ASTR 1020 Syllabus

Stars and Galaxies

Dr. Loris Magnani, Spring 2021

CRN 27375

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary during the course of the semester and will supersede anything written here.

Instructor Information

Dr. Loris Magnani

Office: 238 Physics

Email: loris@uga.edu

Class Website: https://www.physast.uga.edu/~loris/astr1020/prob1020_sp21.html

You should monitor this website regularly; at minimum, once per week.

Office Hours: Mondays: 3-5 PM, or by appointment via Zoom

Class time: MWF 10:20 – 11:10 PM (Period 3): Room 202 Physics Building

Introduction

Welcome to ASTR 1020. This course is a general introduction to astronomy for non-science majors. The principal goals of the course are to give you an idea of how a physical science like astronomy works and to introduce you to some of the latest discoveries about stars, galaxies, and the Universe. Some of the topics we will cover are: our place in the Universe, astronomical instruments, the Sun, types of stars, types of galaxies, hierarchical structures in the Universe, and cosmology. We will examine these subjects at an introductory level, but in enough detail to give you an understanding of each topic at a level that a well-educated person in the 21st century should have.

Note: Astronomy is a quantitative science. As such, we will treat many of the topics quantitatively using mathematics at the level of high-school algebra. We will also use a
little bit of trigonometry but no calculus. I will expect you to be able to handle numerical
problems involving simple algebraic equations and scientific notation, both on the
homework and on the exams. Thus, you will need a scientific calculator for this course.

Required Course Materials

Textbook: The official textbook for the course will be: *21\textsuperscript{st} Century Astronomy: 6\textsuperscript{th} Edition* by Kay, Palen, and Blumenthal (Norton, 2019). It can be purchased as an entire
volume, but the material we will cover during the semester is entirely covered in the
second volume. You can use the e-text version.

Homework will be assigned every week or every other week based on problems at
the end of the chapters of *21\textsuperscript{st} Century Astronomy*.

As a more affordable option, you are welcome to use the free electronic textbook
*Astronomy*, by Andrew Fraknoi, David Morrison, and Sidney C. Wolff. It is published by
the openstax open educational resources project and is available for free in various
electronic formats: online, PDF, iBooks, and Kindle. You can also order a print version if
you prefer that format. For more details, go to:

https://openstax.org/details/books/astronomy

If you choose this option for the course textbook, you will be responsible for matching
the content as described in the schedule at the end of this syllabus with the appropriate
sections in the openstax book. Also, you will be responsible for the content covered by
the problems assigned for homework in the *21\textsuperscript{st} Century Astronomy* book.

A simple scientific calculator is needed for homework and for exams.

Structure of the Class

Given the issues raised by the ongoing COVID-19 pandemic, class will be given in
hybrid mode. That is, no more than about 1/3 of the class will be allowed to attend in
person on any given class day. The rest of the class will follow the lectures via Zoom. A
Zoom invitation will be sent to everyone a few minutes before each class. My
handwritten notes for a given class will be posted on eLC the day before that class.
During the class lecture, I will go over the notes, annotating and expanding on them as
necessary. I will also work out numerical problems and answer questions from the
students.
In-person attendance, if desired, will be based on the first letter of the last name. If your last name begins with a letter from A to J, then you may attend the Monday lectures. If your last name begins with a letter from K to R, then you may attend the Wednesday lectures, and if your last name begins with a letter from S to Z, then you may attend the Friday lectures. Exceptions to the above rules can be discussed with me by email. Attendance is not compulsory, but encouraged.

Homework will be assigned each week based on questions at the end of the chapters of the 21st Century Astronomy book, but the homework will not collected or graded. Your incentive for doing the homework is that it allows you to more thoroughly understand the material and be better prepared for the exams.

Online Course Resources

The eLearning Common (https://uga.view.usg.edu/d2l/login) will serve as a repository for general information, announcements, and lecture materials. You are responsible for checking the eLC site for this course on a daily basis.

Other Resources

Tutoring: Department of Physics and Astronomy has a list of tutors available (http://www.physast.uga.edu/tutors/), otherwise visit the UGA Tutorial Program in Milledge Hall or the tutoring options through the Division of Academic Enhancement (https://dae.uga.edu/).

If you cannot come to my regular office hours, or need additional help, please set up a Zoom appointment (by email, by phone (706-5422876), or in person) to talk to me outside of class. For email correspondence (include ASTR 1020 in the subject line) use this address:

loris@uga.edu

You may get an invitation to the Zoom lectures from one of my private e-mail addresses: thanatos1958@gmail.com. Please do not use this email address for class correspondence.

Grading Policy

Your overall grade will be weighted as follows:
60% based on three in-class exam grades (best 3 out of 4 exam given during the course of the semester)

15% Packback grade (see below for explanation)

25% Final exam grade

Your numerical score will be determined from the weights given above and a letter grade will be assigned using the following criteria:

A     91.0 – 100.0
A-    87.0 – 90.99
B+    84.0 – 86.99
B     80.0 – 83.99
B-    75.0 – 79.99
C+    70.0 – 74.99
C     65.0 – 69.99
C-    60.0 – 64.99
D     50.0 – 59.99
F     less than 49.99

Make-up Exams:

If you must miss an exam for a serious, documentable reason, then you must notify me in advance either in person or via email. You must also provide documentation for your absence within one week of the date of the missed exam. These rules do not apply to the Final Exam. If you have not notified me in advance or you have not provided documentation of your reason for missing the exam, then your score for the missed exam will be a zero. Remember that one of the four exams given during the course of the semester will be dropped.
**Packback Questions**

Participation is a requirement for this course, and the Packback Questions platform ([www.packback.co](http://www.packback.co)) will be used for online discussion about class topics. Packback Questions is an online community where you can be fearlessly curious and ask questions about how what we’re studying relates to life and the real world.

My goals for using Packback for ASTR 1020 are to provide a mechanism for the students to engage with the course material in a timely fashion.

**Grading Requirements:**
Your participation on Packback will count toward 15 percent of your final grade. In order to receive your points per week, you must post 1 Question with a minimum Curiosity Score of at least 50 and 2 Answers with a minimum Curiosity Score of 50 per. Curiosity scores are explained in the video linked below. Each grading period there will be a **Tuesday 11:59 PM deadline** for submissions. The first deadline is January 26, 2021.

**How to Register on Packback:**
An email invitation will be sent to you from holla@packback.co prompting you to finish registration. If you don’t receive an email (be sure to check your spam), you may register by following the instructions below:

1. Create an account by navigating to [https://questions.packback.co/login](https://questions.packback.co/login) and clicking “Sign up for an Account”
   Note: If you already have an account on Packback you can login with your credentials.

2. Then enter our class community’s lookup key into the “Join a Community” module in Packback.
   Note: Community Lookup Code for this course: **a039997f-a2be-4407-8517-c3c20ce26c2c**

3. Follow the instructions on your screen to finish your registration.

Packback may require a paid subscription. Refer to [www.packback.co/product/pricing](http://www.packback.co/product/pricing) for more information.

**How to Get Help from the Packback Team:**
If you have ANY questions or concerns regarding Packback throughout the semester, please contact the customer support team at holla@packback.co!
For a brief introduction to Packback Questions and why we are using it in class, watch this video: vimeo.com/packback/Welcome-to-Packback-Questions

Withdrawal and Incomplete

The Undergraduate Bulletin and the Registrar’s Office website describe the University policies regarding withdrawals and incomplete (http://reg.uga.edu/policies/withdrawals).

If you are considering withdrawing from the course, you should discuss your choice with me beforehand. In many cases, students are doing better in the course than they think. A grade of Incomplete is not appropriate for a student who has missed a large portion of the course assessments, for whatever reason. An incomplete is intended for a student who has completed a substantial part of the course, but, for non-academic reasons beyond their control was unable to finish the course.

The Withdrawal Deadline is March 23, 2021.

Exam Policy

There will be four in-class exams. The best three out of four scores will be used towards your final grade. Exams will be open-book and open-notes and will be available on eLC during the allotted class time (see schedule below). The format for exams will be multiple-choice, true-false, and may include a few short answer questions. Occasionally, exam questions will require a quantitative answer and so an algebraic calculation means simple, scientific calculators will be allowed (as documented in the required course materials section).

Classroom Policy

We would like to have a constructive learning environment and so the atmosphere must be free from distractions and disruptive behavior. If you are attending class in person, please make a reasonable attempt to arrive on time and refrain from packing up your things and leaving early. If you must leave before class ends, use the exits at the top/back of the lecture hall. Laptops, cell phones, and tablets may be useful for taking notes, however, they can be distracting when used for social media sites, shopping, checking email, or playing games. Be mindful and respectful of those around you.
**Student Responsibilities**

Arrive on time to class and do not distract your fellow classmates. You are responsible for all announcements made during class – whether or not you are attending in person.

You are responsible for all topics covered in class, in the assigned book chapters, and on the homework problems.

You are strongly encouraged to read the material that is to be covered in class ahead of time. If the schedule changes, then those changes will be announced in class.

Know the rules concerning withdrawals and incompletes, published in the UGA undergraduate Bulletin.

Maintain “A Culture of Honesty” (see below).

Ask me if you don’t understand **anything** about the course materials. There are no dumb questions as far as astronomy is concerned. Be curious!

**Academic Honesty**

The University of Georgia has a comprehensive policy on academic honesty, described in a document entitled A Culture of Honesty. This document is available through the Office of the Vice President for Instruction or online at https://ovpi.uga.edu/academic-honesty. This policy covers all academic work.

As a UGA student, you are responsible for knowing and understanding this policy. If you have any question about the appropriateness of your actions or your work, you are obligated to ask me for clarification.

**Coronavirus Information for Students**

**Face Coverings:**
As a reminder, the University of Georgia—along with all University System of Georgia (USG) institutions—requires all faculty, staff, students, and visitors to wear an appropriate face covering while inside campus facilities/buildings where six feet social distancing may not always be possible. Anyone not using a face covering when required will be asked to wear one or must leave the area. Reasonable accommodations may be made for those who are unable to wear a face covering for documented health reasons. Students seeking an accommodation related to face coverings should contact Disability Services at [https://drc.uga.edu/](https://drc.uga.edu/).
**DawgCheck:**
Please perform a quick symptom check each weekday on DawgCheck—on the UGA app or website—whether you feel sick or not. It will help health providers monitor the health situation on campus: [https://dawgcheck.uga.edu/](https://dawgcheck.uga.edu/)

**What do I do if I have symptoms?**
Students showing symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5 p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see [https://www.uhs.uga.edu/info/emergencies](https://www.uhs.uga.edu/info/emergencies).

**What do I do if I test positive?**
Any student with a positive COVID-19 test is **required** to report the test in DawgCheck and should self-isolate immediately. Students should not attend classes in-person until the isolation period is completed. Once you report the positive test through DawgCheck, UGA Student Care and Outreach will follow up with you.

**What do I do if I am notified that I have been exposed?**

**Revised Guidelines for COVID-19 Quarantine Period**
Effective Jan. 4, 2021, students who learn they have been directly exposed to COVID-19 but are not showing symptoms should self-quarantine for **10 days** (consistent with updated Department of Public Health (DPH) and Centers for Disease Control and Prevention (CDC) guidelines). Those quarantining for 10 days must have been symptom-free throughout the monitoring period. Please correspond with your instructor via email, with a cc: to Student Care & Outreach at sco@uga.edu, to coordinate continuing your coursework while self-quarantined.

We strongly encourage students to voluntarily take a COVID-19 test within 48 hours of the end of the 10-day quarantine period (test to be administered between days 8 and 10). Students may obtain these tests at Legion Field ([https://clia.vetview.vet.uga.edu/](https://clia.vetview.vet.uga.edu/)) or at the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5 p.m.). Please DO NOT walk-in the University Health Center without an appointment. For emergencies and after-hours care, see [https://www.uhs.uga.edu/info/emergencies](https://www.uhs.uga.edu/info/emergencies)

If the test is negative, the individual may return to campus, but MUST continue to closely monitor for any new COVID-19 symptoms through 14 days. **DawgCheck** is the best method for monitoring these symptoms. If new symptoms occur, the individual must not come to campus and must seek further testing/evaluation.

If the test is positive at the end of the 10-day period, the individual must begin a 10-day isolation period from the date of the test.

**How do I participate in surveillance testing if I have NO symptoms?**
We strongly encourage you to take advantage of the expanded surveillance testing that is being offered from **January 4 – 22: up to 1,500 free tests per day at Legion Field and**
pop-up locations. Testing at Legion Field can be scheduled at https://clia.vetview.vet.uga.edu/. Walk-up appointments can usually be accommodated at Legion Field, and pop-up saliva testing does not require pre-registration. For planning purposes, precise sites and schedules for the pop-up clinics are published on the UHC’s website and its social media as they are secured: https://www.uhs.uga.edu/healthtopics/covid-surveillance-testing.

Tentative Class Schedule

Any modifications to this schedule will be announced during class. Be prepared for class by reading the assigned chapter before class. Exam dates below are tentative (except for the final). Any changes will be announced well ahead of time during classes.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1)</td>
<td>Jan. 13, 15</td>
<td>Syllabus; Introduction to Astronomy in general</td>
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<tr>
<td>2)</td>
<td>Jan. 20, 22</td>
<td>Ch. 5 – Light, Properties and Spectra</td>
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<tr>
<td>3)</td>
<td>Jan. 25, 27, 29</td>
<td>Ch. 5, 6 – Light, Instruments and Multi-Messenger Astronomy</td>
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<tr>
<td>4)</td>
<td>Feb. 1, 3, 5</td>
<td>Ch. 6, 13 – Instruments, Stellar data and how they are obtained</td>
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<tr>
<td>5)</td>
<td>Feb. 8, 10, 12</td>
<td>Ch.13, 14 – Stellar data continued, the Sun</td>
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<tr>
<td>6)</td>
<td>Feb. 15, 19</td>
<td>Ch. 14 – The Sun, properties and how it works</td>
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Exam 1, Monday, February 15, 2021 – covers Ch. 5, 6, 13

7)   | Feb. 22, 24, 26 | Ch. 15 – The Interstellar Medium, the stuff between the stars |
| 8)   | Mar. 1,3, 5 | Ch.16 – Low Mass Stars, their life cycle and demise         |
| 9)   | Mar. 8, 10 | Ch. 17 – High Mass Stars, their life cycle and demise       |
| 10)  | Mar. 15, 17, 19 | Ch. 18 – Relativity and Black Holes                   |

Exam 2, Monday, March 15, 2021 – covers Ch. 14, 15, 16

11)  | Mar. 22, 24, 26 | Ch. 18 – Relativity and Black Holes                                |
| 12)  | Mar. 29, 31, Apr. 2 | Ch. 19 – Galaxies of all kinds                                    |
| 13)  | Apr. 5, 7, 9 | Ch. 20 – The Milky Way, our home galaxy                          |

Exam 3, Monday, April 5, 2021 – covers Ch. 17, 18, 19

14)  | Apr. 12, 14, 16 | Ch. 21 – The Expanding Universe                                    |
| 15)  | Apr. 19, 21, 23 | Ch. 22 – Cosmology, the science of the Universe                   |
| 16)  | Apr. 26, 28, 30 | Ch. 22, 23 – Cosmology, Large Scale Structure                    |
Exam 4, Wednesday, April 28, 2021 – covers Ch. 20, 21, 22

17) May 3 – Ch. 23 – Large Scale Structure

May 4th – Reading Day
Final Exam – Wednesday, May 5th, 8-11 AM - cumulative