ASTR 1020K: Stellar and Galactic Astronomy

Spring 2020 ⋆ TR 2:15 pm – 3:30 pm ⋆ Langdale Hall 300 ⋆ 4CH
iCollege presentations beginning March 31

Instructor: Dr. Douglas R. Gies
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Office Hours: Please e-mail me to arrange.

Prerequisites: Completion of ASTR 1010K or equivalent.

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

Textbook: *The Cosmic Perspective* (9th ed.) by Bennett, Donahue, Schneider, & Voit (2019; ISBN-13: 9780134874364; Pearson Education, Inc.).

Grades:
• Laboratory 25%
• Best 3 of 5 tests 75%
• Attendance bonus (3 days) ..... [+6%]
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:
#16398 Monday ..... 12:00 pm – 01:50 pm
#16401 Monday ..... 04:00 pm – 05:50 pm
#16402 Wednesday ..... 02:00 pm – 03:50 pm
#16397 Thursday ..... 12:00 pm – 01:50 pm
#16400 Thursday ..... 04:00 pm – 05:50 pm
• See the lab syllabus at http://www.astro.gsu.edu/lab/
• Labs begin the week of January 27 and are held in Langdale Hall 721.
• Beginning March 30, labs will be completed on iCollege.
• **A passing lab grade is required in order to pass the course.**

Tests: Because only 3 of 5 tests will be counted, there will be **no** make-up tests. All tests and the exam will be multiple choice or true/false style questions. Scan forms will be provided on the day of the exam, and please bring a pencil to enter your answers. Tests 3 - 5 will be done on iCollege. Students are expected to do their own work and to abide by the Policy on Academic Honesty discussed in the GSU *Code of Conduct*:
`https://deanofstudents.gsu.edu/files/2019/07/Academic-Honesty-Policy.pdf`
Cheating on any test or 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 three 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 6 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 4 – Test #1.
February 25 – Test #2.
March 3 – Last day to withdraw and receive a grade of W.
March 31 – Test #3.
April 14 – Test #4.
April 23 – Test #5.

Key Web Sites:
GSU Hard Labor Creek Observatory: http://phy-astr.gsu.edu/connections/outreach/hlco/
Fernbank Science Center and Observatory: http://www.fernbank.edu/
Astronomy Picture of the Day: https://apod.nasa.gov/apod/
Sky and Telescope Magazine: https://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.

Dates	Lecture Topics
Jan. 14	Introduction: scales and motion in the Universe (1, 4)
Jan. 16	Gravity, atoms, and light (4,5)
Jan. 21	Sun: interior (14)
Jan. 23	Sun: outer layers (14)
Jan. 28	Stars: properties (15)
Jan. 30	Stars: H-R diagram (15)
Feb. 4	Binary stars (15); **Test 1** (4, 5, 14, 15)
Feb. 6	Star clusters (15)
Feb. 11	Interstellar medium (16)
Feb. 13	Star formation (16)
Feb. 18	Evolution: low mass stars (17)
Feb. 20	Evolution: high mass stars (17)
Feb. 25	Supernovae (17); **Test 2** (15, 16, 17)
Feb. 27	White dwarf stars (18)
Mar. 3	Neutron stars and black holes (18)
Mar. 5	Milky Way Galaxy components (19)
Mar. 10	Milky Way Galaxy processes (19)
Mar. 12	Galaxies (20)
Mar. 17	Spring break – no class
Mar. 19	Spring break – no class
Mar. 24	No class meeting
Mar. 26	No class meeting
Mar. 31	Hubble's Law (20); **Test 3** (18, 19, 20)
Apr. 2	Evolution of galaxies (21)
Apr. 7	Active galactic nuclei (21)
Apr. 9	Cosmology: Big Bang (22)
Apr. 14	Epochs of the early Universe (22); **Test 4** (21, 22)
Apr. 16	Dark matter, dark energy (23)
Apr. 21	Planets Beyond the Solar System (24)
Apr. 23	Life in the Galaxy (24); **Test 5** (23, 24)