course notes will also be included.

The exams in ASTR 207 are cumulative.

Department Approval \_\_\_\_\_ Date \_\_\_\_\_