ASTR 4010 – Astrophysics I – Stellar Astrophysics
Professor Caillault – Spring 2019

Office: 237 Physics
Office Hours: TuTh 2:00-3:00 or by appointment
Phone: 542-2883
E-mail: jpc@physast.uga.edu

Textbook: *An Introduction to Modern Astrophysics*, 2nd Ed., by Carroll & Ostlie

Course Structure: This course will cover a wide range of topics on stellar astrophysics, including binary systems, spectra, atmospheres, interiors, pulsation, formation, evolution, white dwarfs, neutron stars, and pulsars. The course will be a mixture of lecturing and problem solving. Students are expected to be prepared for discussions of the textbook material and to be responsible for solving the problems that have been assigned.

Homework: Problem sets for each chapter will be assigned approximately a week in advance. There are advantages to working together in small groups, so I encourage you to consider that option. The homework will not be graded, but, since your exams may include questions similar to those in the homework assignments, you are strongly encouraged to do all of the homework on your own and to make sure that you clearly understand the questions and their correct answers. The in-class homework problem-solving sessions may include any of the assigned problems, so you should solve all of them in order to be completely prepared.

Attendance: We only meet 30 times during the semester, so class attendance is essential. If your final grade is borderline between, say, a B and a B+, attendance will be considered.

Exams: There will be a two-part (in-class and take-home) mid-term exam and a two-part final exam. Each part of each exam is worth 25% of your course grade.

Grades: The grading scale for the class will be as follows:

	A	≥ 93
93 >	A–	≥ 90
90 >	B+	≥ 87
87 >	B	≥ 83
83 >	B–	≥ 80
80 >	C+	≥ 77
77 >	C	≥ 73
73 >	C–	≥ 70
70 >	D	≥ 60
60 >	F	

Academic Honesty: The University's Academic Honesty Policy (A Culture of Honesty) is strictly adhered to. Make sure you know and understand the policy.

Tentative Class Schedule:

DATES	TOPIC
Jan. 10 (R)	Introduction
Jan. 15, 17 (T, R)	Brief Review of Light and Matter (Chapters 3 and 5)
Jan. 22, 24 (T, R)	Binary Stars and Stellar Parameters (Chapter 7)
Jan. 29, 31 (T, R)	The Classification of Stellar Spectra (Chapter 8)
Feb. 5, 7, 12 (T, R, T)	Stellar Atmospheres (Chapter 9)
Feb. 14, 19, 21 (R, T, R)	The Interiors of Stars (Chapter 10)
Feb. 26, 28, Mar. 5 (T, R, T)	The Sun (Chapter 11)
Feb. 28 – Mar. 7	**Take-home Midterm Exam: due 12:30 PM, March 7**
Mar. 7 (R)	**In-class Midterm Exam (75 minutes)**
Mar. 19, 21 (T, R)	The Interstellar Medium and Star Formation (Chapter 12)
Mar. 26, 28, Apr. 2 (T, R, T)	Main Sequence & Post-MS Stellar Evolution (Chapter 13)
Apr. 4, 9 (R, T)	Stellar Pulsation (Chapter 14)
Apr. 11, 16, 18 (R, T, R)	The Fate of Massive Stars (Chapter 15)
Apr. 23, 25, 30 (T, R, T)	The Degenerate Remnants of Stars (Chapter 16)
Apr. 30 – May 7	**Take-home Final Exam: due 12:00 noon, May 7**
May 7 (T)	**In-class Final Exam (12:00-3:00 pm)**