

UNIVERSITY OF CALGARY  
DEPARTMENT OF PHYSICS AND ASTRONOMY  
COURSE OUTLINE

1. **Course:** ASTR 207, Introduction to Astronomy I – The Solar System

Lecture Sections:

L01: TuTh, 15:30-16:45, ST 140 Dr. J. M. Stil, Office: Science B, SB 519, 403-220-8015, [jstil@ucalgary.ca](mailto:jstil@ucalgary.ca),  
Office Hours: **Thursday 10:00 – 12:00**

If you have questions about course content, you can see the instructor at the end of class, drop in during office hours, or make an appointment (by phone or email) to meet the instructor at a different time.

Contacting the instructor by email is strictly reserved for issues related to the organization of the course, or to make an appointment. Always include your full name and student ID in your email.

Course Documents will be posted on D2L: <http://d2l.ucalgary.ca>

Department of Physics and Astronomy, Science B SB605, 403-220-5385, [office@phas.ucalgary.ca](mailto:office@phas.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.

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 (Tuesday, <b>November 4, 2013</b> )	35%	(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	40%	(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 blackboard. This also includes topical lectures that explore subjects in more detail than the textbook.

An extensive introduction to the course will be given during the first class. Refer to notes posted on blackboard.

**Grading:**

The midterm exam will be written during regular class time in the regular lecture theatre, ST 140. Both tests will be multiple-choice tests with a total writing time of 60 minutes. The percentage score for each test is calculated as the number of correct answers, divided by the number of questions on the test, expressed as a percentage. The scores for the tests are used in the calculation of the final course grade according to the weights listed above. University of Calgary exam regulations apply during these in-class tests. **All tests are 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 19. If you choose option 3 (free access on campus only). If you choose option 3, 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 23, and continue until the last day of classes. In-class questions asked before September 23 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 74%, your letter grade will be B, because the minimum percentage score to obtain a B+ is 75%.

#### **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.

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. **Scheduled out-of-class activities:** There are no scheduled out-of-class activities associated with this course. On October 23, a partial eclipse of the Sun will take place during ASTR 207 class time. Please be alert for updates in the week preceding the eclipse, because this class may be converted into an outdoor activity on campus. Participation in this outdoor activity is optional. No credit is awarded for participation. If there is no outdoor activity (for example because of bad weather), October 23 will be a regular lecture.

**WARNING: Do NOT observe the solar eclipse without equipment that is specially designed for solar observing. Never look directly towards the Sun, even during an eclipse. Direct exposure to sunlight can damage to the eye, possibly resulting in blindness. Never use your own equipment to observe the Sun.**

**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. **Course Materials:** *The Cosmic Perspective – The Solar system (7<sup>th</sup> edition)*. Authors: Bennett, Donahue, Schneider & Voit. Publisher: Addison-Wesley. ISBN: 978-0321841063.

**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.**

**TopHat Monocle:** ASTR 207 will make use of the TopHat Monocle system under a campus site licence. 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.**

**Calculators:** A desktop 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. Calculators with graph capabilities are not useful in ASTR 207.

**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 not use MasteringAstronomy for assessment, but it remains available as a study aid for those who choose to use it. Purchase of access to MasteringAstronomy.com is not required for ASTR 207.

7. **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.
10. **Human studies statement:** Not applicable. See also Section E.5 of the University Calendar.

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 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) Academic Accommodation Policy:** Students with documentable disabilities are referred to the following links: [Calendar entry on students with disabilities](#) and [Student Accessibility Services](#).

**(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: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).

SU Faculty Rep. Phone: 220-3913 Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca)

[Student Ombudsman](#)

(i) **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.

The following signature lines should be added to the course outline as appropriate

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

Associate Dean's Approval for  
out of regular class-time activity: \_\_\_\_\_ Date: \_\_\_\_\_

Associate Dean's Approval for  
Alternate final examination arrangements: \_\_\_\_\_ Date: \_\_\_\_\_

#### Assignment Due Dates ASTR 207 Fall 2011:

<b>Assignment 1</b>	<b>Sunday, 21 September</b>	<b>23:59</b>
<b>Assignment 2</b>	<b>Sunday, 28 September</b>	<b>23:59</b>
<b>Assignment 3</b>	<b>Sunday, 5 October</b>	<b>23:59</b>
<b>Assignment 4</b>	<b>Sunday, 19 October</b>	<b>23:59</b>
<b>Assignment 5</b>	<b>Sunday, 26 October</b>	<b>23:59</b>
<b>Assignment 6</b>	<b>Sunday, 16 November</b>	<b>23:59</b>
<b>Assignment 7</b>	<b>Sunday, 23 November</b>	<b>23:59</b>
<b>Assignment 8</b>	<b>Sunday, 30 November</b>	<b>23:59</b>

## Grading scheme

Your Course Letter Grade for ASTR 207 will be based on the weighted average percentages of the various course components (Test 1, Test 2, in-class participation, homework challenge questions, and final examination) using the weighting scheme on the first page of this course outline. The conversion from weighted average percentage to course letter grade is (minimum scores required to obtain a letter grade):

90%	A+	75%	B+	60%	C+	47%	D+
85%	A	70%	B	55%	C	45%	D
80%	A-	65%	B-	50%	C-	<45%	F

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

## 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. ASTR207 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 motions 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 Chapter 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.