

University of Victoria  
Department of Physics and Astronomy

# Astronomy 101 - Exploring the Night Sky

Spring 2017 Syllabus

## General Information

**Instructor:** Travis Martin

**Email:** [travismartin@uvic.ca](mailto:travismartin@uvic.ca)

**Office:** Elliot 402B

**Office Hours:** Tuesday and Wednesday, 4:00-5:00pm

**Phone:** 250-721-6127

**Course Webpage:** <http://coursespaces.uvic.ca>

**Lecture Schedule:** Tues, Wed, Fri from 11:30am - 12:20pm in **DSB C103**.

**Prerequisites:** There are no prerequisites for this course. The material covered in this course will be taught with a minimum expectation of mathematics. Students comfortable with mathematics and physics may wish to consider taking ASTR150 and/or 250.

## Required Materials:

- **Astronomy Today** by Chaisson & McMillan (including Mastering Astronomy)
- Astro 101 Lab Manual
- i>Clicker

**Labs:** The lab schedule can be found at

<http://www.uvic.ca/science/physics/current/undergraduate/timetables/index.php>.

Some notes regarding the labs for this course:

- **You must attend your scheduled lab section.** You are not free to attend other lab sections without approval of the lab supervisor.
- **You must complete all labs.** If you miss a lab period for a **valid reason**, contact me ASAP. I will determine approval to perform a make-up lab, and forward the approval to the lab supervisor.
- **You must achieve a passing grade in the labs in order to pass the course.**

## Course Outline

This course will cover the following major topics:

- The basics of astronomy: how and what we can learn with observations
- Our solar system: a tour of the planets and our star
- Life in the universe

Below is a rough outline of the course. This is subject to change depending on the depth of in-class discussion and other factors that can extend the amount of time it takes to cover the material.

Chapters	Topic Description
1	The scientific method, elementary concepts, and initial observations.
2.1-2.3	Ancient astronomy and the transition to heliocentricity.
2.4-2.7	Major revolutions in astronomy.
4	Behaviour of Light & Spectroscopy
5	Telescopes
6	Formation of the Solar System
16	The Sun and the stars
7	The Earth and the Moon
8	Mercury
9	Venus
10	Mars
11	Jupiter
12	Saturn
13	Uranus
14	Neptune
-	Kuiper Belt, Pluto, and asteroids
15	Extrasolar Planets
28	Life in our solar system, search for extrasolar life

## Grading

This course has five grading components: clicker questions (10%), assignments (10%), quizzes (25%), labs (20%), and exams (35%).

### **Assignments:** 10%

There will be weekly assignments due on Sundays out of the Mastering Astronomy system. This will give students an opportunity to explore their knowledge and experience from the class. Assignments will be short, and of similar difficulty to the bi-weekly quizzes. However, assignments may require additional reading from the textbook to complete.

### **Clicker Questions:** 10%

In-class clicker questions will be of two forms. One will be participation questions that will be designed to encourage critical thinking and/or to gauge the thoughts of the class. There will be no right/wrong assessment of these questions, only participation marks will be assigned. Other questions will be based on the material of either the previous slides or previous class, designed to test retention. These questions will not be significantly challenging, but are meant to encourage students to pay attention and participate actively in the class.

### **Quizzes:** 20%

There will be a series of quizzes throughout the course that cover the major concepts from the lectures that precede them. Two of the quizzes will be **IN CLASS** and two of the quizzes will be administered **ONLINE**. Online quizzes will still occur during class time, but students will not be required to participate in the lecture hall. In-class quizzes will be administered via standard methods during the class periods.

These quizzes will be comprised of a combination of multiple choice questions, true/false questions and potentially short answer questions. These questions will focus on the material covered in the lecture slides. These quizzes take the place of midterm examinations.

In the case that you must miss a quiz due to illness or emergency, the grade weight for that quiz will be redistributed among the other quizzes and final exam. Students that are having significant difficulties with the material are encouraged to come see me during office hours.

### **Laboratory Activities:** 20%

There are a total of five labs held throughout this course. These are experiential sessions to provide students with a hands-on understanding of the material. More information about the labs is provided in the lab manual that students must have for the course. Due to the challenges of coordinating labs and lectures, it is not possible to synchronize the material from the labs with the material from the course. Science is taught best through a combination of theory and hands-on experience, and these labs are provided to round out your education experience with the course. The “goal” of the course is not the final exam or a final grade, but to improve your understanding of the world around you.

### **Final Exam:** 40%

The material of the final exam will be comprehensive of the material covered in the course, and the questions will be similar in style and scope to those in the quizzes. However, there may be additional types of questions, such as image identification. Thus, it is important that students be able to identify images presented throughout the lectures.

## Academic Study on Testing Methodologies

An application to study testing methodology has been submitted to the Human Research Ethics Office for approval. In the case that approval is given, the results of the quizzes will be used to study methodologies for improving student testing. The statement below outlines the most pertinent details, should approval be given.

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The testing format to assess student performance is the subject of a study being conducted by Dr. Travis Martin and Dr. Mark Laidlaw. The purpose of this research is to determine the efficacy of in-class, memorization focused testing methods at determining the strength of student performance. The anticipated benefit to this is the production of more effective ways of assessing student performance and accomplishment.

The analysis of quiz marks for the purpose of this study will be done on anonymized data, free of student names and ID numbers. The use of the data will not affect your mark in any way, and no analysis will be performed until the course grades have been finalized and submitted at the end of the term. After your grades are finalized, all identifying information will be stripped from the data before analysis is performed.

Students may opt out of participation by sending an email to Dr. Mark Laidlaw. This opt-out will not be shared with Dr. Travis Martin, and thus can have no way to affect your grades/performance. Dr. Laidlaw is not associated with the course as an instructor and cannot influence your grades in any way.

If you have any questions about how your data will be used, or details about the study, please contact Dr. Travis Martin by email at [travismartin@uvic.ca](mailto:travismartin@uvic.ca). You may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or [ethics@uvic.ca](mailto:ethics@uvic.ca)).

## University Regulations on Academic Integrity

These regulations are reproduced from <http://web.uvic.ca/calendar2011/FACS/UnIn/UARe/PoAcI.html>. For full information, including procedures for dealing with academic integrity infringement, see the webpage linked above.

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Any action that contravenes this standard, including misrepresentation, falsification or deception, undermines the intention and worth of scholarly work and violates the fundamental academic rights of members of our community.

Several types of academic integrity violations are covered in brief below.

### Plagiarism

A student commits plagiarism when he or she:

- submits the work of another person as original work
- gives inadequate attribution to an author or creator whose work is incorporated into the student's work, including failing to indicate clearly the inclusion of another individual's work
- paraphrases material from a source without sufficient acknowledgement as described above

Students who are in doubt as to what constitutes plagiarism in a particular instance should consult their course instructor.

### Falsifying Material Subject to Academic Evaluation

Falsifying materials subject to academic evaluation includes, but is not limited to:

- fraudulently manipulating laboratory processes, electronic data or research data in order to achieve desired results
- using work prepared by someone else (e.g., commercially prepared essays) and submitting it as one's own
- citing a source from which material was not obtained
- using a quoted reference from a non-original source while implying reference to the original source
- submitting false records, information or data, in writing or orally

### Cheating on Assignments, Tests/Quizzes and Examinations

Cheating includes, but is not limited to:

- copying the answers or other work of another person
- sharing information or answers when doing take-home assignments, tests and examinations except where the instructor has authorized collaborative work
- having in an examination or test any materials or equipment other than those authorized by the examiners impersonating a candidate on an examination or test, or being assigned the results of such impersonation
- *assisting others to engage in conduct that is considered cheating*

**I will be using software to analyze student responses on assignments and quizzes to ensure that student responses are sufficiently unique.**