



Astronomy - ASTR 100

University Studies Program

Course Outline

COURSE IMPLEMENTATION DATE:	Pre 1998
OUTLINE EFFECTIVE DATE:	September 2024
COURSE OUTLINE REVIEW DATE:	April 2029

GENERAL COURSE 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: This course is delivered face-to-face

COTR Credits: 3

Hours for this course: 90 hours

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	45
Seminars / Tutorials	
Laboratory / Studio Hours	45
Practicum / Field Experience Hours	
Other Contact Hours	
Total	90

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	

Course Outline Author or Contact:

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Signature

APPROVAL SIGNATURES:

Department Head
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Department Head Signature

Dean Signature

EDCO

Valid from: September 2024 – April 2029

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT

Prerequisites: None

Corequisites: None

Flexible Assessment (FA):

Credit can be awarded for this course through FA

☒ Yes ☐ No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit <http://www.cotr.bc.ca/Transfer>

Students should also contact an academic advisor at the institution where they want transfer credit.

Prior Course Number: N/A

Textbooks and Required 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.
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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 ASSESSMENT:

Assignments	% Of total Grade
Assignments & Astrophotography projects	25%
Labs	10%
Midterm(s)	30%
Final Exam	<u>35%</u>
Total	100%

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 POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment, and marketing

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needs. The instructor will endeavour to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.