

## AST 101 (Spring 2020): Introduction to Astronomy (3 credits)

**Time & Location: TuTh (8:30-9:50AM); Frey Hall 100**

### Instructor: Prof. Jin Koda

Office: Room 455, Earth and Space Sciences Building  
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Office Hours: TBA

### TA: Alec Wills

Office: Physics Building Room B-130  
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### Course Description:

This course provides an introduction to **astrophysics (astronomy & physics)**. We will learn about various astronomical objects such as stars, galaxies, black holes as well as taking a look at our current understanding of the Universe as a whole.

Notes: This course does not cover planetary astronomy (which is covered in AST105). Students in astronomy major are welcome to take this course, but the credits do not count for the major. AST203 is a similar course for astronomy major with emphasis on physics and math.

### Learning Objectives:

1. Students will demonstrate mastery of physics concepts of velocity, acceleration, force, energy, momentum, and angular momentum.
2. Students will be able to think critically and apply appropriate physics concepts in analyzing qualitative problems in astronomical objects, including stars, galaxies, and the Universe.
3. Students will demonstrate awareness of the observational tools used to study astronomical sources.
4. Students will demonstrate an understanding of a broad picture of the cosmos, including stars, galaxies, and the Universe.

### Required texts & Materials:

1. Cosmic Perspective: Stars, Galaxies and Cosmology, 8<sup>th</sup> Edition by Bennett, Donahue, Schneider, and Voit. Copyright 2017. ISBN13: 978-0134073828 (5<sup>th</sup>, 6<sup>th</sup> & 7<sup>th</sup> editions are fine, too).
2. Turning Technologies Response pad (a.k.a. a “clicker”) –for purchase, check the instruction <https://it.stonybrook.edu/help/kb/buying-clickers>. You can also use your cell phone with app.

**Course Grading:** The grading for the course will be based on quizzes (10%), two midterm examinations (30% each) and final examination (30%). **No additional point will be offered.**

### Exams & Quizzes:

- Midterm exams will be held in the regular classroom at the regular class time.
- Final exam date and time are determined by the University’s registrars. In accordance with University policies, *it is the students’ responsibility to schedule classes so as to avoid final examination conflicts. Check the final examination schedule at the beginning of the semester!*
- The exams will cover material presented in class and contained within reading assignments.
- Missed examinations: Makeup exams will be given only on the basis of valid medical absence that can be verified by the instructor or because of Jury Duty or military service.
- Quizzes will be administered at random times via clickers, which you may purchase directly from the Turning Technologies store. It is the students’ responsibility to bring their clickers to each class. A

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*forgotten or nonfunctional clicker will not be an acceptable excuse for missing quiz.*

- **No makeup quiz will be given under any circumstances. However, lowest three-week quiz scores will be dropped** to accommodate unforeseen circumstances that students do not have any control of.
- **Challenges to grades:** Challenges of any grade for an exam or quiz must be made within 5 business days of the posting of the grade. No changes will be made to a grade after that time regardless of cause.

**Blackboard:** All students must regularly monitor Blackboard for notices and changes to course information including the syllabus. Quiz and exam scores will also be posted on blackboard.

### Additional Course Policies:

- **Student Responsibilities:** You will be expected to abide by all University regulations, procedures, requirements, and deadlines as described in the *Undergraduate Student Bulletin*.
- **Attendance:** As per the University policy outlined in the *Undergraduate Student Bulletin*, students are expected to regularly attend all classes and to participate in the classroom experience.
- **Classroom Behavior and Conduct:** You are expected to conduct yourself in accordance with the minimal undergraduate student responsibilities described in the Undergraduate Student Bulletin including:
  - You are expected to arrive for class promptly.
  - Avoid behavior that is disruptive to the classroom especially the use of cell phones.
  - Avoid conversations during class
  - Be familiar with material presented in previous lectures.

### Important University Policies:

**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 (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you 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 & Management, Nursing, Social Welfare, 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 website 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 Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

**SPECIAL NOTE REGARDING PLAGIARISM AND DISHONESTY:** All instances of plagiarized work or academic dishonesty will be brought before the Academic Judiciary Committee. All parties involved (both the copier and the person who produced the original work) will be held accountable for any instance of plagiarism or dishonesty.

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AST101 (Spring 2020): Lecture and Exam Schedule & Reading Assignments			
Lecture	Date	Chapter	Subject
1	Jan 28	1	A Modern View of the Universe
2	30	3.3	The Science of Astronomy
	Feb 4	4	Motion, Energy, and Gravity
3	6	4	Motion, Energy, and Gravity
4	11	6	Telescopes
5	13	5	Light & Matter
6	18	5	Light & Matter
7	20	S2	Space & Time
8	25	S4	Building blocks of the Universe/Journey to the Star
9	27		<b>Midterm 1</b>
	Mar 3	14	Our star: the Sun
10	5	14	Our star: the Sun
11	10	15	Surveying the Stars
12	12	15	Surveying the Stars
13	17		<i>Spring Break</i>
14	19		<i>Spring Break</i>
15	24	S3	Spacetime & Gravity
16	26	17	Star Stuff
17	31	17	Star Stuff
18	Apr 2	16	Star Birth
	7	18	The Stellar Graveyard
19	9		<b>Midterm 2</b>
20	14	19	Our Galaxy
21	16	20	Galaxies
22	21	20,21	Galaxies/Galaxy Evolution
	23	21	Galaxy Evolution
23	28	23	Dark Matter, Dark Energy, and the Fate of the Universe
24	30	23,22	Dark Matter, Dark Energy, and the Fate of the Universe/ The Birth of the Universe
25	May 5	22	The Birth of the Universe
26	7	24	Life in the Universe
	12		<b>Final Exam (11:15-12:30)</b>