Instructor: Prof. Elizabeth Lada
Office: 220 Bryant Space Science Building
Telephone: 352-294-1862
Email: elada@astro.ufl.edu
Lecture time and place: Tuesday 4th Period (10:40 am -11:30 am) and Thursday 4th & 5th Period (10:40 am – 12:35 pm) in FLG220
Office hours: Tuesdays 1:00 – 2:00 pm; or by appointment
Class web site: UF elearning/canvas and www.astro.ufl.edu/~lada/ast3018_home.html

Teaching Assistants:
Name: Emily Moravic
Office: 309 Bryant Space Science Blding
Telephone: 352-294-1852
Email: emoravec@astro.ufl.edu

Name: Amy Gottlieb
Office: 319 Bryant Space Science Blding
Telephone: 352-293-1857
Email: agottlieb7@astro.ufl.edu

Office Hours: Fridays 10:30-11:30 pm
Mondays 2-3 pm

Required Text & Material:
Foundations of Astrophysics by Barbara Ryden & Bradley Peterson, Pearson Press.

Credits: 3

Course Content: This course offers a broad overview of modern astrophysics. This course is the first of a two semester sequence consisting of AST3018 and AST3019. This sequence is intended for majors in a physical science or engineering who have completed the first semester (i.e. mechanics and optics) of a calculus based introductory physics course and are taking the second semester of a calculus based physics course (i.e. electricity & magnetism and thermodynamics).

AST3018 will cover:
• Motions of the sky
• A historical development of our understanding of the solar system
• The generation of light and the interaction of light with matter
• Telescopes and modern astronomical instrumentation
• The properties and classification of stars
• The physics of stellar interiors and atmospheres
• The formation and evolution of stars

AST3019 will cover:
• Special and General Relativity
• Stellar remnants: white dwarfs, neutron stars and black holes
• The nature of the Milky Way Galaxy
• The nature, formation, distribution and evolution of galaxies
• Cosmology and the early universe
• The solar system
**General Education:**
AST 3018 & 3019 are GenEd physical science (P) courses. As the list of topics above demonstrates, the course covers not only the Universe and the bodies in it – planets, moon, stars, galaxies, etc. -- but also how we know about those things, making use of our understanding of the underlying physics of orbits and radiation. The course will focus on major scientific developments in astronomy & astrophysics and their impacts on society and the environment.

**Course and Gen Ed Student Learning Objectives & Outcomes:**
- To provide students with a broad overview of modern astronomy. This will be accomplished through lectures and weekly reading assignments. Students will be able to define common astronomical terms and explain basic concepts and theories for a range of astrophysical phenomena.
- To teach students the scientific process and how we can understand the Universe using basic physical laws derived on Earth. This will be accomplished through lectures and in-class discussions as well as homework assignments. Students will gain an understanding of how the scientific method is applied to the field of astronomy.
- To teach scientific reasoning. Scientific reasoning is the use of logic, observations, and critical thinking to interpret the world around you. This will be accomplished through in-class discussions, homework assignments and the class observing projects. Students will formulate empirically-testable hypotheses derived from the study of physical processes and phenomena and apply logical reasoning skills through scientific criticism and argument.
- To help students learn to communicate scientific ideas clearly and effectively using oral, written or graphic forms. This will be done through in-class discussions (oral) and as the written component of the project.

**Grading Information:**
See [https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx](https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx) for general UF grading policies. Your grade for the course will be based on the following:

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Midterm</td>
<td><strong>20%</strong></td>
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<tr>
<td>Final Exam</td>
<td><strong>25%</strong></td>
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<tr>
<td>Observing Projects - 2 projects each 20%</td>
<td><strong>40%</strong></td>
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<tr>
<td>Homeworks + class work</td>
<td><strong>15%</strong></td>
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**Grading scale:**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>% Points</th>
<th>GPA</th>
<th>Letter Grade</th>
<th>% Points</th>
<th>GPA</th>
<th>Letter Grade</th>
<th>% Points</th>
<th>GPA</th>
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<tbody>
<tr>
<td>A</td>
<td>&gt;90</td>
<td>4.0</td>
<td>B-</td>
<td>77 – 79</td>
<td>2.67</td>
<td>D+</td>
<td>64 - 66</td>
<td>1.33</td>
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<tr>
<td>A-</td>
<td>87 – 89</td>
<td>3.67</td>
<td>C+</td>
<td>74 – 76</td>
<td>2.33</td>
<td>D</td>
<td>60 - 63</td>
<td>1.0</td>
</tr>
<tr>
<td>B+</td>
<td>84 – 86</td>
<td>3.33</td>
<td>C</td>
<td>70 – 73</td>
<td>2.0</td>
<td>D-</td>
<td>57 - 59</td>
<td>0.67</td>
</tr>
<tr>
<td>B</td>
<td>80 – 83</td>
<td>3.0</td>
<td>C-</td>
<td>67 – 69</td>
<td>1.67</td>
<td>E</td>
<td>&lt; 56</td>
<td>0</td>
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Examinations:
There will be two exams, a midterm and a final. The midterm will be in class on October 15, 2015. The final exam will have both an in-class and take home portion. The in-class final will be held December 18, 2015, Exam Period 18A from 7:30 to 9:30 am. The midterm will count for 20% of your grade and the final (both parts) will count for 25% of your final grade. Therefore, 45% of your total course grade will be based on examinations. These exams will test your content knowledge but will emphasize applying critical thinking skills.

Homework, Classwork and Observing Projects:
Reading Assignments will be given out each week. It is your responsibility to keep up with the reading in order to participate in classroom discussions. There will be approximately 5 or 6 homework assignments due ~ every two weeks. These will mainly consist of problems from the textbook. Periodically I will also assign problems to be completed in class. The homeworks and in class work will count for 15% of the course grade. Two observing projects will be assigned during the first few weeks of class. The projects will count for 40% of the course grade.

Attendance, Class Participation and Conduct Policy:
• Attendance at lectures is expected.
• Students should arrive on time and not get ready to leave until the lecture is finished.
• Reading assignments will be given approximately once each week. These will consist of reading pages/chapters from the textbook. Students will read material that will be covered by the lecture the following week.
• In order to stimulate critical thinking and gauge how well you understand the material, questions based on the lectures, reading assignments and projects/homework will be posed in class. Students should participate in the lecture by answering these questions and also by asking your own questions.

Make-up Policy:
Students are expected to complete all requirements by the specified due dates. If a student misses class or an assignment due to an excused absence as specified in the undergraduate catalog and provides the instructor with timely notification, they will be allowed a reasonable time to make up the missed work. The format of a make-up test/exam will be at the discretion of the instructor.

Academic Honesty Policy:
• This is an excerpt from the Academic Honesty Guidelines and Student Conduct Code in the University of Florida Undergraduate Catalog:
  o “Academic Honesty: The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge are diminished by cheating, plagiarism, and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission.
Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff, and administrators who practice dishonest or demeaning behavior.”

- Cheating is not tolerated in this class. Everyone in this class is expected to follow the University of Florida Honor Code: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.* Any student caught cheating will be referred to the Honor Code Chancellor.

- On all work submitted for credit by students at the university, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

**Accommodations for Students with Disabilities:**
- Students who require a classroom accommodation for a disability are required to arrange accommodations with the Disability Resource Center.
- Students must first contact the Dean of Students Office of Disability Resources in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at [http://www.dso.ufl.edu/drp/services/](http://www.dso.ufl.edu/drp/services/).
- The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

**UF Counseling Services:**
- On-campus resources are available at the UF Counseling & Wellness Center (392-1575) for students experiencing personal or stress related problems.

**Course Evaluations:**
- Students are expected to provide feedback on the quality of this course by completing online evaluations at [https://evaluations.ufl.edu](https://evaluations.ufl.edu). Evaluations are typically open during the last few weeks of the semester, and an announcement will be made when they are open. A summary of the results of the assessment can be found at [https://evaluations.ufl.edu/results/](https://evaluations.ufl.edu/results/).
**Tentative Course Schedule for AST 3018 – subject to change**
A more detailed schedule will be updated regularly on our UF e-learning site

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Topic</th>
<th>Chapters</th>
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<tbody>
<tr>
<td>Sept 22 – October 13</td>
<td>EM radiation and Telescopes</td>
<td>5 &amp; 6</td>
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<tr>
<td>Oct 15 (in class)</td>
<td><strong>Midterm Exam</strong></td>
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<tr>
<td>Oct 20-29</td>
<td>Sun and Properties of Stars</td>
<td>7 &amp; 13</td>
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<tr>
<td>Nov. 3 – 19</td>
<td>Energy Generation in Stars &amp; Stellar Structure</td>
<td>14 &amp; 15</td>
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<tr>
<td>Nov. 24 – Dec 1</td>
<td>Interstellar Medium &amp; Star Formation</td>
<td>16</td>
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<tr>
<td>Dec 3 - Dec 8</td>
<td>Stellar Evolution &amp; Clusters</td>
<td>17</td>
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<tr>
<td>Dec 18 7:30-9:30 am</td>
<td><strong>Final Exam (18A)</strong></td>
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