

University of Victoria
Department of Physics and Astronomy
ASTR101 - Exploring the Night Sky
Fall 2025 Syllabus

We acknowledge and respect the Lək̓ʷəŋən (Songhees and X̱sepsəm/Esquimalt) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and WSÁNEĆ Peoples whose historical relationships with the land continue to this day.

Course Information

Course: ASTR101 - Exploring the Night Sky

Sections: Lecture: A01, A02. Lab: B01 through B16

Unit Value: 1.5 Units

Lecture Location: A01 in ELL168, A02 on Zoom.

Lecture Schedule: Tuesday, Wednesday and Friday from 11:30am-12:20pm

Lab Schedule:

B01: Oct 6, Oct 20, Nov 3, Nov 24 9:30am-12:20pm, Sep 15 8:30pm until finished.

B02: Oct 6, Oct 20, Nov 3, Nov 24 12:30pm-3:20pm, Sep 15 8:30pm until finished.

B03: Oct 6, Oct 20, Nov 3, Nov 24 3:30pm-6:20pm, Sep 15 8:30pm until finished.

B06: Oct 7, Oct 21, Nov 4, Nov 25 12:30pm-3:20pm, Sep 16 8:30pm until finished.

B07: Oct 7, Oct 21, Nov 4, Nov 25 3:30pm-6:20pm, Sep 16 8:30pm until finished.

B08: Oct 7, Oct 21, Nov 4, Nov 25 6:30pm-9:20pm, Sep 16 8:30pm until finished.

B12: Oct 8, Oct 22, Nov 5, Nov 26 6:30pm-9:20pm, Sep 16 8:30pm until finished.

B14: Oct 9, Oct 23, Nov 6, Nov 27 12:30pm-3:20pm, Sep 18 8:30pm until finished.

B16: Oct 9, Oct 23, Nov 6, Nov 27 6:30pm-9:20pm, Sep 18 8:30pm until finished.

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.

Instructor Information

Instructor: Travis Martin

Email: travismartin@uvic.ca

Students are expected to include “ASTR101” in the Subject line of their email, and include their name and student ID in the body of the email. Please allow up to 48h to respond to emails before re-inquiring. If you do not receive a response within 48h, it is possible that your email was missed - please email again.

Office Hours: TBD

In-Term Feedback: Student comments may be sent via email, however it is not possible for all feedback to be considered within the term.

Lab Coordinator: Erica Franzmann

Email: astrolabs@uvic.ca

Students are expected to include “ASTR101” in the Subject line of their email, and include their name and student ID in the body of the email. Please allow up to 48h to respond to emails before

re-inquiring. If you do not receive a response within 48h, it is possible that your email was missed - please email again.

Modality Information

This course consists of synchronous lectures and synchronous labs for all lecture and lab sections. Lectures are recorded and available upon request.

Students in LEC A02 and LAB B16 are expected to have a computer with internet access. It is the students' responsibility to ensure that they are able to connect.

Technology Information

Course Webpage: <http://bright.uvic.ca>

Other Technologies: This course may use Zoom for office hours and A02/B16 section meetings. Lectures are recorded using Echo 360 and will be available on Brightspace for students eligible to access them. Students who opt to participate in the bonus assignments may be required to use other technologies, such as Wolfram Player.

Digital Tools Policy: Students may not use LLM Artificial Intelligence (such as ChatGPT) or Generative AI (such as Midjourney or DALL-E) for any portion of this course. Use of these tools will result in charges of academic dishonesty.

If an instructor suspects the use of AI for any submitted materials for this course, they may request a mandatory meeting with the student to discuss their work. The student will be expected to explain their process for generating the material, the outcome of which may result in a charge of violation of the academic integrity policy.

Exam Policy: The only permitted calculator for any exam is a Sharp EL-510 series non-programmable, non-graphing calculator. Cellphones, tablets, and computers are not permitted in exams. Connected personal electronics including smart watches, headphones, smart glasses, or any similar devices are not permitted. Students whose academic accommodations include the use of specialized technologies will be overseen by the CAL Assessment Program.

Course Structure Information

Lectures: Section A01 will meet in-person, while Section A02 will connect via Zoom. The lecture is simultaneous for both sections.

Students who miss the live lecture due to illness or other reasons may request access to the video recordings of the lecture. Video recordings are not available by default. It is possible that some lectures or parts of lectures may not be recorded due to technological issues with the equipment available in the lecture hall. Videos are for the use by the student(s) who request them, but remain the intellectual property of the instructor and may not be uploaded to any other site.

Labs: For lab sections B01 through B15, students will meet in the lab room at the designated time for in-person labs. These labs consist of a short introductory discussion with the lab instructor, followed by a guided activity to collect data. Following this, students will have an opportunity to complete their lab writeup at home. Students are not free to attend another lab sections without permission of the lab coordinator or course instructor.

For lab sections B16, students will meet with their lab instructor on Zoom at the appropriate time. Section B16 labs consist of a separate lab activity from the in-person labs, but follows similar topics.

Students will be guided through an activity to develop data, and then will have an opportunity to complete their lab writeup on their own time.

Accessibility Statement: Accessibility is critically important to ensure that all students can participate to the fullest extent possible. All testable material is provided to students in digital format at the start of term, and assessments will be performed in an environment that meets the accessibility needs of the student. Recordings of lecture content are available for students who miss class due to unavoidable circumstances, and can be provided on request.

Course Schedule

Below is an approximate outline of the order and dates in which material will be covered. Depending on the depth of in-class discussion, the material may take more or less time than anticipated. In the scenario that material takes longer than expected, some slides may be skipped in the lectures. Students are responsible for ALL of the material in the slides, including those that are skipped, since the full set of slides are available to students via Brightspace.

Lecture Number	Topic	Text Chapter(s)
Lec 1	Introduction	
Lec 2-4	Topic 1 - Science and Astronomy	1
Lec 5-7	Topic 2 - The Night Sky	2 & 3
Lec 8-11	Topic 3 - History of Astronomy	4 & 5
Lec 12-13	Topic 4 - Light and Matter	7
Lec 14-16	Topic 5 - Telescopes	6
Lec 17-19	Topic 6 - The Sun	8
Lec 20-23	Topic 7 - The Earth	11 & 12
Lec 24-27	Topic 8 - Terrestrial Planets	12 & 13
Lec 28-30	Topic 9 - Jovian Planets	14 & 15
Lec 31	Topic 10 - Asteroids, Comets, and other objects	16
Lec 32-34	Topic 11 - Origin Theories	9
Lec 35-36	Topic 12 - Exoplanets and Exobiology	10 & 17

Note: See BrightSpace for a more accurate schedule.

Course Outcomes

Summary: Students in this course will explore the nature of the solar system, and explore the scientific method and process of astronomy. Students will be tested on understanding of material learned through timed assessments involving multiple choice questions and on hands-on laboratory activities.

Essential Course Components:

- Students must participate in and complete at least three labs in this course to be eligible to pass this course. Students who do not submit at least three lab reports will be assigned a grade of N. No lab work will be accepted under any circumstances after the end of the make-up lab period at the end of term.
- Students must achieve an overall 50% grade in the lab component of this course in order to be eligible to pass this course and to write the final exam. Students who do not qualify for

an N grade under the above policy and have attended at least three labs periods but whose final lab average is less than 50% will be assigned a grade of F.

- Students must complete the final exam and achieve a minimum 30% grade on the final exam to be eligible to pass this course. Students who are eligible to write the final exam but do not will be assigned a grade of N.

Intended Learning Outcomes: By the end of this course, successful students should be able to...

- critically assess concepts of hypotheses and theories using an understanding of the scientific method.
- evaluate the outcomes of scientific experiments for the purpose of disproving hypotheses.
- analyze motion in the solar system as a moving observer, and understand how this affects human perceptions of space.
- explain measurements of angles and distance in space.
- explain the progression of human models of the structure of the universe via major achievements in astronomy.
- explain the origin of different patterns of astronomical light in terms of the nature of light and matter.
- explain how a telescope produces the data that is observed, and how that data is used to generate the current understanding of the universe.
- describe the nature and mechanisms behind the Sun, and the pivotal experiments/data that support this understanding.
- describe the structure and interactions of the Earth and Moon.
- compare and contrast the properties of the terrestrial planets.
- compare and contrast the properties of the Jovian planets and their major moons.
- explain the differences between and properties of asteroids, comets and dwarf planets.
- explain the major origin theories for our solar system and universe, and the critical scientific data that supports them.
- describe the methods for searching for exoplanets, and the major categories of exoplanets.
- describe the challenges in searching for life in the universe.

Assessments

This course has four grading components. The weighted average from these four components will be used to guide the grade assessment. If the application of this scheme would result in grades that are judged by the instructor to be inconsistent with the University's grading descriptions (<https://www.uvic.ca/calendar/undergrad/index.php#/policy/S1AAgoGuV>), then the instructor will

assign percentages consistent with them. The instructor will review all lab marks prior to assigning a final grade.

Component Weighting Summary:

There are two possible weighting schemes for this course, as summarized below. The scheme that will apply will depend on performance on the Project component, and will always result in a choice of higher grade of the two schemes. Detailed descriptions of the components follow this section.

Scheme 1: Student completes Project and performs better on Project than on Final Exam.

- Assignments - 20%
- Project - 10%
- Labs - 25%
- Final Exam: 45%

Scheme 2: Student does not complete Project or performs better on Final Exam than Project.

- Assignments - 20%
- Project - 0%
- Labs - 25%
- Final Exam: 55%

Bonus marks are available via the supplementary assignment.

Assignments: 20% (Estimated Time Commitment: 1-2 hours each)

After each topic is completed, a quiz will be available with a set of questions covering material from the topic. The quiz will be administered on Brightspace. The quiz will be available for one week and will be asynchronous. Students will have unlimited attempts to complete the quiz. After submission of a quiz attempt, the number of correct questions will be available, but not which question is correct. Students may retry the quiz, and the highest mark of all attempts will form the student's grade.

Due dates for assignments are:

Topic 1: Sept 23

Topic 2: Sept 30

Topic 3: Oct 7

Topic 4: Oct 14

Topic 5: Oct 21

Topic 6: Oct 28

Topic 7: Nov 4

Topic 8: Nov 13 (Delayed from normal schedule due to Reading Break)

Topic 9: Nov 18

Topic 10: Nov 25

Topic 11: Dec 2

There is a short grace period for each assignment. No assignments will be accepted after the grace period for any reason, as answers will be released. Concession requests may be addressed by means other than delayed submission.

A reminder: The use of LLM/GenAI tools is forbidden, as is the use of pay-for-answers services such as CHEGG. The questions in this course are the copyright of the instructor, and the sharing of questions/answers online will be treated as a violation of the academic integrity policy of the University of Victoria as well as a violation of the copyright of the instructor.

Supplementary Assignment: (Estimated Time Commitment: 1 hour each)

Supplementary assignment submissions will be considered for bonus marks. Students may submit up to three multiple choice style questions based on course material that follow the prescribed guidelines (see Brightspace). Questions that satisfy the criteria in the guidelines will provide a 1% bonus mark towards the student's final grade. Any questions that are sufficiently good to warrant adding to the course question bank will receive an additional 1% bonus mark.

The Supplementary Assignment is due on Dec 3.

Project (OPTIONAL): 10% (Estimated Time Commitment: 4+ hours)

Students may complete a project based on course material. The details for the project are provided on Brightspace.

The Project is optional such that students who complete the Project and perform better on the Project than on the final exam will have the Project count towards 10% of their final grade. Students who do not complete the Project or who perform better on the final exam than on the Project will have the 10% weight added to the final exam weight.

The Project is available for students who are concerned about a heavily weighted final exam and would prefer to have their grade spread out over more components.

The Project is due on Dec 2. There is a short grace period for the Project submission. No Projects will be accepted after the grace period has ended under any circumstances, and the Project weight will be shifted to the final exam. This means the Project is not deferrable due to illness or conflict of commitment.

Laboratory Activities: 25% (Estimated Time Commitment: In-Lab 2 hours, Report Writing: 4 hours)

There are a total of five labs 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 purchase for the course. While it is expected that there will be some collaboration between students for the purposes of collecting data during the lab itself, lab reports must be original, individual work written by each student in their own words.

Students may not use data collected by another individual for the completion of their lab work. Students who miss attending a lab period for reason of illness or unavoidable circumstance may contact the lab coordinator to apply to attend another lab section or write a makeup lab at the end of the term. Only students who obtain prior permission from the Lab Coordinator will be permitted to attend another lab section or write a makeup lab.

Due Dates are provided on Brightspace for each lab report submission based on the date of the lab activity. There is a short grace period provided for each lab, as determined by the End Date. Any lab report submitted after the Due Date but before the End Date will be treated as late, but graded without penalty. Labs not submitted by the End Date will not be accepted unless

by permission of the Lab Coordinator. **In-term concession requests for missed work must be submitted by the last day of classes in the term. No lab work will be accepted under any circumstances after the end of the make-up lab period at the end of the term, as the TAs will be finished their contract.** Students who have illnesses or unavoidable circumstances affecting their ability to submit more than two labs are recommended to apply for a request for an Academic Concession for Withdrawal Under Extenuating Circumstances from the course.

Final Exam: 45% or 55%

The final exam will be in-person and scheduled by the Registrar during the final exam period. Students who miss the final exam may apply for an exam deferral via the Request for Academic Concession process. Students with approved exam deferrals will be provided the opportunity to write their exam with the other students in the subsequent semester.

Students who complete the Project and perform better on the Project than on the Final Exam will have the weight of the Final Exam set at 45%. Students who do not complete the Project or who perform better on the Final Exam than on the Project will have the weight of the Final Exam set at 55%.

Academic Integrity

Students are expected to adhere to the academic integrity policy of the University of Victoria. Details on this policy can be found here: https://www.uvic.ca/calendar/undergrad/index.php#/policy/Sk_0xsM_V.

Course Materials:

- (Required) Astro 101 Lab Manual (approximate cost \$10 at the UVic Bookstore)
- (Recommended) **The Solar System** by Seeds and Backman (approximate cost \$170 physical copy, \$100 digital copy at the UVic Bookstore)

Note: The textbook is recommended but not required. This means that no part of your grade will be assessed based on material that can only be found by purchasing the textbook. However, the textbook does provide a number of deeper insights and added tutorials/activities that will help you understand the material better.

Resources for Students

UVic Learn Anywhere - <https://onlineacademiccommunity.uvic.ca/LearnAnywhere/>

Many high schools do not adequately prepare students for how to succeed in university, in large part due to the large differences in expected workload. The UVic Learn Anywhere site can help students use their time more effectively and have better outcomes.

UVic Centre for Academic Communication - <https://www.uvic.ca/learningandteaching/cac/>
Struggling with homework that involves writing? English not your first language? The Centre for Academic Communication has supports available to help you.

UVic Math and Stats Centre - <https://www.uvic.ca/science/math-statistics/current-students/undergraduate/msac/index.php>

Struggle with math? No matter the course, the Math and Stats Centre can provide assistance. As long as the assistance is with the mathematics of the problem, there are people available to help.

Academic Accommodations - <https://www.uvic.ca/students/academics/academic-concessions-accommodations/index.php>

Have a disability that might be affecting your studies? The Centre for Accessible Learning can review your diagnosis and provide you with academic accommodations that help reduce the effects of the barriers to education you are experiencing as a result of interactions between course design and your disability.

Student Code of Conduct - <https://www.uvic.ca/services/studentlife/student-conduct/index.php>

Students are expected to behave with respect towards their environment and their community. When there are allegations of student misconduct, this is governed by the Office of Student Life.

Sexualized Violence - <https://www.uvic.ca/sexualizedviolence/>

If you have been the victim of sexualized violence, this link will help you know how to take the next steps for resolution.

UVic Policies & Statements

General Information for all Students - <https://www.uvic.ca/calendar/archives/202301/undergrad/index.php#/content/62daf5e98b7d47001d0fc38b>

This is a list of links to information that may be useful to you.

Academic Concession Policy - <https://www.uvic.ca/calendar/undergrad/index.php#/policy/HJjAxiG04>

This policy governs your rights and responsibilities in the case that you experience an unexpected and unavoidable circumstance (e.g. illness, injury, bereavement, etc), or have conflicting responsibilities (e.g. varsity sports event).

Policy on Respectful and Productive Environment - <https://www.uvic.ca/calendar/archives/202301/undergrad/index.php#/policy/HkQ0pzdAN>

This is a statement and policy about UVic's dedication to a respectful and productive learning environment. This includes human rights, equity and fairness, as well as discrimination and harassment policies.

Policy on Religious Observances - <https://www.uvic.ca/calendar/archives/202301/undergrad/index.php#/policy/r1q0gofdN>

This policy governs students' rights towards religious observances and how to manage your observances with your course responsibilities.

Policy on Non-Academic Misconduct - <https://www.uvic.ca/services/studentlife/student-conduct/non-academic-misconduct/index.php>

This policy governs students' rights and responsibilities with regard to non-academic behaviour. Students are expected to treat each other and staff/faculty with respect.

Statement on Equity, Diversity and Inclusion - <https://www.uvic.ca/vpacademic/about-contacts/equity-diversity-inclusion/index.php>

This is UVic's official statement on equity, diversity, inclusion and anti-racism.