

# Astronomy 150 – Concepts in Modern Astronomy

## Department of Physics & Astronomy

### Jan – April 2024

**Instructor:** Professor Sara Ellison

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**Territory acknowledgement:** We acknowledge and respect the Ləkʷəŋən (Songhees and Esquimalt) Peoples on whose territory the university stands, and the Ləkʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

**Office hours:** Tuesdays 2-3pm in Elliott 208 (or by appointment, in person or on Zoom)

**Lecture delivery:** This is an in-person lecture course. Regular attendance is expected (and necessary for optimal learning).

Lecture schedule: Monday and Thursday 11:30am-12:50pm

Location: Elliott 062

Unit value: 1.5

**Course content:** The night sky, coordinate systems and magnitudes, telescopes, interactions between light and matter, a brief history of classical astronomy, the properties of stars, stellar evolution, galaxies and active galaxies, cosmology, dark matter and dark energy, the solar system and extra solar planets.

**Course scope:** ASTR 150 is intended as both an elective for science and engineering students, as well as a requirement for astronomy students. It is an algebra-based survey course of many aspects of modern astronomy. Non-science students (or those without the pre-requisites) might prefer to take ASTR 101 or ASTR 102 which are more conceptual, non-mathematical courses.

**Pre-requisites:** Completed or currently enrolled in:

MATH 100 or MATH 109

and

PHYS 110 or PHYS 120

Or by permission of the department.

**Assessment:**

- Quizzes – 20%: There are 7 quizzes (assignments) due throughout the semester. These are all submitted via Brightspace. It is your responsibility to check the schedule on

Brightspace. Quizzes open 2 weeks before the due date and you can complete them during repeated visits (e.g. do one question today, and come back to complete the rest another time). There is no time limit. More details on the quiz set-up will be discussed in the first class. **There are no extensions, no make-ups and no marks for missed quizzes.**

- Mid-term – 20%: The mid-term is a multiple choice exam that happens in class. The date will be announced by the instructor.
- Labs – 20%: More information below.
- Final – 40%: A multiple choice exam, the date and time for which is scheduled by the University. The instructor will announce in-class on Brightspace once the details are known.

**Labs:** You must explicitly enroll in a lab section. Labs are run and marked by teaching assistants (TAs). Attendance at your weekly lab is compulsory and **you must pass the lab to pass the course.** Check the ASTR 150 course page on Brightspace for the lab schedule for your section. The lab manual can be purchased at the bookstore. Any questions about labs should be addressed to the senior lab instructor: Dr Erica Franzmann ([astrolabs@uvic.ca](mailto:astrolabs@uvic.ca)).

#### **Course materials:**

Lecture slides are available on Brightspace. It is recommended that you use these as a basis for your notes (they contain many figures) complemented by your own note taking. There is insufficient text on the lecture slides for them to be considered as lecture notes, so it is important that you make your own notes in class.

Apart from purchasing the lab manual, all of the material you need for the course is covered in class – coming to class and making good notes is all you need to succeed! As such, there is no compulsory textbook for this course – it is the belief of the instructor that students should not have to buy expensive texts in order to succeed. However, if you would like to supplement your learning, the following options are available:

- Astronomy Today by Chaisson & McMillan 9<sup>th</sup> Edition is available for rental at the bookstore.
- Second-hand hard copies of Astronomy Today are easily found online (any edition will do).
- Buy a new or second-hand copy of an alternative introductory astronomy text (the material we cover is fairly universally covered)
- Openstax has a free online astronomy text (the link is in Brightspace).
- Approximately 30 copies of older edition introductory astronomy texts are on reserve at the library for your reference.

**Academic integrity and tri-faculty code of conduct:** The instructors (lecture and lab) take conduct and academic integrity extremely seriously. You can find links to UVic's Policy on Academic Integrity and the tri-faculty code of conduct in the course overview in Brightspace.

**Collaboration:** The points below summarize expectations based on the academic integrity policy:

- For the final exam, you must complete all work on your own without help from another person or from outside sources.
- For the midterm, you must complete all work on your own without help from another person or from outside sources.
- For the labs, you must submit your own original work. You may seek help or advice from an instructor or another student. You may not copy or paraphrase from another student. You may not permit your work to be copied or paraphrased by another student.
- For the quizzes, you must undertake the work yourself. You may seek advice or help from an instructor, other students, a tutor, or other person, but you are responsible for understanding and undertaking the work you submitted.

**Note that it is an academic integrity violation and a violation of UVic policies about information technology to post material from this class to any online “homework help” site.**