

AST 235. Astronomy: Stars, Galaxies, and Cosmology – Spring 2019



Catalog info

Credits

3

Prerequisites:

None

For Whom Planned:

This course is designed for any student interested in astronomy at any level of their undergraduate career.

Course Description:

This course is a general survey of astronomy. Some numbers and algebraic relationships will be introduced, but no calculus knowledge is required. We will learn about the historical foundations of astronomy, development of fundamental concepts, and current research.

Location:

Petty Bldg., 1st floor, room 136, on Tuesdays and Thursdays, 11am-12:15pm

Course personnel info

Instructor:

Assistant Prof. Alicia Aarnio

Office location and hours:

Petty 332. Office hours Tuesdays, Wednesdays, and Thursdays 3-4pm: An appointment is not required, but please let me know you'll be coming via this form: <https://profaarnio.youcanbook.me> If none of these dates/times work, email and we'll find a workable time.

Contact:

anaarnio@uncg.edu

E-mail policy:

Please read the syllabus/lecture list before hitting 'send!' I will strive to return emails in a timely fashion, but please be understanding that this is a high-enrollment course and my inbox may be unmanageable at times. See the 'Resources' section below for ways to network with classmates as a way to get quick responses.

Teaching Assistant:

Lindsay House (lhouse@uncg.edu). Lindsay will schedule regular help and review sessions, including before the midterms and the final.

Course materials

Book:

The Cosmic Perspective, 8th Edition, by J. Bennett, M. Donahue, N. Schneider, and M. Voit.

Online homework website:

MasteringAstronomy, log in through Canvas ('MyLab and Mastering' menu item in left navigation column)

Additional software needed:

Free download of Stellarium: <http://www.stellarium.org> Online labs will be assigned on MasteringAstronomy to be completed with Stellarium. You can use your own computer/laptop or on a PC located in the Physics Library (Petty Bldg., room 308). You don't need the software that may come bundled with your book.

Course Skill Development and Learning Goals

During this class, we will work to:

- learn, understand, and be able to explain fundamental concepts of modern physics and astronomy,
- be able to read/view and evaluate news articles/television programs about astronomy,
- begin to see connections between observed phenomena on Earth and in the Universe and laws of nature as we understand them,
- understand the scientific method and be able to apply critical thinking to scientific questions, and
- learn about the history of astronomy and its role in modern society.

Course structure

Lectures, regular in-class quizzes, 2 mid-term exams, 1 final exam (cumulative with an emphasis on the last part of the course after the second mid-term), online homework and labs, 1 visit to the UNCG Planetarium. For extra credit (all optional, will only help improve your grade), a special online homework, a bonus project you can substitute for one homework, 1 visit to the Three College Observatory (<http://physics.uncg.edu/tco>).

Resources

Lecture slides:

I will post the day's slides before class on the course website (<http://aliciaaarnio.solar/stellar/ast235.html>) and on Canvas. You are welcome to pull these up on laptops/tablets during class to follow along with at your seat. There will often be extra links and information in the 'notes' field of the slides.

Slack:

I have created a Slack channel for the course: <https://join.slack.com/t/ast235s2019/signup>. Sign up with your uncg email account. I will lightly monitor it: ask questions of your classmates (and Lindsay!),

form study groups, seek clarification on any assignments. This tool is for you to use as most helps you succeed in the course! Use it to ask questions during lecture if you don't want to ask aloud.

UNCG resources:

- Office of Accessibility Resources & Services <http://ods.uncg.edu> Testing accommodation must be requested 7 days prior to test date/time.
- Counseling services <http://shs.uncg.edu/cc> The counseling center offers mental health screenings, workshops, crisis assistance, suicide prevention, individual/couples/group counseling, and more resources.
- UNCG Campus Violence Response Center <http://cvrc.uncg.edu> The CVRC supports members of the UNCG community who experience sexual or gender-based harassment or any forms of violence (including stalking and intimate partner violence).

Course policies

I'm here to help you learn about astronomy. If you're encountering difficulties for any reason, let me know! We can work together to figure out how to best help you learn. A colleague I highly respect, Astronomy Professor Jorge Moreno, reminds all of his classes that learning is a collaborative and collective effort: "if one person is failing, we are all failing." Please be present for class, and know that as a group, we collectively will not allow anyone to slip through the cracks and not do well; it's on us all to be present and working, learning, for both ourselves and each other.

If a homework assignment or a lab deadline is missed, the assignment will remain open until the end of the semester, but only partial credit will be possible. After the deadline, maximum possible credit will drop 10% per day, going no lower than 50% possible credit. Full credit will be restored if the deadline was missed due to a technical issue. In such a case, notify me as soon as possible, and complete the assignment promptly. All Exams (mid-terms and final) are given only once. In case of absence due to illness or unforeseen circumstances, contact me (in person or via email) before or right after the exam.

Course Grading

Activity	% of final grade	Extra credit	% possible
Online homework	20	Extra online homework	10
In-class quizzes	15	Visit to Three College Observatory	5
Online labs	10	<i>Total</i>	<i>15</i>
UNCG planetarium visit	5	Bonus project, can replace one homework or lab	(ask Prof. A. for details if interested)

Midterm exam 1	15		
Midterm exam 2	15		
Final exam	20		
Total	100		

Grading Scale:

A+	>96.1%	B+	86.1-89.0%	C+	76.1-79.0%	D+	66.1-69.0%
A	92.1-96.0%	B	82.1-86.0%	C	72.1-76.0%	D	63.1-66.0%
A-	89.1-92.0%	B-	79.1-82.0%	C-	69.1-72.0%	D-	60.1-63.0%

F <60.0%

In-Class Activities

Interactive Quizzes

- Interactive quizzes will be done with personal interactive response systems (a.k.a. clickers) and take place during most classes. The purpose of Clicker questions is to test your understanding of concepts as they are being taught and to promote discussion of course material.
- Clickers will be distributed in class on Tuesday, 1/22. If you miss it, you can get a clicker from the Office of Physics and Astronomy (Petty, room 321) during the second week of classes. The return date (most likely 25 April) will be specified in your Agreement paper that you will need to sign when receiving the clicker.
- **Technical issues with clickers** should be addressed at the Physics & Astronomy department main office (Petty 321).
- I will not announce Clicker sessions in advance; two absences will be automatically dropped. In Clicker quizzes, you will get full credit for participation.

Think/pair/share

We will use this technique in-class often: I will ask a question, give everyone a moment to think about it, then talk to nearby classmates, and then we'll regroup as a class and share what we came up with.

Accessibility and Inclusive Classroom Goals

I aim to create an inclusive, accessible classroom, and look forward to meeting every one of you and being a part of your learning. I will treat you with respect and as a unique human being, and insist that you do the same for each other and for me.

University Policies

Policy/link	tl;dr
Academic Integrity	Work together to understand, but unless otherwise stated, any work you submit must be in your own words and represent your own

	understanding. Plagiarism is unacceptable and will lead to action.
http://academicintegrity.uncg.edu/	
UNCG Cares	Look out for each other: it's ok to not be ok, and there is help available. Try to help one another if you notice a fellow student in distress.
https://sa.uncg.edu/dean/distress/	
Policy on disruptive behavior in the classroom	Any behavior that directly interferes with my ability to teach the class is subject to disciplinary action.
https://osrr.uncg.edu/faculty/disruptive-behavior/	
Religious observance and class attendance policy	I will work with you to accommodate up to 2 absences due to religious observances. Please give me at least 1 week's warning.
http://provost.uncg.edu/documents/personnel/religiousobservance.pdf	

Troubleshooting, tips, and tricks for MasteringAstronomy

Site access/registration difficulty and errors

- If you try to access MasteringAstronomy through anything but Canvas, it will ask you for a CourseID. You won't need a CourseID if things are working correctly. If you go through Canvas and still end up at that screen, try your access code again--a typo in the access code will direct you to a registration page that asks for a CourseID.
- If you are unable to click anything in the MyLab and Mastering section on Canvas, your browser may be blocking JavaScript. Enable it (as well as pop-ups, ugh), refresh the page, and try again.
- Interactive animations often use Flash; this may need to be enabled/allowed before the animation/tool will load.
- If only a blank page shows after clicking MyLab and Mastering in Canvas, wait a moment, try to scroll...if nothing happens after a minute or two, clear your browser cache and cookies and try again. Pearson support has told me Google Chrome is their recommended browser for the site, so the next step would be to try a different browser.
- If troubles still persist, try a different computer to make sure it's an issue with the site and not your machine: there are two new/software up-to-date PCs in the Physics Library (Petty 309) you are free to use any time. If it still doesn't work, and Prof. A. can't be of help, please contact Pearson support directly here: <https://support.pearson.com/getsupport/s/contactsupport>

Seeing exercises and problems differently

In a multi-part question, consider printing the page so you can see patterns in sequential questions that may help you answer them more quickly (e.g. and hint, if one question says to convert light-seconds into miles, and then later light-minutes into miles, one is 60 times the other!).