

Course ID:	Course Title:	Fall 2022
ASTR 120 -OL -1	Introduction to Astronomy	Prerequisite: none
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	Online	Instructor:	Dr. Stephen Jeans	First day of class:	September 12
Days:	Monday	Email:	sjeans@ambrose.edu	Last day to add/drop:	September 18
Time:	5:30 to 8:30 p.m.	Phone:	403-410-2000 ext. 6939	Last day to withdraw:	November 21
Room:	Zoom (link on Moodle)	Office:	L2111	Last day to apply for extension:	November 28
Lab/Tutorial:	self-study (on Moodle)	Office Hours:	Mon. 3:30 to 5:30 p.m., or by appointment online (most days)	Last day of class:	December 12
Final Exam:	Mon., Dec. 19, online, 6:30 to 9:30 p.m.				

Important Dates and Information

For a list of all important dates and information regarding participating in classes at Ambrose University, 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).

See **Moodle** (learning management system) for class-specific resources and learning materials (e.g., videos, 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.).

*Weeks with green highlight background indicate that a portion of the lesson is self-study (see the **Other** section below).*

Week	Date	Reading	Topic/Activity	Required, Notes, and Activities Due
01	Sep. 12	Chapter 1, all Chapter 12, 12.1 to 12.3 +pp 387-391	Spaceship Earth and cosmic scales	(portion of class may be outdoors, therefore, away from live stream), (Note: each week [if no exam] requires handing in Week's Work and Exit Slip.)
02	Sep. 19	Chapter 4 4.1 only Chapter 5, all	Light, matter, and Sun our star	(portion of class may be outdoors, therefore, away from live stream), paper towel tube needed (see Moodle)
03	Sep. 26	Chapter 13, all Chapter 14, all	Planet and moon comparisons	(portion of class may be outdoors, therefore, away from live stream)
04	Oct. 03	Chapter 2, all	Patterns, cycles, and sky charts	(portion of class may be outdoors, therefore, away from live stream)
	Oct. 10		NO CLASS – Thanksgiving Day	
05	Oct. 17	Chapter 3, all	Historical to modern sky science	prepare questions for review
06	Oct. 24	Chapter 4, all	Midterm Exam and Eyes, instruments, and telescopes	(portion of class may be outdoors, a Star Party in the third hour)
07	Oct. 31	Chapter 6, all	Computing data to classify stars	asynchronous online classwork, directions posted on Moodle
	Nov. 07		NO CLASS – Reading Week	(bonus Lunar Eclipse opportunity)
08	Nov. 14	Chapter 12, 12.4 to 12.6	Debris disks and exoplanets (observatory tour for in-person class)	asynchronous online classwork, directions posted on Moodle
09	Nov. 21	Chapter 7, all	Stellar formation and structure	
10	Nov. 28	Chapter 8, all	Star deaths and relativity	
11	Dec. 05	Chapter 9, all Chapter 10, 10.1, 10.4, and 10.5 only	Milky Way and galaxies	(bonus Star of Bethlehem opportunity)
12	Dec. 12	Chapter 10, p. 231 only Chapter 11, all	Current scientific cosmology	prepare questions for review

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. For accommodation, see your course professor. Students are to be visible on camera during the exam.

The **Final exam**, scheduled by the **Registrar's Office**, consists of content 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.

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, individual and breakout group live-stream activities, conducted in scheduled class time, count toward assessed course components, leaving greater time for reading, research, and study.

Lectures are not recorded for future viewing. Make the course professor aware of an absence cause as soon as possible for the possibility of retaining course standing. If you are too ill to work, contact your course professor, who responds typically within a day about class expectations and in assisting you with alternate arrangements for excused absence.

This course is part of an Online Pilot Project in which you had the option to register for either the in-person or online version of this course. Switching back and forth between these instructional modes is not permitted. If you are registered as an online student, you may not attend in-person without the prior approval of the course professor. See further information regarding this Online Pilot Project under the section **Other: Dual-track Course**.

Grade Summary:

Grading Schedule

Week's Work class/field exercises	20%	about one/week (e.g., measure Sun diameter)
Exit Slip	20%	about one/week (e.g., multiple choice questions)
Midterm written examination	30%	mix of short questions and practical possible
Final written examination	<u>30%</u>	mix of short questions and practical possible, non-cumulative
Total: 100%		

Late assignments accepted at the course professor's discretion. Mark is reduced by 10% / day (weekends count as a day), but, 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.

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.

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:

Dual-track Course

This course is a part of the Ambrose University 2022 Online Pilot Project to offer dual-track classes. You have either registered to be in-person (ASTR 120) or online (ASTR 120-OL). In-person students get a mainly in-person experience, while online students get a mainly online experience. These are two different courses, that overlap for some individual and group assigned classwork during lectures, demonstrations, discussion, questions, and assessments.

Class delivery typically begins with lecture (for both classes, those in-person and those online). Then instructions are provided about the practical work of the lesson. This pattern may repeat three times (an hour each) for a typical week. When outdoor conditions are right for out-of-classroom activities, the in-person class may leave the room to conduct their work. Online students will have resources posted on Moodle to complete during these times. Class comes together (in-person and online together) for discussing their findings, to address questions, and complete work to be handed in.

Star Party and Observatory Tour

There are two evening events booked for the in-person class, a Star Party and a tour of the Rothney Astrophysical Observatory, these will be explained in the first weeks of the course. Being online, you will receive virtual activities and virtual learning that explores the same content but within a different media. Instructions to be posted on Moodle.

You are not restricted from taking part in those live learning experiences. If it is possible for you to be on campus for either event then please contact the course professor weeks in advance to make the appropriate arrangements.

Technology

In order for students to successfully engage in their learning experiences at Ambrose, students taking online, remote and blended courses are required to have access to the following technologies to successfully participate:

- A Mac or Windows based computer that has either an Intel i5 or better CPU, a recent AMD CPU, or an Apple M1 or greater CPU.
- The computer must have a minimum 8GB of RAM and at least 50 GB of free storage space.
- Mac computers must be running 10.15 (Catalina) or later.
- Windows computers must be running Windows 10 or later.
- A fully updated version of Microsoft Edge or Google Chrome.
- A webcam.
- A headset (with microphone included is preferred)
- A functioning microphone (either separate from your device or one that is included in your laptop).
- Your operating system must be patched with all available updates with appropriate anti-virus and firewall enabled.
- A stable Internet connection that can support a minimum download speed of at least 5 Mbps. We strongly discourage the use of public Wi-Fi such as from a coffee shop.
- Ambrose through our Microsoft agreement makes available a free copy of Office 365 for your use while an Ambrose student.
- To ensure optimum science simulation and course-related performance of your system, close and exit from all non-essential background tasks (including social media, audio or video feeds, games, etc.)

Most current laptops purchased within the last 5 years will have an adequate built-in webcam, speaker, and microphone. At this time, we do not support the use of any mobile or tablet device for our online course offerings.

Online Course Etiquette

In order to facilitate your engagement in this course, it is expected that your webcam will be turned on when you are in class. Any exception to this rule must be approved by the instructor in advance (day before the lesson at least).

Out of respect for others, minimize computer noise/distractions. On your video refrain from changing backgrounds or filters (a simple background is best). Use your real name (first name and last initial as a minimum) found next to your Zoom meeting avatar (changed in the Participants section, or before a meeting in the Zoom website profile section).

Feel free to “raise your hand” to ask questions, and/or turn on your microphone and get my attention if I miss that.

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.

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

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