COURSE SYLLABUS

COURSE TITLE:	ASTR-101-Astronomy: Night Sky and Planets
CLASS SECTION:	001
TERM:	2025W
COURSE CREDITS:	3
DELIVERY METHOD(S):	Lecture (Fisher 316 3:30PM-5:30PM Mondays and Tuesdays) Labs (Ewing 115 3:30PM-5:30PM Thursdays)

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Lək̓ʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

INSTRUCTOR DETAILS

NAME:	Trystyn Berg
EMAIL:	bergtr@camosun.ca
OFFICE:	Fisher 346D
HOURS:	10:00AM – 11:30 AM Tuesdays; 1:00PM – 2:30PM Thursdays Please email me if you cannot make these times.

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

An introduction to Astronomy covering constellations, solar and planetary motions, lunar phases and eclipses, cosmological models, starlight and spectroscopy, telescopes, planets, and the origin and evolution of the solar system.

PREREQUISITE(S):

One of:

C in English 11

C in Camosun Alternative

C in ENGL 050 (if taken prior to September 2020)

And one of:

C in Math 10

C in MATH 053

CO-REQUISITE(S):

EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of this course, a student will be able to:

- Identify constellations and famous bright stars.
- Describe the daily, monthly and yearly motions of the Sun, Moon, planets and stars.
- Outline how our modern knowledge of the four forces of nature (gravity, electricity and magnetism, the strong force and the weak force) and the over 100 elements in the Periodic Table, evolved from the ancient idea that there are two forces (gravity and levity) and four elements (earth, water, air and fire).
- Summarize Kepler's Laws describing the motion of the Moon and planets, Newton's Laws of motion and gravity, Maxwell's Laws concerning electricity and magnetism, and the basic laws of light and matter.
- Describe how optical, radio and other telescopes work.
- Summarize the composition, structures and atmospheres of the planets.
- Describe the giant planets Jupiter, Saturn, Uranus and Neptune and their many satellites.
- Describe and draw logical conclusions about the history of the debris in the solar system: meteorites (stony and iron) and asteroids, the asteroid belt, objects (such as Pluto) in the Kuiper belt, and comets (for example, Halley's comet).
- Describe a scientific model for the formation and evolution of the solar system that successfully accounts for the many observed properties and systematic features, such as why all the planets revolve around the Sun in the same direction, and why all the major planets orbit in a flat plane.
- Assemble experimental apparatus (telescope), make observations of sky, analyze and interpret data to test astronomical hypotheses and complete written laboratory reports.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

(a) Textbook: OPENSTAX ASTRONOMY (available from web, open source)

(b) Pocket calculator

(c) Software program “Stellarium” (open source, free on internet)

(d) A personal computer (or access to a personal computer) with Word and Powerpoint (or equivalent) software. These are available during the labs.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
1 (Jan. 6-10, 2025)	Astronomy and culture + Astronomy and science (Chapters 1 & 2) Lab: Overview	
2 (Jan. 13-17, 2025)	Observing the night sky + The Earth, Moon, & Sun (Chapters 2 & 3) Lab: Cultural astronomy project 1	
3 (Jan. 20-24, 2025)	Orbits and Gravity + Light, Spectra and Telescopes 1 (Chapters 4 & 5) Lab: Cultural astronomy project 2	
4 (Jan. 27-31, 2025)	Light, Spectra and Telescopes 2 + 3 (Chapters 5 & 6) Lab: Using Stellarium 1	
5 (Feb. 3-7, 2025)	The Sun + review (Chapters 15 & 16) Lab: Using Stellarium 2	
6 (Feb. 10-14, 2025)	Midterm (Monday Feb 10); The Solar System (Chapter 7) Lab: Parallax of Venus	
7 (Feb. 17-21, 2025)	No class	Reading break
8 (Feb. 24-28, 2025)	The Earth as a planet (Chapter 8) + The Moon (Chapter 9) Lab: Solar Rotation 1	
9 (Mar. 3-7, 2025)	Mercury (Chapter 9) + Venus (Chapter 10) Lab: Solar Rotation 2	
10 (Mar. 10-14, 2025)	Mars + Gas Giants (Chapters 10 & 11) Lab: Solar System Mission project 1	
11 (Mar. 17-21, 2025)	Moons and Rings + Asteroids (Chapters 12 & 13) Lab: Solar System Mission project 2	
12 (Mar. 24-28, 2025)	Comets, Trans-Neptunian Objects and the origin of the Solar System (Chapter 13 & 14) Lab: Asteroid Astrometry 1	

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
13 (Mar. 31- Apr. 4, 2025)	Presentations of mission group projects Lab: Asteroid Astrometry 2	
14 (Apr. 7-11, 2025)	Course review and guest lecture Lab: Galileoscope	
15+16 (Apr. 14-25, 2025)	Final Exam (during college exam period)	

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines can be reviewed on the CAL exams page. https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Lab reports: Stellarium, Parallax of Venus, Solar rotation, Asteroid Astrometry, Galileoscope	25%
Lecture quizzes and weekly homework	15%
Cultural astronomy project (report due date: Jan 29; reflection due date: Feb 5)	10%
Solar system mission project (presentations Mar 31 & Apr 1st)	15%
In-class discussions and exercises	5%
Midterm (Feb. 10)	10%
Final Exam	20%
TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information.

https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

Students must attend and obtain an overall grade of 50% or higher in all the laboratory components of the course in order to obtain credit for the course. This includes the Cultural astronomy and Solar System mission projects.

Cheating on a midterm or final exam will be given a grade of zero.

Course content, announcements, and important class information will be posted on the course page of D2L and by email. Students must check D2L and their email regularly.

Students who will miss a quiz, midterm, or lab session have an obligation to seek out concessions directly from their instructor in a timely manner BEFORE the start of the assignment being missed.

If a lab, quiz or midterm is missed due to illness or extenuating circumstances, students must contact their instructor within 24 hours of the missed lab or test.

Each lecture will have a 5 minute `lecture' quiz on D2L due at the end of the day (11:59PM) of the lecture. An opportunity to do the lecture quiz will be provided in class. Each quiz will be worth 2 or 3 marks.

There will be, on average, a weekly homework with questions of similar difficulty to midterm and final exams. Each homework will be worth about 10 marks. The homework problems will be due one week from being assigned.

The best 90% of available marks from the lecture quizzes and weekly homework will be used for the evaluation of this grade component.

One late mark (10%) will be removed per day for late homework or lab reports.

Students will be required to work in small groups for the `Cultural astronomy' and `Solar system mission' projects. Time for project work will be allocated during the lab hours, and is considered part of the labs. Students will be expected to complete any unfinished work outside the lab hours.

During the lectures, students will be requested to bring a popular science article on astronomy to discuss with the class. Three articles per student must be brought to lectures during the semester. In class topic discussions will also be present in each lecture. These in-class discussion components will be graded on completion and participation.

Lecture slides will be posted after the lecture. Note taking by students should focus on noting important concepts discussed during the lecture, and not copying all the information on the slide. The textbook is not required, and is complementary to the lecture material.

In this course you may use AI aids to stimulate research sources for projects. To align with principles of academic honesty, all use of AI tools (including, but not limited to ChatGPT) must be clearly and explicitly cited, and must include the prompts used in any interactions with the AI tool. Using AI tools to write submitted material (such as homework answers or lab reports) is strictly prohibitive.

SCHOOL OR DEPARTMENTAL INFORMATION

PHYSICS DEPARTMENT GUIDELINES REGARDING TESTING AND GRADING:

- As stated in the current college calendar, "students are expected to write tests and final exams at the scheduled time and place." Exceptions will only be considered due to illness and emergency circumstances. Holidays or scheduled flights are not considered to be emergencies.

- Missed exams normally receive a zero grade. Instructors are not required to provide make-up tests.

PHYSICS DEPARTMENT GUIDELINES REGARDING LABS:

Laboratory activities involve practical applications of your knowledge and manual skills development. Development of these skills is a requirement to meet the Course Learning Outcomes.

- Students must obtain an overall grade of 50% or higher in the laboratory component of the course order to obtain credit for the course.
- Unless otherwise stated by your instructor, late penalties are as follows: For overdue labs, a late penalty of 10% per day will be assessed following the due date.
- At the discretion of the instructor, a student who is repeating this Physics course with a laboratory grade of 70% or higher may apply for lab exemption.

MISSED LABS GUIDELINES:

- Laboratory activities are in-person activities; attendance and participation are required. Reports will not be accepted from students who did not attend the lab period.
- If you arrive more than 30 minutes late to the lab, you may be recorded as absent.
- Students who will miss a laboratory session have an obligation to seek out concessions directly from their instructor in a timely manner, BEFORE the lab period occurs. In the event of unforeseen circumstances, lab instructors must be notified within 24 hours of the missed lab period, or concessions will not be available.
- If you miss up to three (3) laboratory sessions, you are still eligible to meet the Learning Outcomes for the course, though missed labs may receive a zero grade.
- If you miss a total of four (4) or more labs for any reason including, but not limited to: life circumstances, illness, family or pet obligations, planned vacations, milestone family events, work commitments, competitive athletic events., you will be unable to meet the learning outcomes for the class and will receive a failing grade (F) in the entire course, regardless of marks received on graded lab and lecture components. Exceptions will only be considered through an academic concession granted by the instructor or Dean/Associate Dean.
- Please note that if you are suffering from a serious medical illness that prevents you from participating in this course, Camosun College has a Compassionate Medical Withdrawal Policy (https://camosun.ca/services/forms#medical

GENERAL IN-PERSON ASSESSMENT RULES FOR STUDENTS – PHYSICS AND ASTRONOMY DEPARTMENT:

The rules are used for on-campus quizzes, tests, and exams in the Physics and Astronomy department. A Faculty member will actively supervise throughout the examination. The instructor may move around the room or sit at the front or back of the room.

By entering the exam room, students agree to abide by the following rules:

- Turn off all electronic communication devices (including, but not limited to: cellphones, smartwatches, laptops, tablets) before entering and place them on a designated table at the front of the exam room.
- All bags must be on the sides, back, or front of the room – the instructor will identify the appropriate place.
- Students are not permitted to wear brimmed hats or hoodies during in-person assessments.
- Students may bring pens, pencils, calculator, highlighters, erasers, ruler, protractor, and a drink in a closed container. If permitted in the room, students may have a snack in its original packaging or a clear container.
- Calculators must be scientific, non-textual calculators, with no notes of any kind in the case.
- Items brought into the room may be inspected by the Faculty member.
- If you arrive late for the examination, no additional time will be provided. Students arriving more than 30 minutes late may not be allowed to enter the room.
- For biological breaks, permission to leave the exam room must be obtained. Only one student at a time may leave the room, and biological breaks must be as brief as possible.
- Access to any online materials during exams is prohibited.
- Any work submitted on an examination must be entirely your own.
- Students found communicating with one another in any way or under any pretext; having unauthorized books, papers, electronic computing devices, data storage, or communication devices in view, even if their use is not proved; or found cheating in any way may receive a zero grade. All incidents will be recorded and managed according to the College's Academic Integrity Policy.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: https://camosun.libguides.com/academicintegrity/welcome
Please visit https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please visit the CAL website for more information about the process of registering with CAL, including important deadlines: https://camosun.ca/cal

Academic Progress

Please visit https://camosun.ca/sites/default/files/2023-02/e-1.1.pdf for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit https://camosun.ca/registration-records/tuition-fees#deadlines.

Grading Policy

Please visit https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf for policy relating to requests for review and appeal of grades.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal (see Medical/Compassionate Withdrawals policy). Please visit https://camosun.ca/services/forms#medical to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence Policy: https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: https://camosun.ca/about/camosun-college-policies-and-directives

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.