



ASTR-100 – Astronomy

University Arts and Science

Effective Term & Year: Fall 2024
Course Outline Review Date: 2029-04-01

Program Area: Math and Sciences

Description:

This course presents an overview of historical and modern astronomical knowledge. Topics include telescope design, astronomical methods, the life cycle of stars, Nuclear reactions, Black Holes and Neutron stars, the formation of solar systems, and the planets in our solar system. The accompanying lab introduces students to night sky observation and real-world experience with astronomical photography.

Program Information:

This course can be used as a lab science credit in Arts, Business Management, or for Associate degrees, but it may not be acceptable for transfer to some science programs for lab science credit.

Delivery Methods: On-campus (Face-to-Face)

Credit Type: College of the Rockies Credits

Credits: 3

Course type/s: Sciences, Lab Sciences

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	45

Seminar/Tutorials	
Laboratory/Studio	45
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	90

Course Requisites:

None

Prior Learning and Recognition: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, work-based assessment or a combination of assessments that is appropriate to identify, assess, and recognize prior skills, competencies, and knowledge to achieve course credit. Tuition fees apply, refer to Policy [2.5.5 Prior Learning Assessment and Recognition \(PLAR\)](#) or contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see <https://www.bctransferguide.ca/> or <https://transferalberta.alberta.ca> . For more transfer credit information, please visit <https://www.cotr.bc.ca/Transfer>

All requests for course transfer credit from institutions in British Columbia or elsewhere should go to the College of the Rockies Enrolment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Foundations of Astronomy. (2019) Seeds, Backman, 14th edition.

Please see the instructor's syllabus or check COTR's online text calculator <https://textbook.cotr.bc.ca/> for a complete list of the currently required textbooks.

Learning Outcomes:

Upon the successful completion of this course, students will be able to

- describe motions of the major elements of the Celestial Sphere: Planets, Stars, the ecliptic;
- recognize and locate seasonal constellations in the sky;
- describe the structure, position, moons, surface and atmosphere of the Sun's planets;
- summarize theories of origin for the Solar System;
- describe the life cycle of stars;
- describe the different types of electromagnetic radiation and the processes which generate them;
- define hydrostatic equilibrium and describe its relationship to stars;
- describe the different types of nuclear fusion ;
- classify stars according to temperature or size or composition;
- describe different methods for dating planets;
- describe a star's source of energy;
- analyze astronomical data using computers;
- describe the different telescope designs and compare their advantages and disadvantages;
- set up a telescope and SLR camera to capture images of targeted stars and planets; and
- apply mathematics to describe gravitationally bound systems.

Course Topics:

- Astronomical methodology
- The Sun
- Stars and Stellar Life Cycles
- Formation and properties of planets of the solar system

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face)

Assessment Type	% of Total Grade
Assignments & Astrophotography projects	25%
Labs	10%
Midterm(s)	30%
Final Exam	35%

Total	100%
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Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Evaluation Notes: A grade of “D” grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Please see the instructor syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments, and use of electronic aids.

Note: The laboratory must be satisfactorily completed to get credit for the course (for example, if the laboratory is incomplete, the final grade is still incomplete).

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a “0” on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.1.4 Course Audit
- Policy 2.4.1 Credential Framework
- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Rights, Responsibilities and Conduct
- Policy 2.4.8 Academic Performance
- Policy 2.4.9 Student Feedback and Concerns
- Policy 2.4.11 Storage of Academic Works
- Policy 2.5.3 Student Appeal
- Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)

Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational,

employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.