University of Victoria
Department of Physics and Astronomy

ASTR101 - Exploring the Night Sky

Summer 2025 Syllabus

We acknowledge and respect the Lkwungen (Songhees and Xwsepsum/Esquimalt) Peoples on whose territory the university stands, and the Lkwungen and WSANEC 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 Schedule: Tuesday, Wednesday and Friday from 10:30am-11:50am
Lab Schedule:
Labs 2-5 at regularly scheduled times
B01: May 13, May 20, May 27, June 3, 2:30-5:30pm
B02: May 14, May 21, May 28, June 4, 2:30-5:30pm
B03: May 15, May 22, May 29, June 5, 2:30-5:30pm
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.

Technology Information

Course Webpage: http://bright.uvic.ca
Other Technologies: This course may use Zoom for office hours. 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 change in assessed performance.

Course Structure Information

Lectures: Lectures are provided in-person at the scheduled time only. In the case of instructor illness, a replacement pre-recorded lecture may be made available to cover missed material.
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 labs, 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.

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 all assessments are completable within an environment of each students' choosing to ensure that they can find a space that meets their individual needs. 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.

Week Number	Topic
Week 1	Introduction; Science and Astronomy (Topic 1)
Week 2	The Night Sky (Topic 2)
Week 3	History of Astronomy (Topic 3)
Week 4	Light and Matter (Topic 4); Telescopes (Topic 5)
Week 5	The Sun (Topic 6); The Earth (Topic 7)
Week 6	Terrestrial Planets (Topic 8); Jovian Planets (Topic 9)
Week 7	Asteroids, Comets and other Objects (Topic 10); Origin Theories (Topic 11)
Week 8	Exoplanets and Exobiology (Topic 12)

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.

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

For every two topics discussed in class, students will be required to create a multiple choice style question that they believe would be a reasonable exam question to ask. Details of how to do this are provided in a separate course document. There are 12 topics covered in this course, and therefore there are 6 assignments.

The Due Date for each assignment is provided on Brightspace. There will be an additional short grace period for each assignment. Any assignment submitted after the Due Date but before the End Date will be treated as late, but graded without penalty. No assignments will be accepted after the End Date under any circumstances. To account for illness or other unavoidable circumstances, student grades will be based on the best 5 of 6 assignments submitted.

Supplementary Assignment: (Estimated Time Commitment: 4 hours)
There is an optional individual bonus assignment/project that you may complete for extra marks. The bonus assignment will be worth a maximum of 2% of your overall course grade. There are multiple options for you to choose from for the bonus assignment, but you will only be assigned a grade based on ONE of the options. No other supplementary work is available.

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.** 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.

Quizzes: 15% (Estimated Time Commitment: 3 hours)

There are a total of five asynchronous quizzes spaced throughout the semester, administered via BrightSpace on Friday through Sunday of the week assigned. Students are expected to complete these quizzes on any appropriate internet connected device, and are responsible for ensuring that their internet connection is stable for the duration of the quiz. All students receive only one attempt, regardless of unexpected circumstances that might occur during the quiz attempt.

Each quiz will be accompanied by a practice quiz. The practice quiz will have unlimited attempts and will indicate which questions were answered incorrectly, but not which option is correct. Student quiz grades will be formed from the greater of 100% of the quiz grade or 2/3 of the quiz grade plus 1/3 of the practice quiz grade.

The weight of any quiz with a grade lower than that of the final exam will be transferred to the final exam. This policy will be used to address all cases of students missing a quiz. No extensions on quiz deadlines will be provided under any circumstances.

Final Exam: 40%

The final exam will be synchronous but online and open book. The exam will be invigilated via Zoom to ensure that students are working alone. Students must participate in the Zoom invigilation with their cameras turned on and facing themselves and their work environment for the duration of the exam. Students will be required to authenticate their identity by logging in via their UVic Zoom account. Students who fail to meet this requirement will be assigned a grade of zero for the exam.

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 styles of questions, such as image identification, long answer, multiple-select and matching.

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.

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-accomm
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/HJjAxiGO4
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.