AST 203: Astronomy
Fall 2021

Instructor

Prof. Kenneth M. Lanzetta
ESS 456
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Course Description

This course provides an introduction to astronomy and astrophysics. Topics include the celestial sphere, celestial mechanics, the continuous spectrum of light, the theory of special relativity, the interaction of light and matter, binary systems and stellar parameters, the classification of stellar spectra, the interiors of stars, the interstellar medium and star formation, main-sequence and post-main-sequence stellar evolution, the degenerate remnants of stars, the Milky Way galaxy, the nature of galaxies, the structure of the Universe, cosmology, and the early Universe.

Class Meeting

Class meetings will be held TuTh 11:30 AM–12:50 PM in Heavy Engineering 201.

Text

The required text for the course is *An Introduction to Modern Astrophysics, Second Edition* by Carroll and Ostlie (2017, Cambridge University Press).

Office Hours

Office hours will be held online via Zoom by appointment.

Teaching Assistant

There is a graduate student teaching assistant assigned to the course: Aaron Mueinghoff. Aaron's contact information is as follows:

> Aaron Mueinghoff
> Aaron.Mueinghoff@stonybrook.edu
> Office hours: Office hours will be held online via Zoom by appointment.

Homework

Homework will be assigned weekly over the course of the semester. Homework must submitted electronically in PDF format via Blackboard by the due date and time.

Exams

There will be two mid-term exams over the course of the semester and a final exam at the end of the semester. The final exam will be cumulative. A scientific calculator may (and should) be used during the exams. *Note that there will be no way to make up missed exams*, although with advanced notice or careful documentation of extenuating circumstances, a missed exam may be excused or other accommodations made. The schedule of exams is presented in the "Course Schedule" below.

Final Exam
According to the University registrar, the final exam is currently scheduled for Wednesday, December 15, 2021 from 11:15 AM to 1:45 PM. In the event of a discrepancy between what is listed here and what is listed by the registrar, what is listed by the registrar will take precedence. *Note that students are required to take the final exam, and there will be no way to make up a missed final exam.*

Recitation and Quizzes
There are two recitation sections for the course, and students should attend the section to which they are registered. A brief quiz on the will be administered at the end of each recitation. *Note that there will be no way to make up missed quizzes, although the lowest two quiz scores of each student will be dropped for purposes of determining a final grade.*

Class Attendance
Students are expected to attend both lecture and recitation, and attendance can affect course grade (positively or negatively).

Course Grade
The course grade will be based on the two mid-term exams (20% each), the final exam (25%), homework (20%), and quizzes (15%), with discretion for class attendance as described above.

Extra Credit
There is no possibility of extra credit.

Technology Requirements
Because the course will be conducted synchronously online, students must have access to a computer with microphone and camera and must be able to access Zoom and Blackboard.

Course Schedule

Class	Date	Chapter	Topic
1	8/24	1	The Celestial Sphere
2	8/26	2.1, 2.2, 2.4	Celestial Mechanics
3	8/31	3	The Continuous Spectrum of Light
4	9/2	3	The Continuous Spectrum of Light
5	9/7	4	The Theory of Special Relativity
6	9/9	4	The Theory of Special Relativity
7	9/14	5	The Interaction of Light and Matter
8	9/16	5	The Interaction of Light and Matter

Class	Date	Chapter	Topic
9	9/21	7.1–7.3	Binary Systems and Stellar Parameters
10	9/23		Midterm Exam 1 (classes 1–8)
11	9/28	8	The Classification of Stellar Spectra
12	9/30	10	The Interiors of Stars
13	10/5	10	The Interiors of Stars
14	10/7	12	The Interstellar Medium and Star Formation
	10/12		No class
15	10/14	12	The Interstellar Medium and Star Formation
16	10/19	13	Main Sequence and Post-Main-Sequence Stellar Evolution
17	10/21	15.1–15.3	The Fate of Massive Stars
18	10/26	16.1–16.4	The Degenerate Remnants of Stars
19	10/28	24	The Milky Way Galaxy
20	11/2		Midterm Exam 2
21	11/4	24	The Milky Way Galaxy
22	11/9	25	The Nature of Galaxies
23	11/11	25	The Nature of Galaxies
24	11/16	27	The Structure of the Universe
25	11/18	27	The Structure of the Universe
26	11/23	29	Cosmology
	11/25		No class
27	11/30	29	Cosmology
28	12/2	30.1	The Early Universe

Americans with Disabilities Act

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services, ECC Building, Room 128, 631–632–6748. They will determine what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology and Management, Nursing, Social Welfare, and Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary web site at http://www.stonybrook.edu/uaa/academicjudiciary/.

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Health Sciences Center (School of Health Technology and Management, Nursing, Social Welfare, and Dental Medicine) and School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Electronic Communication

Email to your University email account is an important way of communicating with you for this course. For most students, the email address is firstname.lastname@stonybrook.edu. *It is your responsibility to read your email received at this account*. For instructions about how to verify your University email address, see

http://it.stonybrook.edu/help/kb/checking-or-changing-your-mail-forwarding-address-in-the-epo.

You can set up email forwarding using instructions described at

http://it.stonybrook.edu/help/kb/setting-up-mail-forwarding-in-google-mail.

If you choose to forward your University email to another account, we are not responsible for any undeliverable messages.

Religious Observances

See the policy statement regarding religious holidays at

http://www.stonybrook.edu/registrar/forms/RelHolPol\%20081612\%20cr.pdf.

Students are expected to notify the course professors by email of their intention to take time out for religious observance. This should be done as soon as possible but definitely before the end of the add/drop period. At that time, they can discuss with the instructors how they will be able to make up the work covered.