

## AST 235. Astronomy: Stars, Galaxies, and Cosmology - Fall 2018



### Catalog info

Prerequisites: None

**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

### Instructor info

**Instructor:** Assistant Prof. Alicia Aarnio

**Office:** Petty 332. Office hours by appointment. Wednesdays 3-4pm: [http://bit.ly/a235\\_wedsOH](http://bit.ly/a235_wedsOH) or Thursdays 3-4pm: [http://bit.ly/a235\\_ThursOH](http://bit.ly/a235_ThursOH). If neither day/time works, email and we'll find a workable time.

**Contact:** [anaarnio@uncg.edu](mailto:anaarnio@uncg.edu)

**E-mail policy:** Please read the syllabus 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.

### Course materials

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

**Online homework website:** <http://www.masteringastronomy.com/> (login through canvas)

**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).

### 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 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 at <http://bit.ly/SlackF18Ast235>. I will lightly monitor it: ask questions of your classmates, form study groups, seek clarification on any assignments. This tool is for you to use as most helps you succeed in the course! Use to ask questions during lecture if you don't want to ask aloud.

Clickers: When not being used for interactive questions during lecture, I will leave a clicker session open as a "confusion button." If the lecture isn't making sense but you aren't sure why, hit 'C' and I'll slow down, back up, and try to get everyone back on board.

#### 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 remains open till the online class is over and can be completed for half 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-term and final) are given only once. In case of absence due to illness or unforeseen circumstances, contact me (in person, by phone, 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	(ask Prof. A. for details if interested)
Midterm exam 1	15		
Midterm exam 2	15		
Final exam	20		
<b><i>Total</i></b>	<b><i>100</i></b>		

## 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 Thursday, 8/16. If you miss it, you can get a clicker from the Office of Physics and Astronomy (Petty, room

321) during the first week of classes. The return date (most likely 20 November) 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 2 points for participation and an additional 1 point for every correct answer.

#### 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.
<a href="http://academicintegrity.uncg.edu/">http://academicintegrity.uncg.edu/</a>	
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.
<a href="https://sa.uncg.edu/dean/distress/">https://sa.uncg.edu/dean/distress/</a>	
Policy on disruptive behavior in the classroom	Any behavior that directly interferes with my ability to teach the class is subject to disciplinary action.
<a href="https://osrr.uncg.edu/faculty/disruptive-behavior/">https://osrr.uncg.edu/faculty/disruptive-behavior/</a>	
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.
<a href="http://provost.uncg.edu/documents/personnel/religiousobservance.pdf">http://provost.uncg.edu/documents/personnel/religiousobservance.pdf</a>	

### Student information sheet

Please fill out and return to Prof. Aarnio at the end of the first class you attend. This is only for Prof. A., will be stored securely, not shared with anyone for any reason, and shredded at the end of the semester for your privacy.

Here's my sample – please fill in your own below

Name (as appears on UNCG roster)	Alicia Aarnio
Preferred name/phonetic spelling (what would you like me to call you?)	Prof./Dr. Aarnio ( <b>ar</b> -nee-oh) Dr. A.
Correct pronouns	She/her/hers
What do you most want to learn about this semester?	The sun/space weather
Is there anything about you it would help me to know? How can I make class inclusive of you?	Examples: <ul style="list-style-type: none"><li>• Please avoid flashing animations/warn the class first, I get migraines</li><li>• A mid-class brief stand/move around break would be helpful</li><li>• Being called on in class causes severe anxiety</li><li>• I need to eat a snack bar during this hour for blood sugar reasons, sorry if I crinkle during lecture</li></ul>

---

Name (as appears on UNCG roster)	
Preferred name/phonetic spelling (what would you like me to call you?)	
Correct pronouns	
What do you most want to learn about this semester?	
Is there anything about you it would help me to know? How can I make class inclusive of you?	