

COURSE OUTLINE – PHYS 2203

Astronomy – Winter 2026

Professor: Simon Viel (he/him) – Address by first name!

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Please include **PHYS2203** in the subject line.

Teaching assistant: TBA

Student hours: Weekly TBA, and by appointment

Class time: Tuesdays and Thursdays 10:05 – 11:25 am

First day of class: Tuesday January 6, 2026

Official course description: The observational basis of astronomy.
The history of astronomy, properties of light, solar system observations and stellar astronomy.

Prerequisites: PHYS 1002 or PHYS 1004 or permission of the department. PHYS 1008 with a grade of B- or better may also be used if MATH 1004 or MATH 1007 or MATH 1002 have been successfully completed.

Textbook: *Foundations of Astrophysics*, by Ryden and Peterson
Available from the University Campus Store (\$85)
Students are not required to purchase textbooks or other learning materials for this course.

Communication policy: Students are responsible for reading and responding to information distributed on the Brightspace course page. Please make sure to check the course page regularly!
Also feel free to email me at the address given above.
All online communications should respect “Netiquette”: <https://carleton.ca/online/online-learning-resources/netiquette/>

Evaluation: Reading Quiz Participation (5%)
Astronomy Heroes Activity (5%)
Assignments (35%)
Midterm Exam (20%)
Final Exam (35%)

Course Timeline (Tentative):

Before the first class on each topic, please read the corresponding chapters indicated.

* indicates tentative homework assignment hand-out dates (due the following Thursday)

Class dates	Textbook chapters	Topics
January 6	-	Course Introduction, Tour of the Universe
January 8, 13	Chapter 1	Sky Motions, Seasons, Lunar Phases
January 15*	Chapter 2	Astronomy Heroes
January 20, 22*, 27	Chapter 3	Kepler's Laws, Newton's Laws, Orbital Mechanics
January 29*	Chapter 4	Earth-Moon System, Tides
February 3	Chapter 5	Interaction of Light and Matter, Doppler Effect
February 5	Chapter 6	Telescopes
February 10	-	Review
February 12	-	Midterm Exam
February 16-20	Chapters 13-16	Reading Week
February 24	Chapter 7	The Sun
February 26*	Chapter 8	Overview of the Solar System
March 3, 5*	Chapters 9-10	Planetary Geology, Magnetism, Surfaces, Atmospheres, Climate
March 10, 12*, 17	Chapters 11-12	Jovian Planets, Moons and Rings, Asteroids, Comets, Dwarf Planets, Exoplanets
March 19*, 24, 26*	Chapters 17-18	Introduction to Stellar Astronomy, Stellar Evolution, Stellar Remnants
March 31, April 2	Chapters 19-24	Introduction to Galaxies and the Foundation of Modern Cosmology
April 7	-	Review
December 10-22 (TBD)	-	Final Exam

Kessler Observatory (Optional):

Students are invited to attend observation sessions organized at the Kessler Observatory, located on top of the Herzberg Laboratories at Carleton: physics.carleton.ca/observatory

Assessment Activities:

Research about learning strongly suggests that **the most important factor in learning is doing the work** of reading, writing, recalling, practicing, synthesizing, and analyzing.

Learning happens best when people actively engage material on a consistent basis, and that is why we have high standards in this course. We are confident that, with appropriate effort, you all can meet those standards.

Informal Pre-Test

Many students will already have some knowledge of astronomical concepts before this class even starts. The goal of the informal pre-test, handed out on the first day of class, is to assess this level of prior knowledge in order to better tailor the material presented during this course to you. Expect to not know most of the answers: you will learn them in this class! This activity does not impact your final grade in any way.

Reading Quiz Participation (5%)

On twelve weeks during the term, a Reading Quiz will be handed out about the topics covered in the reading assignment for the following week (refer to the Tentative Course Timeline above). The main goal of the reading assignments and quizzes is to prepare you for the corresponding week's lectures: please take them seriously.

The material in each Reading Quiz will not yet have been seen in class, but can be found in that week's reading assignment. Grades for this activity are based on participation, each Reading Quiz being worth 0.5% towards your final grade, up to a maximum of 5% in total.

It is advised to re-try each Reading Quiz until you get a perfect score.

Astronomy Heroes (5%)

In previous years, the historical segment of the course was based on the textbook chapter. This year, we will have the third edition of the Astronomy Heroes activity. On a single presentation slide, each student is asked to:

- Identify a scientist as your hero
- Identify their contributions to astronomy
- Explain your rationale for choosing them

This slide is **due on January 13, 2026**. Then on Thursday January 15, each student will give a 1-minute presentation in class, followed by a brief questions and answers period.

This activity will be graded on originality in the choice of scientist, relevance to the course, quality of the slide and quality of the presentation.

Please cite all your sources on the slide. Originality for this activity is defined with respect to the standard textbook history of astronomy, not with respect to other students in the class (i.e. multiple students may choose the same scientist).

Assignments (35%)

Written homework problems will be assigned on eight Thursdays during the term, and they will be due at 11:59 pm on Thursday the week after they were assigned. Each assignment is expected to require at most 5 hours of work. **All the material you need to solve them will have been presented in class:** online searches are strongly discouraged. If you have any questions, please attend student hours.

You are encouraged to study together, and write separately. **The work you hand in must be your own.** Replicated / copied / plagiarized assignments (this includes AI-generated answers) will receive a grade of zero.

Grade flexibility: Each student's homework assignment with the lowest percentage grade (except for disciplinary reasons) will not be considered when calculating the contribution of homework assignments to the final grade.

Midterm Exam (20%)

The midterm exam will be during the regular lecture period on **Thursday February 12.** The midterm exam will be closed book and closed notes. A formula sheet will be provided.

If the final exam percentage grade is higher than the midterm exam grade, then the midterm exam will receive a percentage grade equal to that of the final exam. The final exam is expected to be harder than the midterm exam, so do not rely on this!

Final Exam (35%)

There will be a 3-hour written final exam, during the final examination period in April. The final exam will be closed book and closed notes. A formula sheet will be provided.

The final exam is a requirement to successfully complete this course.

Late and Missed Work Policies

Late Work

Late work will not necessarily be accepted and may result in a grade of zero. It is your responsibility to **email the instructor** ahead of the deadline to request an extension. It is also possible to use the [academic considerations form](#).

Missed Work

Short-term (5 days or less): For assignments, please see the above statement on late work. There will be no deferred midterm exam; if the midterm exam is missed, then the midterm exam will receive a percentage grade equal to that of the final exam.

Long-term (> 5 days): Please email the instructor, or use the [longer-term accommodation](#) request form.

Academic Accommodations and Regulations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (<https://students.carleton.ca/course-outline/>).

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here: <https://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

Statement on Artificial Intelligence Usage

The use of large-language models, generative AI or agentic AI for course work is prohibited.

As our understanding of the uses of AI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Statement on Academic Integrity

Students are expected to uphold the values of academic integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using AI tools such as ChatGPT when your assessment instructions say it is not permitted.

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in [Carleton University's Academic Integrity Policy](#). A list of standard sanctions in the Faculty of Science can be found [here](#).

Additional details about this process can be found on [the Faculty of Science Academic Integrity website](#). Students are expected to familiarize themselves with and abide by [Carleton University's Academic Integrity Policy](#).

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the [7 Rights and Responsibilities Policy](#) for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.

Student Concerns

If a concern arises regarding this course, **your first point of contact is me**: Email or drop in during student hours and I will do my best to address your concern. If I am unable to address your concern, the next points of contact are (in this order):



Note: You can also bring your concerns to [Ombuds services](#).