

ASTR 337: “Connecting with the Sky”

Spring 2020 – Section 001

M/W 6-6:50 pm and Friday 12-12:50 pm

Syllabus

I. Contact and User Information

Professor	Dr. Don McCarthy
<u>Email:</u>	dmccarthy@as.arizona.edu
<u>Phone:</u>	(520) 621-4079
<u>Twitter:</u>	@stellarDon #TucSky
<u>Office:</u>	Steward Observatory, room N404. Take the main elevator up to the fourth floor and walk straight ahead.
<u>Office hours:</u>	Tuesdays 12-2 pm; and by appointment. Please do not hesitate to contact me.

Links, Settings, Times

For reminders via texts: Send @ast337 to 81010

Class Web site: <https://lavinia.as.arizona.edu/~dmccarthy/ASTR337/index.html>

Free online textbook: <https://openstax.org/details/astronomy>

II. Course Overview

ASTR 337 is a three-unit course intended for students pursuing the “Astrophysical Studies” minor in astronomy. Prerequisites include successful completion of ASTR 170B1 and, ideally, a Tier II ASTR course. Instructor’s approval is required before enrolling. Our course focuses on observing, measuring, and understanding celestial and atmospheric phenomenon seen both day and night. We will also use the subject of astronomy to improve skills with numbers, in communication (written and oral), and in problem solving.

Learning Outcomes:

Throughout this course, students will:

1. improve their knowledge and understanding of principle findings, common applications, current problems, fundamental techniques, and underlying theories in the disciplines of Astronomy and Planetary Science and apply these ideas and processes beyond the classroom;
2. increase their ability to interpret, evaluate, synthesize, and communicate about a wide variety of content central to Astronomy and Planetary Science.
3. develop their quantitative reasoning abilities and data fluency through investigations of a wide variety of astrophysical phenomena and problems as well as perform appropriate mathematical calculations;
4. appreciate the relative scale of objects, rates of change, linear and nonlinear growth;
5. develop ability to communicate about fundamental astronomical concepts, research results, and technological advancements in both oral and written formats.
6. read and understand scientific literature from popular sources such as magazines and newspapers.
7. gain an appreciation for the role that Astronomy and Planetary Science have played in art and literature and how this relates to important aspects of our society (and to their own personal lives).

Expectations: Students are expected to attend every class and to observe the sky daily. Everyone is expected to write clear sentences and paragraphs using good English grammar for all assignments and exams. Since each class will build on the previous one, if you miss a class, you can get behind so quickly that it may be very difficult to catch up, and you will also miss important quizzes, discussions, etc.

Web site: The above Web site is the focal point for the course. All course materials will be posted there and available for downloading. Our class has a minor presence on the University's D2L site which might be used for periodic journal submissions and essays.

Location: Room 204 of Steward Observatory for all classes. There will be numerous exceptions announced beforehand in class, such as Steward Observatory's 21" telescope, the Flandrau Science Center, the southwest roof observing area, and locations around campus.

Content: Classes will emphasize hands-on measurement and observational skills. This focus will help develop problem-solving skills and reinforce understanding of the scientific method. Reading assignments will be posted before class. Lectures will supplement and expand upon the required reading.

III. Required Course Materials

A composition book is necessary to serve as your daily journal. Your Course Fee (\$53) will provide the materials we use in class for projects, etc.

The textbook for this class is available for free online, in Web view and PDF format from <https://openstax.org/details/astronomy>. You can also purchase a print version, if you prefer, via [OpenStax](#) on [Amazon.com](#).

IV. Requirements

Teamwork Policy: You may **start** an assignment in a team. However, once you decide HOW to approach a problem, **you must then make all your own measurements and use your own wording** to interpret and express conclusions. Any assignments that appear identical will be awarded "zero" points and can lead to expulsion from the class and the University. At a minimum, such violations of the Code will lead to an Academic Integrity investigation with the Dean of Students Office.

Daily homework assignments are a major component (70%) of this course and will emphasize skills in observation, measurement, logical thinking, numeracy, writing, and basic astronomy. A large portion (35%) of the homework will consist of maintaining a detailed, daily journal recording observations and measurements of the sky. Students will take turns presenting their solutions and observations during class. The following **rules** apply to homework assignments:

1. Electronic submissions are not accepted.
2. All homework papers must be **typewritten and stapled**. Math symbols and calculations may be handwritten but must be legible.
3. Homework is due at the start of class on the specified date. If an assignment is turned in late, a **late-penalty** of 15% will be assessed for each class period that has elapsed since the due date. Assignments will not be accepted after two subsequent classes.

4. You must always **SHOW** or explain **HOW** you reached a solution by recording intermediate steps in a calculation or describing your solution logically in words. Simply listing an answer is not acceptable and will not receive any points.

5. Some problems require your opinion to be clearly stated. In these cases, your grade will be determined more by your reasoning and writing abilities than by the exact answer.

6. You may **START** an assignment in a team. However, after deciding **HOW** to approach a problem, **you must then make all your own measurements, graphs, and tables and always use your own wording to interpret and express conclusions.** Homework solutions that appear identical are a violation of the Code of Academic Integrity and will receive a grade of zero plus potential expulsion from the course.

Quizzes will be given to promote understanding, self-assessment, attention, participation, and teamwork. Quizzes consist of several questions spread throughout each class.

Exams

There will be two in-class exams (Feb. 14, Apr. 3, and a final exam (May 8, 8:30-10:30 pm). The two-hour final exam will be cumulative, and all exams may involve outdoor measurements.

ALL exams will be **CLOSED-BOOK** and **CLOSED-NOTES**. You may bring a handwritten, double-sided page of notes (“crib sheet”) to consult during the exam. Exams will emphasize understanding instead of memorization.

V. Grading

Course Grade: Grades will be derived from the following categories with the indicated percentage weights.

Daily homework (35%)

Daily observation journal (35%)

Participation: Attendance, quizzes, office hours, etc. (10%)

Exams (20%)

“Participation” includes attending class regularly, completing assignments, quizzes, asking relevant questions during class, seeking help during office hours, helping to lead discussions, etc.

Final course grades will be assigned as follows: A (90-100%); B (80-89%); C (70-79%); D (60-69%); E (<60%). Borderline grades, such as B+ ($\geq 87\%$), will be rounded to the next letter grade only if the student completed extra-credit work as discussed below.

“TBD” Grades: Sometimes students misread a question, or get started in the wrong direction, or make a simple mistake that leads to the wrong conclusion. Such assignments will receive a “TBD” grade (i.e., to be determined), allowing you to get back on track to earn a 100% score if you meet with the course’s teaching staff within one week to discuss your work and arrange to improve it.

Extra-credit: Excellent work on two extra-credit activities can increment your semester grade by as much as one-half a letter grade. For example, a B+ (87-89%) will become an A; however, <87% will still be registered as B. No extra-credit activities will be accepted after May 6. A maximum of two extra-credit activities is allowed, but you are welcome to undertake more! Extra-credit may be obtained by participating in activities such as public lectures, observing projects, field trips, etc. A description of such opportunities is posted on the left-hand side of our class Web site.

Honors Credit: Students wishing to contract this course for Honors Credit should email Dr. McCarthy to set up an appointment to discuss the terms of the contact. Information on Honors Contracts can be found at <http://www.honors.arizona.edu/faculty-and-advisors/contracts>.

Incomplete (I) or Withdrawal (W) Grades: Requests must be made in accordance with University policies, which are available as follows:

<http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete>
<http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal>

VI. Course Policies

Academic Integrity

Dr. McCarthy and the Department of Astronomy adhere to the University's Code of Academic Integrity. The Dean of Students' Web site below describes the Code and resources that are available to you for improving your work. Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Such violations of the Code can be penalized by expulsion from the University and negative reports in your official records. **If you are having difficulty in this course, PLEASE just ask for help instead of sacrificing your future.**

<http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>

The University Libraries have some excellent tips for avoiding plagiarism, available at <http://www.library.arizona.edu/help/tutorials/plagiarism/index.html>.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

Teamwork Policy: You may **start** an assignment in a team. However, once you decide HOW to approach a problem, **you must then make all your own measurements and use your own wording** to interpret and express conclusions. Any assignments that appear identical will be awarded "zero" points and can lead to expulsion from the class and the University. At a minimum, such violations of the Code will lead to an Academic Integrity investigation with the Dean of Students Office.

Attendance and Absences:

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Students who miss class due to illness or emergency are required to bring documentation from their health-care provider or other relevant, professional third parties. Failure to submit third-party documentation will result in unexcused absences.

You are required to attend each class in accordance with University policy:

<http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable:

<http://policy.arizona.edu/human-resources/religious-accommodation-policy>

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored:
<https://deanofstudents.arizona.edu/absences>

Holidays: All holidays observed by organized religions will be honored for those students who show affiliation with that particular religion. All absences pre-approved by the Dean of Students will also be accepted. <http://www.registrar.arizona.edu/calendar-religious-holidays>

Behavior: To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Dr. McCarthy promises to be respectful of all students. He expects you will do the same as stated in the Student Code of Conduct and other University guidelines concerning disruptive and threatening behavior.

<https://deanofstudents.arizona.edu/student-code-conduct-student-faqs>

<http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting>

The University's Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself.

<http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>

Special Accommodations: Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate, or experience, barriers related to the format or requirements of this course, please meet with Dr. McCarthy so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (520-621-3268; <https://drc.arizona.edu/>) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

Nondiscrimination and Anti-harrassment:

Dr. McCarthy is committed to creating and maintaining an environment free of discrimination as described in the University's policy at the link posted below. Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. He also wants to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

<http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Food Insecurity:

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of Students for support. In addition, the University of Arizona Campus Pantry is open for students to receive supplemental groceries at no cost. Please see their Web site at: campuspantry.arizona.edu for open times.

VII. Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.