

# Syllabus for AST 4300

## Galactic Astronomy

### Spring 2020

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Office: 318 Bryant Space Science Center  
Office Hours: M 1-2pm, W 2-3pm  
Class Periods: MWF Period 9 (4:05-4:55)

**Online Course Information:** Handouts and assignments will be posted on Canvas.

**Pre-requisites and Co-requisites:** AST 3018, AST 3019

**Credits:** 3

**Textbooks:** Galactic Astronomy by Binney & Merrifield (required)  
Galaxies in the Universe by Sparke & Gallagher (optional)

#### **Course Content**

This course is designed to be an introduction to Galactic astronomy for science majors. As such, a good working knowledge of mathematics including algebra, trigonometry, and calculus is assumed. Experience with computer programming in a relevant language (e.g. python, C++, or similar) will be advantageous. One of the goals of this class is to familiarize you with the components of the Milky Way galaxy and its neighbors in the Local Group. The approach will concentrate largely on the stellar populations of these systems, and the techniques used to study their chemical abundances, ages, and distances. Another goal will be to place the Milky Way in the broader context of galaxy formation and evolution. This course will also introduce you to scholarly literature in this field and aim to teach critical thinking in the evaluation of scientific results.

#### **Course & Grading Information**

Your grade for the course will be based on the following:

Assignments and Participation	<b>20%</b>
Class Projects	<b>40%</b>
Exams (Feb 7, March 20, April 22)	<b>40%</b>

Details regarding UF grading policies can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

#### **Homework**

Homework assignments must be submitted on time (at the beginning of class) to receive full credit. For late assignments there will be a deduction of 33% per day. No homework extensions will be granted unless the extension is approved in advance of the deadline or documentation of a medical issue is provided.

### **Exams and Projects**

All exams, which will be during the regular semester, will focus upon material covered since the previous exam. Projects must to be done **independently**. You are welcome to provide guidance to one another on how to write computer code, but these projects are *not* collaborative. The last project will be due during finals week on April 27<sup>th</sup> at 10am.

### **Class Expectations**

There will be weekly reading assignments from the textbook. You are expected to read the material in advance of the lectures and be ready to actively participate in class. I will not cover all of the assigned reading during class, but will rather focus upon the topics and concepts that are most important, and will also cover material not found in the textbook. You are also expected to not engage in any activity during class that is distracting to other students or detrimental to their ability to learn. Please be courteous to your fellow classmates and turn off the ringer on your phones.

### **Attendance and Make-up Policy**

Students are expected to complete all requirements by the specified due dates. If you miss an assignment due to an excused absence as specified in the university attendance policies ([catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/](http://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/)), you will be allowed a reasonable time to make up the missed work. The format of any make-up exam will be at the discretion of the instructor. While there will be no formal deduction for missing a class, participation is a component of your grade for the semester and regular attendance is thus strongly encouraged.

### **Academic Honesty Policy**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code ([sccr.dso.ufl.edu/process/student-conduct-code/](http://sccr.dso.ufl.edu/process/student-conduct-code/)) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

I strongly adhere to the previous statements and **DO NOT TOLERATE CHEATING.**

### **Special Accommodations**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with the instructor and discuss their access needs as early as possible in the semester.

## **UF Counseling and Wellness Services**

*U Matter, We Care:* If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit [umatter.ufl.edu/](http://umatter.ufl.edu/) to refer or report a concern and a team member will reach out to the student in distress.

*Counseling and Wellness Center:* Visit [counseling.ufl.edu/](http://counseling.ufl.edu/) or call 352-392-1575 for information on crisis services as well as non-crisis services.

*Student Health Care Center:* Call 352-392-1161 for 24/7 information to help you find the care you need, or visit [shcc.ufl.edu/](http://shcc.ufl.edu/).

*University Police Department:* Visit [police.ufl.edu/](http://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).

*UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [ufhealth.org/emergency-room-trauma-center](http://ufhealth.org/emergency-room-trauma-center).

## **Student Feedback**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at [gatorevals.aa.ufl.edu/students/](http://gatorevals.aa.ufl.edu/students/). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [ufl.bluera.com/ufl/](http://ufl.bluera.com/ufl/). Summaries of course evaluation results are available to students at [gatorevals.aa.ufl.edu/public-results/](http://gatorevals.aa.ufl.edu/public-results/).

**Preliminary Lecture Schedule (Subject to Change)**

The table below indicates the approximate dates for each topic/chapter. Updated will be given in class as the schedule changes. Journal articles will also be assigned periodically as reading.

<b>Lecture Date</b>	<b>Lecture Content</b>	<b>Weekly Textbook Chapter Reading Assignment</b>
<b>Week 1 (1/6)</b>	<i>A Brief History of Galactic Astronomy</i>	1
<b>Week 2 (1/13)</b>	<i>Astronomical Measurements</i>	2.1-2.3,3.7
<b>Week 3 (1/20)</b>	<i>The Properties of Stars I</i>	3.1-3.4
<b>Week 4 (1/27)</b>	<i>The Properties of Stars II, Evolution of Stars and Stellar Populations I</i>	3.5-3.6,5.1
<b>Week 5 (2/3)</b>	<i>Star Clusters I</i> <b>Exam on 2/7</b>	5.4-6.1
<b>Week 6 (2/10)</b>	<i>Star Clusters II</i>	6.2
<b>Week 7 (2/17)</b>	<i>The Interstellar Medium</i>	9
<b>Week 8 (2/24)</b>	<i>Components of the Milky Way I</i>	10.1-10.3
<b>Week 9 (3/9)</b>	<i>Components of the Milky Way II</i>	10.4-10.6
<b>Week 10 (3/16)</b>	<i>Evolution of Stars and Stellar Populations II</i> <b>Exam on 3/20</b>	5.2-5.3
<b>Week 11 (3/23)</b>	<i>Stellar Remnants and Assorted Topics</i>	10.6
<b>Week 12 (3/30)</b>	<i>The Local Group and Near Field Cosmology</i>	
<b>Week 13 (4/6)</b>	<i>Galaxy Formation</i>	4.1,10.7
<b>Week 14 (4/13)</b>	<i>The Milky Way in the Era of Gaia</i> <i>Short Project Presentations</i>	
<b>Week 15 (4/20)</b>	<i>The Milky Way in the era of Gaia</i> <b>Exam on 4/22</b>	