

# ASTR 1020: Stellar and Galactic Astronomy

Spring 2015 ★ TR 9:30 am – 10:45 am ★ Langdale Hall 400 ★ 4CH

**Instructor:** Dr. Douglas R. Gies

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WWW Site: <http://www.astro.gsu.edu/~gies/ASTR1020/>

**Office Hours:** W 11:00 am – noon or by appointment (ask after class, call, or e-mail me).

**Prerequisites:** Completion of ASTR 1010 or equivalent.

**Course Objectives:** This is a survey course designed for non-specialists that completes the topics in astronomy begun in ASTR 1010. Students will learn through lectures and reading about the processes that have formed the current universe and develop a perspective about our place and time in the universe.

**Textbook:** *The Cosmic Perspective* (7th ed.) by Bennett, Donahue, Schneider, & Voit (2014; ISBN 0-321-83995-2; Pearson Education, Inc.).

## Grades:

- Laboratory .....25%
- Best 10 of 12 assignments ..... 50%
- Notebook ..... 5%
- Midterm exam ..... 10%
- Final exam .....10%
- Attendance bonus (5 days) ..... [+10%]

Grading scheme:

A+:97-100%, A:93-96%, A-:90-92%, B+:87-89%, B:83-86%, B-:80-82%,  
C+:77-79%, C:73-76%, C-:70-72%, D:60-69%, F:0-59%.

## Laboratory:

• Labs for this class are:

#10102 Tuesday 11:00 am – 12:50 pm

#10101 Tuesday 1:00 pm – 2:50 pm

#10103 Wednesday 8:00 am – 9:50 am

#12892 Wednesday 10:00 am – 11:50 am

#12893 Thursday 1:00 pm – 2:50 pm

• See the lab syllabus at <http://www.astro.gsu.edu/lab/>.

• Labs begin the week of January 26 and are held in 516 Kell Hall.

• You are required to attend the same laboratory section each week.

• The lab will include one evening session for observing with telescopes.

• The lab textbook is *Activities in Astronomy: A Laboratory Textbook*, 2013 edition, by John W. Wilson.

• Bring a drawing compass, protractor, 30 cm ruler, and simple calculator.

• A passing lab grade is required in order to pass the course.

**Assignments:** I will post homework assignments almost every week on the class web site:

<http://www.astro.gsu.edu/~gies/ASTR1020/>

These will usually be due in class one week after the assignment is posted, although some assignments may take place during class. The assignments will be based on topical content from the text and lectures. No credit will be given for late assignments, so please keep up with the work.

**Notebook:** Purchase a 1-inch wide, 3-ring binder for a class notebook. Add dividers to make sections for the syllabus, class handouts and your notes, assignments, exams, and labs. You will present the notebook to me at the end of the semester for inspection and credit.

**Exams:** Both the midterm and final exams will consist of 100 multiple choice and true/false style questions. Scan forms will be provided on the day of the exam, and please bring a pencil to enter your answers. The final exam will take place on Thursday, April 30, 8:00 am – 10:30 am. There will be no opportunity for make-up exams except for exceptional circumstances. Students are expected to do their own work and to abide by the Policy on Academic Honesty discussed in Section 1380 of the GSU *Undergraduate Catalog*:

[catalog.gsu.edu/undergraduate20142015/university-academic-regulations/#academic-honesty](http://catalog.gsu.edu/undergraduate20142015/university-academic-regulations/#academic-honesty)  
Cheating on any exam will yield a zero on that work.

**Attendance:** Regular class attendance is highly recommended; it is usually the key to success. Attendance will be taken on five random dates during the semester, and students will be awarded two bonus points for attendance at each class for a cumulative total of a maximum of 10 bonus points that will be applied to the final grade out of 100%. **Laboratory attendance is required each week.**

**Important Dates to Remember:**

January 27 – Laboratory meetings begin.

February 26 – Midterm Exam.

March 3 – Last day to withdraw and receive a grade of W.

April 30 – Final Exam.

**Key Web Sites:**

GSU Hard Labor Creek Observatory: <http://www.astro.gsu.edu/HLCO/>

Fernbank Science Center and Observatory: <http://www.fernbank.edu/>

Astronomy Picture of the Day: <http://apod.nasa.gov/apod/>

Sky and Telescope Magazine: <http://www.skyandtelescope.com/>

The Evening Sky Map: <http://skymaps.com/downloads.html>

**Notes:**

- The table attached gives a projected schedule of topics to be covered in each class (including the relevant chapters in the textbook). Please read the text before classes.
- The course syllabus provides a general plan for the course; deviations may be necessary.
- Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation.
- Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.

Jan. 13	Introduction: size of the Universe (1)
Jan. 15	Motion, energy, gravity (4)
Jan. 20	Atoms and light (5)
Jan. 22	Space and time (S2)
Jan. 27	Sun: interior (14)
Jan. 29	Sun: outer layers (14)
Feb. 3	Stars: properties (15)
Feb. 5	Stars: H-R diagram (15)
Feb. 10	Binary stars, clusters (15)
Feb. 12	Interstellar medium (16)
Feb. 17	Star formation (16)
Feb. 19	Evolution: low mass stars (17)
Feb. 24	Evolution: high mass stars (17)
Feb. 26	<b>Midterm Exam</b> (4, 5, S2, 14 – 17)
Mar. 3	White dwarf stars (18)
Mar. 5	Neutron stars and black holes (18)
Mar. 10	Milky Way Galaxy: structure (19)
Mar. 12	Milky Way Galaxy: history, center (19)
Mar. 17	Spring break - no class
Mar. 19	Spring break - no class
Mar. 24	Galaxies (20)
Mar. 26	Hubble's Law (20)
Mar. 31	Evolution of galaxies (21)
Apr. 2	Active galactic nuclei (21)
Apr. 7	Cosmology: Big Bang (22)
Apr. 9	Cosmic inflation (22)
Apr. 14	Dark matter (23)
Apr. 16	Dark energy (23)
Apr. 21	<i>Life Beyond Earth 1</i> (24), notebook review
Apr. 23	<i>Life Beyond Earth 2</i> (24), exam review
Apr. 30	<b>Final Exam 8:00 am – 10:30 am</b> (18 – 24)