

Department of Astronomy and Planetary Science AST 210: Celebrating Diversity in Astronomy Spring 2022

Meeting Times

Tue & Thu 11:10 am — 12:25 pm
Science and Health Building, Rm 211

Credit/ Pre- or co-requisites

3 credit hours, no pre- or co-requisites

Mode of Instruction

In-person lectures and discussions

Instructor Contact & Availability

Dr. Lisa Chien (Lisa.Chien@nau.edu)

Office Hours on Zoom: MW 12:00 — 1:00pm

<https://nau.zoom.us/j/86997976680?pwd=YytmaVNrOEVOdWNCN0JsK1dyNnNQZz09>

Meeting ID: 869 9797 6680

Password: 946182

Email communications and zoom strongly preferred first, and please give me 24 hours to reply. I will also be in my office on Mon & Wed 12:00 — 1:00pm, Bldg 19, Rm 311, but please let me know that you are coming first.

Teaching Assistant: Aidan Madden-Watson (aom37@nau.edu)

Course Purpose & Student Learning Outcome (SLO)

AST 210 is designed to help students develop an understanding of and greater familiarity with the cultural traditions and views of diverse people in astronomy (e.g. gender, race, ethnicity, sexual orientation diversities) and related sciences in general, and to help students develop appreciation of the scientific contributions and their greater impacts from these individuals. This course is an elective for all students at NAU, and it is approved as Liberal Studies course in the *Cultural Understanding* distribution block, which provide students with an analytical framework that facilitates awareness of how cultures vary and shape human experience. This course will address the liberal studies essential skill of *Critical Thinking*.

Student learning outcomes (SLO) for the *Cultural Understanding* distribution block and *Critical Thinking*, are indicated by “CU”, and by “CT” respectively. Students who successfully complete this course will:

- SLO 1.** Be able to explain historical and cultural background, barriers and biases, to access the field of science for people with a diverse identity or identities.
- SLO 2.** Be able to explain specific scientific advances made by people with one or more diverse identities and the influence of those scientific advances on their respective scientific fields and society overall.
- SLO 3.** Evaluates how influences of inequality, power and privilege affect participation in the science of astronomy, particularly to use intersectionality to address structural oppression/inequality how systems of oppressions mutually constitute, maintain and reinforce each other.
- SLO 4.** Develop an increased personal capacity to build connections between and within communities.

Required Materials & Technology

None that needs to be purchased. All reading materials, videos, and lecture slides are on BBLearn course page. However, you will need to have stable internet connection in order to finish your assignments.

Class Tentative Schedule

Week	Dates	Topic	Group Projects Due	Quiz & Summary HW Due
1	1/11 1/13	Introduction to the course Overview of World Astronomical History	-	-
2	1/18 1/20	Status of Diversity in Current Astronomy National and NAU effort	-	#1: 1/21
3	1/25 1/27	Why so few? Women in STEM Report (2010) Astronomer Guest: Prof. Cristina Thomas	Interview Milestone Assignment #1	#2: 1/28
4	2/1 2/3	Maria Kirch, Maria Clara Eimmart, and Maria Cunitz	Interview Milestone Assignment #2	#3: 2/4
5	2/8 2/10	Caroline Herschel, Ada Lovelace Astronomer Guest: Dr. Maggie McAdam	Interview Milestone Assignment #3	#4: 2/11
6	2/15 2/17	The Harvard Computers Astronomer Guest: Dr. Amanda Bosh	-	#5: 2/18
7	2/22 2/24	Inge Lehmann, Marie Tharp Astronomer Guest: Dr. Stephen Levine	Interview Milestone Assignment #4	#6: 2/25
8	3/1 3/3	Interview Presentation (Interview Milestone Assignment #5)		
9	3/8 3/10	Interview Presentation (Interview Milestone Assignment #5)		
10	Spring Break			
11	3/22 3/24	Cecilia Payne-Gaposchkin Astronomer Guest: Prof. David Trilling	Interview Milestone Assignment #6	-
12	3/29 3/31	Vera Rubin, PBS NOVA Black Hole Hunters Planetary Scientist Guest: Prof. Devon Burr	-	#7: 4/1
13	4/5 4/7	Jocelyn Bell Burnell & The Hidden Figures Astronomer Guest: Dr. Lisa Prato	Infographic Milestone Assignment #1	#8: 4/8
14	4/12 4/14	James Pollack & The LGBTQ+ Astronomers Astronomer Guest: Colin Chandler	Infographic Milestone Assignment #2	#9: 4/15
15	4/19 4/21	Mae Jamison, Sally Ride Astronomer Guest: Dr. Ty Robinson	-	#10: 4/22
16	4/26 4/28	Jane Rigby and JWST Abridged showing of Mercury-13 Film & Discussion	Infographic Milestone Assignment #3	#11: 4/29
17	5/5 Thur	Final Exam: 7:30 — 9:30 am		

Grading System & Late Policy

Assessment	Percentage
Quiz	10%
Summary Homework	10%
In-class Exercise	15%
Final Exam	15%
Group Project 1 (cumulative)	25%
Group Project 2 (cumulative)	25%

Grade	Total Points You Earned
A	90 — 100
B	80 — 89
C	70 — 79
D	60 — 69
F	0 — 59

Late Submission Policy for all Assignments:

If you encounter any difficulties that hinder you from submitting your assignments promptly, first contact Dr. Chien as soon as you can. Please give me 24 hours to respond, and I may give you extensions depending on the situation. **Otherwise, late submissions for**

- **Group Projects: 10% deduction**
- **All other assignments: 5% deduction**
- **Final Exam: zero**

Assignments & Assessments

- **Quiz (SLO 1,2):** There will be weekly BBLearn quiz on the lectures due the following Friday. One lowest is dropped.
- **Summary Homework (SLO 1, 2):** There will likely be weekly readings assigned, and each student will submit 1-2 paragraphs of summary of the reading on BBLearn, also due the following Friday. Depending on the numbers of readings assigned, the total will be adjusted to 10 assignments (*e.g.* if more than 10 readings are assigned, the lowest ones will be dropped).
- **In-class Exercise (SLO 3, 4):** Every Thursday after the guest speaker session, we will likely have an exercise or a discussion/reflection about the weekly topic. Scores for in-class exercises are based on completion, and not entirely on the content. If a discussion occurs, students will form groups of 5-6 people, and must rotate to write down the answers on the sheet.
- **Final Exam (SLO 1, 2):** There will be a final exam summarizing and consolidating the readings, lectures, and quizzes. The format is TBD (either paper or on BBLearn). NAU's schedule is on **May 5, Thursday, 7:30 — 9:30 am.**
- **Group Projects (SLO 3, 4):**
There are two Group Projects, with a group of 5-6 students. The first project is an interview of a local STEM professional. The second project is constructing an infographic of an astronomer. Each group will first identify a shared identity in their group. This could be their gender identity, race or ethnic identity, sexual orientation, or some other axis of identity they choose to emphasize. ***The rule for the two projects is that one of the persons, the interviewee or the researched astronomer, must share the same identity as the group, and the other person must meaningfully differ from it.*** In this way, students will gain a deeper understanding of their personal identity, and learn about a different one. To support and scaffold the projects, we will have regular “milestone” assignments related to the projects. Milestone assignments will contribute to the overall cumulative grade of the term project which represents 50% of the students' final grade.

- ▶ **Group Project 1— An Interview of a STEM Professional:** Each group will choose their 3 top interviewees for their project. On Week 5, groups will be notified by the instructor who they should interview on their list so we will not have too many overlaps from our class. The interview should happen in Week 6–8 (preferably Week 6–7), and a presentation of the project by the entire group will happen in Week 8 and 9. The interview itself should be between 30–40 minutes, and should not last longer than 60 minutes. The format of the presentation is entirely up to the group, i.e. a video, slides, or a combination of both. The requirements are **1) 5–10 minutes of group presentation, and 2) preferably presented by everyone.** Depending on the course progress, we may not have time in class for every group to present, so earlier interviews are strongly recommended. For group milestone assignments, everyone in the group will receive the same score.

Interview Milestone Assignments:

	Week	Format	Content
#1	3	Group, 1 page	1) Discuss and briefly describe a shared, meaningful identity in your group. 2) Describe any differences within this identity. 3) Describe how other axes of privilege/oppression affect this shared identity.
#2	4	Group, 1 page	1) Identify 3 local STEM person with a shared meaningful identity, or a different identity. Don't contact them yet! 2) Describe why the group wishes to interview this person. 3) Describe how this person shares, or is different from, the identity. 4) Submit at least 10 questions you intend to ask your interviewee.
#3	5	Group, 1 page	1) Once notified by the instructor, contact the professional to set up the interview whether in-person, with zoom, or a phone call. Request the interview to occur in Week 6 or 7, the latest Week 8. 2) Turn in an interview plan: who will ask which specific questions, a plan for note taking or recording the interview. The group must ask the proposed questions which will be approved by the instructor.
#4	7	Individual, 1 paragraph	Flash review— a very brief reflection on how the interview went, e.g. the process, any obstacles or difficulties you had, improvement suggestions.
#5	8 & 9		Presentation— make sure you consolidate any transcripts, notes, and/or recordings.
#6	11	Individual, 2 pages	Create an outline for an essay synthesizing the course material and the interview with the local STEM professional.

- ▶ **Group Project 2— An Infographic of an Astronomer:** Each group will pick an astronomer, current or past, to research that is not reviewed in class and is different from the interviewee. **Keep in mind the rule for Group Projects.** For example, If the interviewee shared identities with the group, the group must choose an astronomer with a meaningfully different identity. If the interviewee had a meaningfully different identity, choose an astronomer with a similar identity.

Infographic Milestone Assignments:

	Week	Format	Content
#1	13	Group, 1 page	1) Describe why the group wishes to research this astronomer. 2) Describe how this astronomer shares, or is different from, the identity in your group.
#2	14	Group, 1 page	1) Describe the most important take-away point about the group's astronomer. 2) Describe how the Infographic will deliver that message. 3) Submit at least 5 other sections/bullet points on the infographic.
#3	16	Group, 1 page	Your group can determine the size of this Infographic. Submit your group Infographic as a PDF or JPEG file.

Please remember that every point counts, and there will be NO make up of any assignment nor extra credit work AFTER THE FINAL WEEK IS OVER. Please do NOT negotiate about points with me, since the points you earn should solely depend on your hard work throughout the semester.

Respect for Diversity

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you. I am NAU Safe Zone certified.

Academic Deadlines

- ADD/DROP deadline (without "W"): 1/20
- Last day to withdraw: 3/21

Academic Integrity Policy

Please read this section carefully as each student is required to understand and comply with all Academic Integrity rules and standards. Both NAU and this Department have standards which are written and referenced below.

- Passing other's work off as your own (plagiarism) and cheating are not accepted at NAU and are absolutely not tolerated in this class. It is not the professor's responsibility to attempt to describe and prohibit any and all forms of Academic Dishonesty. **It is your responsibility to uphold the highest ethical standards.** If you have any doubt or question about this policy, it is your responsibility to ask the professor in advance and to be clear about the answers and policies.
- If you are caught cheating or if any of your **assignments/exams are found suspiciously similar** (such as exact same wording on written responses— note, changing a few words or the order of certain words is still plagiarism!), **ALL** students involved will receive zero points on that assignment or exam. The bottom line: ***Do your own work and do not let others copy off of you.***
- Academic Dishonesty information will be given to the Dean of Students and a written copy of any such incident

may be attached to your official NAU file. If cheating/plagiarism continue, you will receive F in the class and the Dean's office will be notified. University Academic Integrity Policy can be found [here](#).

University Policies can be found at nau.edu/university-policies/.

COVID-19 REQUIREMENTS AND INFORMATION

Additional information about the University's response to COVID-19 is available from the **Jacks are Back!** web page located at <https://nau.edu/jacks-are-back>.

ACADEMIC INTEGRITY

NAU expects every student to firmly adhere to a strong ethical code of academic integrity in all their scholarly pursuits. The primary attributes of academic integrity are honesty, trustworthiness, fairness, and responsibility. As a student, you are expected to submit original work while giving proper credit to other people's ideas or contributions. Acting with academic integrity means completing your assignments independently while truthfully acknowledging all sources of information, or collaboration with others when appropriate. When you submit your work, you are implicitly declaring that the work is your own. Academic integrity is expected not only during formal coursework, but in all your relationships or interactions that are connected to the educational enterprise. All forms of academic deceit such as plagiarism, cheating, collusion, falsification or fabrication of results or records, permitting your work to be submitted by another, or inappropriately recycling your own work from one class to another, constitute academic misconduct that may result in serious disciplinary consequences. All students and faculty members are responsible for reporting suspected instances of academic misconduct. All students are encouraged to complete NAU's online academic integrity workshop available in the E-Learning Center and should review the full *Academic Integrity* policy available at <https://policy.nau.edu/policy/policy.aspx?num=100601>.

COURSE TIME COMMITMENT

Pursuant to Arizona Board of Regents guidance (ABOR Policy 2-224, *Academic Credit*), each unit of credit requires a minimum of 45 hours of work by students, including but not limited to, class time, preparation, homework, and studying. For example, for a 3-credit course a student should expect to work at least 8.5 hours each week in a 16-week session and a minimum of 33 hours per week for a 3-credit course in a 4-week session.

DISRUPTIVE BEHAVIOR

Membership in NAU's academic community entails a special obligation to maintain class environments that are conducive to learning, whether instruction is taking place in the classroom, a laboratory or clinical setting, during course-related fieldwork, or online. Students have the obligation to engage in the educational process in a manner that does not interfere with normal class activities or violate the rights of others. Instructors have the authority and responsibility to address disruptive behavior that interferes with student learning, which can include the involuntary withdrawal of a student from a course with a grade of "W". For additional information, see NAU's *Disruptive Behavior in an Instructional Setting* policy at <https://nau.edu/university-policy-library/disruptive-behavior>.

NONDISCRIMINATION AND ANTI-HARASSMENT

NAU prohibits discrimination and harassment based on sex, gender, gender identity, race, color, age, national origin, religion, sexual orientation, disability, or veteran status. Due to potentially unethical consequences, certain consensual amorous or sexual relationships between faculty and students are also prohibited as set forth in the *Consensual Romantic and Sexual Relationships* policy. The Equity and Access Office (EAO) responds to complaints regarding discrimination and harassment that fall under NAU's *Nondiscrimination and Anti-Harassment* policy. EAO also assists with religious accommodations. For additional information about nondiscrimination or anti-harassment or to file a complaint, contact EAO located in Old Main (building 10), Room 113, PO Box 4083, Flagstaff, AZ 86011, or by phone at 928-523-3312 (TTY: 928-523-1006), fax at 928-523-9977, email at equityandaccess@nau.edu, or visit the EAO website at <https://nau.edu/equity-and-access>.

TITLE IX

Title IX is the primary federal law that prohibits discrimination on the basis of sex or gender in educational programs or activities. Sex discrimination for this purpose includes sexual harassment, sexual assault or relationship violence, and stalking (including cyber-stalking). Title IX requires that universities appoint a "Title IX Coordinator" to monitor the institution's compliance with this important civil rights law. NAU's Title IX Coordinator is Elyce C. Morris. The Title IX Coordinator is available to meet with any student to discuss any Title IX issue or concern. You may contact the Title IX Coordinator by phone at 928-523-3515, by fax at 928-523-0640, or by email at elyce.morris@nau.edu. In furtherance of its Title IX obligations, NAU will promptly investigate and equitably resolve all reports of sex or gender-based discrimination, harassment, or sexual misconduct and will eliminate any hostile environment as defined by law. Additional important information about Title IX and related student resources, including how to request immediate help or confidential support following an act of sexual violence, is available at <https://in.nau.edu/title-ix>.

ACCESSIBILITY

Professional disability specialists are available at Disability Resources to facilitate a range of academic support services and accommodations for students with disabilities. If you have a documented disability, you can request assistance by contacting Disability Resources at 928-523-8773 (voice), 928-523-6906 (TTY), 928-523-8747 (fax), or dr@nau.edu (e-mail). Once eligibility has been determined, students register with Disability Resources every semester to activate their approved accommodations. Although a student may request an accommodation at any time, it is best to initiate the application process at least four weeks before a student wishes to receive an accommodation. Students may begin the accommodation process by submitting a self-identification form online at <https://nau.edu/disability-resources/student-eligibility-process> or by contacting Disability Resources. The Director of Disability Resources, Jamie Axelrod, serves as NAU's Americans with Disabilities Act Coordinator and Section 504 Compliance Officer. He can be reached at jamie.axelrod@nau.edu.

RESPONSIBLE CONDUCT OF RESEARCH

Students who engage in research at NAU must receive appropriate Responsible Conduct of Research (RCR) training. This instruction is designed to help ensure proper awareness and application of well-established professional norms and ethical principles related to the performance of all scientific research activities. More information regarding RCR training is available at <https://nau.edu/research/compliance/research-integrity>.

MISCONDUCT IN RESEARCH

As noted, NAU expects every student to firmly adhere to a strong code of academic integrity in all their scholarly pursuits. This includes avoiding fabrication, falsification, or plagiarism when conducting research or reporting research results. Engaging in research misconduct may result in serious disciplinary consequences. Students must also report any suspected or actual instances of research misconduct of which they become aware. Allegations of research misconduct should be reported to your instructor or the University's Research Integrity Officer, Dr. David Faguy, who can be reached at david.faguy@nau.edu or 928-523-6117. More information about misconduct in research is available at <https://nau.edu/university-policy-library/misconduct-in-research>.

SENSITIVE COURSE MATERIALS

University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In their college studies, students can expect to encounter and to critically appraise materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.

*“Education is the most powerful weapon which we can use to change the world.”
— Nelson Mandela*