Course ID:	Course Title:	Fall 2023
ASTR 120 -1	Introduction to Astronomy	Prerequisite: none
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	In Class	**Instructor:**	Dr. Stephen Jeans	**First day of class:**	September 12
Days:	Wednesday	**Email:**	sjeans@ambrose.edu	**Last day to add/drop:**	September 18
Time:	5:30 to 8:30 p.m.	**Phone:**	403-407-9500	**Last day to withdraw:**	November 21
Room:	A2131	**Office:**	L2111	**Last day to apply for extension:**	November 28
Lab/ Tutorial:	in class, and added hour Wed., Nov. 15 (9:30 p.m.)	**Office Hours:**	Wed. 4:30 to 5:30 p.m., or by appointment in-person/online, or any time/place we meet	**Last day of class:**	December 12
Final Exam:	Wed., Dec. 13, in A2131, 5:30 to 8:30 p.m.				

Important Dates and Information

For a list of all important dates and information regarding participating in classes at Ambrose University (AU), please refer to the Academic Calendar at https://ambrose.edu/academic-calendar.

Course Description

A survey of modern astronomy and current views on the Universe, Solar System, and other fundamental cosmic phenomena. This course includes out-of-class tutorials and field trips including a trip to the Rothney Astrophysical Observatory (RAO).

Expected Learning Outcomes

At the conclusion of ASTR 120, students will be able to:

knowledge
- explain major elements of the Universe including stars, galaxies, space-time,
- identify key aspects of radiation as informant and the key tools of astronomy,
- apply the principles of physical laws to the functions and evolution of matter,
- simplify modern scientific theory of structure and interaction among bodies,
- outline the origins and fates of cosmic phenomena their current state and ends,
- postulate basic science-backed likelihood of contemporary big questions,

skill - build, operate, and calculate results of data from simple apparatus,
- conduct basic research and communication of science and of astronomy,

attitude - relate a sense of the beauty and vast scale of the universe to objects within, and
- express an understanding of the significance and coexistence of science and of faith.

Textbooks

Required: Ghose, S., Milosevic-Zdjelar, V., and Read, L.A., Reid, M. (2021), ***ASTRO, 3rd Canadian edition***, Nelson Education. ISBN-13: 9780176857059 (preferred, but previous version permitted also). Available in the Campus Bookstore or see the digital link to a short-trial and how to order the eBook from the publisher.

See **Moodle** (AU's learning management system) for class-specific resources and learning materials (e.g., publisher PowerPoint files and a ***Course Reader*** that lists the key concepts and terminology from the textbook, a basic lecture summary). Depending on the activity, you may be required to print and bring a hard copy of an assignment to class.

Course Schedule

Below is a tentative schedule, subject to change, as circumstances require (cloudy days, etc.). Students are encouraged to regularly check both the course Moodle page and their Ambrose University email for materials and class expectations (e.g., shifts in delivery due to weather, or assignment changes).

Weeks in **green** highlight-background indicate outdoor experience for portion of class, **yellow** indicates off-campus. **Reading** focuses on **specific pages/concepts** from the selected chapters, see our ***Course Reader*** **on Moodle for details**.

Week	Date	Reading	Topic/Activity	Required, Notes, and Activities Due
01	Sep. 6	Chapter 3, 5, and 6 parts	The Sun, our star (note: may switch place with Week 2 depending on weather/cloud cover)	likely outdoor activity for portion of class, dress appropriately Due: Week's Work and Exit Slip
02	Sep. 13	Chapter 3, 12, 13, and 14	Motions of planets and other celestial bodies	likely outdoor activity for portion of class Due: Week's Work and Exit Slip
03	Sep. 20	Chapter 2 and 3	Cycles of the Moon, orbital ellipses, and eclipses	likely outdoor activity for portion of class Due: Week's Work and Exit Slip
04	Sep. 27	Chapter 4 and 5	Light, atoms, and radiation— the great informant	likely outdoor activity for portion of class Due: Week's Work and Exit Slip
05	Oct. 4	Chapter 7 and 12	Star formation, function, and existence span	**YES, we have regular class this evening**, (*Deeper Life Conference* is daytime only) Due: Week's Work and Exit Slip
06	Oct. 11	Chapter 2, 3, and 4	**Midterm Exam** (written) and **Star Party** (practical) -- Sky maps and telescope basic features	First hour is an assessment ('larger exit'), public Star Party follows: bring friends for videos, then outside (warm attire layers) Due: Star Party activity practical
	Oct. 14		Ambrose Solar Eclipse Party – Saturday morning public event (volunteer helpers appreciated)	Mahood Commons 9:14 a.m. - 11:45 a.m. (10:26 a.m. max. at 0.697 Magnitude) bring your friends, family, neighbors
07	Oct. 18	Chapter 6	Computing data to classify stars	Due: Week's Work and Exit Slip
08	Oct. 25	Chapter 3 and 8	Star deaths, binary systems, and compact objects	Due: Week's Work and Exit Slip

09	Nov. 1	Chapter 8, 9, and 10	Relativity, black holes, and quasi-stellar objects	Due: Week's Work and Exit Slip
	Nov. 8		NO CLASS – Reading Week	
10	Nov. 15	Chapter 1, 3, 4, 6, 11, and 12	Research facilities, technology, and exoplanet imaging	Rothney Astrophysical Observatory trip, our bus leaves campus at 5:30 p.m. sharp, returns ~9:30 p.m., dress in warm layers
11	Nov. 22	Chapter 1, 9, and 10	Cosmic scales and galactic islands of stars	Due: Week's Work and Exit Slip
12	Nov. 29	Chapter 1, 10, and 11	Current scientific cosmology	Due: Week's Work and Exit Slip (bonus Star of Bethlehem opportunity)
13	Dec. 6	Chapter 15	Astrobiology, search for life on other worlds	prepare questions for review Due: Week's Work and Exit Slip

Requirements

Week's Work are weekly learning-related tasks. Format varies considerably with concept taught. Students can expect to practice pen and paper problems for some activities and make observations through a telescope for others. There will be small group and large group activities that include handing in the product of that work. As much as possible the bulk of the Week's Work is conducted in-class with course professor and peer support. Some out-of-class research and revision ensures the highest mark possible.

Exit Slips are short checks of student understanding, feedback for both professor and learner to improve as the term progresses. At the conclusion of a week's class meeting, a brief graded quiz or activity, about five minutes; for example, about five questions, a diagram, or a short paragraph.

The **Midterm exam** is mid-way through the course during regularly scheduled class time. Content arises from the course to that point. Anticipate a short exam, varied question formats, consistent with class activities and Exit Slips, along with a practical group component. For accommodation, see your course professor.

The **Final exam**, scheduled by the **Registrar's Office**, consists of **c**ontent coming from the second half of the course. For accommodation, see your course professor. **Students must ensure they are available for the final exam**. Vacations, flights, employment, etc. are NOT valid reasons for a deferred examination, similar to Midterm in format.

Health and Safety

To keep our community safe, stay home if you are unwell (symptomatic or not) with any illness that is communicable (COVID, flu or cold virus, etc.). Students are expected to be physically present, however, following recent protocol (of staying at home and contacting your instructor) is the best kindness you can show to others. Contact your course instructor as soon as possible to discuss arrangements that ensure you keep current with learning and course standing.

Attendance

Attendance is mandatory. *Introduction to Astronomy* provides discipline-based fundamentals supported by professional data from the field, demonstrations, practical reinforcement activities, and participatory interaction. As a result, in-person activities, conducted in scheduled class time, count toward assessed course components, leaving greater time for reading, research, and study.

Lectures are not simulcast/streamed nor provided online. Make the course professor aware of an absence cause as soon as possible for the possibility of retaining course standing. If you are ill, stay home. The course professor responds typically within a day about class expectations and in assisting you with alternate arrangements for excused absence.

Grade Summary:

Grading Schedule

Week's Work class/field exercises	27.5%	about one/week (e.g., measure Sun diameter)
Exit Slip	27.5%	about one/week (e.g., multiple choice questions)
Midterm written examination	22.5%	mix of short questions and practical possible
Final written examination	22.5%	mix of short questions and practical possible, non-cumulative
	Total: 100%	

Allow five (5) days after completing all course work and assessments for marks to go to the Registrar's office. Students worried about poor grades should see your course professor well before it is too late to alleviate the problem. Barring extenuating circumstances, graded assignments are returned to students within one week of submission.

Late assignments accepted at the course professor's discretion. Mark is reduced by 10%/day (weekends count as a day), but, may be reduced to 5%/day possible if the student is in contact with the instructor ahead of the deadline, and onward until complete. No makeup session for missed Week's Work, Exit Slip, Midterm, or Final exam, without cause and at the course professor's digression. Vacation, planed travel (e.g., flights), employment, etc. are NOT valid reasons for excused attendance or assignment extension.

Note that a breach of **academic integrity** (plagiarism, cheating, falsification, etc.) typically results in a mark of zero, at the instructor's digression. Academic misconduct is an action, whether actual, attempted, or assistance provided to another, in relation to academic and scholarly activity, whether deliberate or inadvertent, that is dishonest, misrepresents information, or creates unfair advantage.

Students are encouraged to employ the resources of this course in their studies and seek out other valid academic sources (note, use of AI platforms will not fit well, but are not barred). For any work not of your own creation add quotations to text or caption to a figure. Copyright declarations should remain intact *and/or* any work of another given credit by listing the author(s)/source (APA Style referencing preferred). All of our course resources (including slides and handouts) are provided under a Creative Commons Attribution-NonCommercial-ShareAlike license. Uploading course resources to sites including Chegg, CourseHero, or other online submit-to-access service is considered a commercial activity, and explicitly barred by this license, which will be considered a violation of academic integrity and reported.

The available letters for course grades are as follows:

Grade	Numeric equivalent	Interpretation	Grade Points
A+	100	**Mastery**: Comprehensive understanding of subject matter	4.00
A	95		4.00
A-	90		3.70
B+	85	**Proficient**: Well-developed understanding of subject matter	3.30
B	81		3.00
B-	76		2.70
C+	71	**Basic**: Developing understanding of subject matter	2.30

C	67		2.00
C-	62		1.70
D+	59	**Minimal Pass**: Limited understanding of subject matter	1.30
D	55		1.00
F	up to 49%	**Failure**: Failure to meet course requirements	0.00
P	P/F	**Pass**	No grade points

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g., percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Other:

Submission formats
The **preferred formats** for online submissions are MSWord (.docx) or Adobe Acrobat (.pdf). Assignments submitted as a link to a GoogleDoc or other image format (e.g., Apple file .pages or shortcut link) will not be accepted except by prior arrangement with the instructor.

Hallway and outdoor work
Some activities are out-of-class or outdoors to take advantage of large spaces and to teach about natural wonders or physical processes. Advance notice permits the securing of personal items and dressing responsibly for these classes.

Equipment use
To reinforce concepts encountered during this course, participants observe and/or take part in multiple demonstrations and laboratory work that includes the use of equipment. Safety is an expectation of each student for themselves, for the well-being of others in the class, and for the preservation of Ambrose facilities, apparatus, and sample materials. When conducting work in the classroom or in the field, be observant of proper procedure and check that others around you are not at risk. Report any concerns or incidents immediately to your instructor.

Technology
Students are encouraged to **bring a laptop** to class for digital simulations and science research activities. Regarding cellphones, laptops, and other electronic devices -- out of respect for others, **turn off audible alerts** during class time. Non-course related use, especially distractions, are not permitted.

Supplementary course fee
A supplementary course fee charged by the Registrar's Office covers expenses related this course; the primary cost is associated with transportation on the fieldtutorial. Should the trip become a virtual event, due to the pandemic or other reason, your course professor will discuss reimbursement of a portion of this fee with administration and the Registrar.

Library
Ambrose University Library has a wealth of connections to online materials/sites, please inquire about this resource. There is a copy of the course textbook available for short-term loan and reading, please inquire about that.

Ambrose University Important Information:

Communication
All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions.

Exam Scheduling
Students who find a conflict in their exam schedule must submit a *Revised Final Exam Time Application* to the Office of the Registrar by the deadline noted in the Academic Calendar. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; or 2) the scheduled final examination slot results in three consecutive examination periods. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Standards of Behaviour in the Classroom Setting
Learning is an active and interactive process, a joint venture between student and instructor and between student and student. Some topics covered within a class may lead to strong reactions and opinions. It is important that Students understand that they are entitled to hold contradictory beliefs and that they should be encouraged to engage with these topics in a critical manner. Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian imperative to pursue truth, which lies at the heart of the Ambrose educational experience. However, active discussion of controversial topics will be undertaken with respect and empathy, which are the foundations of civil discourse in the Classroom Setting. Primary responsibility for managing the classroom rests with the instructor. The instructor may direct a student to leave the class if the student engages in any behaviour that disrupts the classroom setting. If necessary, Ambrose security will be contacted to escort the student from class. Please refer to your professor regarding their electronic etiquette expectations.

Academic Integrity
We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Academic Policies
It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. The academic calendar can be found at https://ambrose.edu/academics/academic-calendar

Privacy
Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Coursework Extensions
Should a request for a time extension on coursework exceed the end of the term, a *Coursework Extension Application* must be completed and submitted to the Office of the Registrar. The extension (if granted) will be recorded on the student record. Extensions are granted at the discretion of the instructor and registrar. Normally, Course Extension Applications will be considered only when all of the following conditions are met:

- the quality of prior course work has been satisfactory;
- circumstances beyond your control, such as an extended illness or death of a family member, make it impossible for you to complete the course work on time; and
- you submit *Coursework Extension Application* to the Office of the Registrar on or before the deadline specified in the Academic Schedule.

If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course. A temporary grade of TX will be assigned until a final grade is submitted in accordance with the new deadline. A final grade of F will apply to:

- all course work submitted after the end of the semester unless a coursework extension has been granted; and all course work submitted after the revised due date provided by an approved extension to coursework.

Academic Success and Supports

Accessibility Services
Academic accommodation is provided to Ambrose students with disabilities in accordance with the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms. Provision of academic accommodation does not lower the academic standards of the university nor remove the need for evaluation and the need to meet essential learning outcomes. Reasonable accommodations are tailored to the individual student, are flexible, and are determined by considering the barriers within the unique environment of a postsecondary institution. It can take time to organize academic accommodations and funding for disability-related services.

Students with a disability who wish to have an academic accommodation are encouraged to contact Accessibility Services as early as possible to ensure appropriate planning for any needs that may include accommodations. Staff can then meet with students to determine areas to facilitate success, and if accommodations are required, ensure those accommodations are put in place by working with faculty.

Ambrose Writing Services
Ambrose Writing services provides academic support in the four foundational literacy skills—listening, speaking, reading, and writing. It also assists students with critical thinking and the research process. Throughout the academic year, students can meet with a writing tutor for personalized support, or they can attend a variety of workshops offered by Academic Success. These services are free to students enrolled at Ambrose University. Academic Success serves all students in all disciplines and at all levels, from history to biology and from theatre to theology. To learn more, please visit https://ambrose.edu/sas/writing-services

Ambrose Tutoring Services
Ambrose Tutoring Services provides support in specific disciplinary knowledge, especially in high-demand areas such as chemistry, philosophy, math and statistics, and religious studies. These tutors also coach students in general study skills, including listening and note-taking. During the academic year, Ambrose Tutoring Services offers drop-in tutoring for courses with high demand; for other courses, students can book a one-to-one appointment with a tutor in their discipline. These services are free to students enrolled at Ambrose University. To learn more, please visit https://ambrose.edu/tutoring.

Mental Health Support
All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:
- Counselling Services: ambrose.edu/counselling
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See https://ambrose.edu/student-life/crisissupport for a list of staff members.

Off Campus:
- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support
All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:
- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

Note: Students are strongly advised to retain this syllabus for their records.