**Basic Course Information**

Instructor: Jessica Fielder  
Email: jfielder@santarosa.edu (Include “Astro 3” in subject line)  
Office: Lark Hall 2023  
Website: http://www.physics.sfsu.edu/~jfielder/3Sum10.html

Class meets: MTW 1:00 PM – 3:50 PM in Lark Hall 2009  
Office hours: M 4-5PM, TW 11:00 AM – 12:00 PM, or by appointment

Required Textbooks:  
2. Lecture-Tutorials in Astronomy, 2nd Edition by Prather, Slater, Adams, and Brissenden

**Course Description:**
This class is an overview of astronomy, focusing on the study of stars and galaxies. The overarching goals are for you to understand the nature of science through astronomy, understand the big ideas in astronomy, and develop a lifelong interest in astronomy and current events surrounding astronomy.

**Important Dates**

June 16: Last Day to drop and be eligible for refund  
June 21: Last Day to Add with an add code, Last Day to drop without a W  
June 22: **FIRST EXAM** (in class)  
June 24: Last Day to select Pass/No Pass option  
July 5: No classes  
July 7: **SECOND EXAM** (in class)  
July 12: Last Day to drop with a W  
July 21: **FINAL EXAM**

**Course Structure:**
The material will be presented in three main sections, roughly following the order of subjects in the textbook. The first part will cover the fundamentals of astronomy: looking at the night sky, the scale of the universe, the history and development of astronomy, and the basic tools of astronomers. Next, we move on to the study of stars, first looking at the nature of light, then the Sun, and the formation, lives, and deaths of stars. The third part covers galaxies and cosmology, the study of the universe as a whole. Grades will be based on homework assignments, weekly class activities, and exams as described below.

**In-class Activities:**
We will have daily in-class activities out of the Lecture Tutorials workbook and short written responses to questions, some of which will be collected for credit. These are designed to help you learn collaboratively and gauge your own level of understanding of the material. You MUST bring your Lecture Tutorials book to EVERY CLASS and be present in class in order to complete these activities.
Homework:
We will have six homework assignments throughout the semester. These will contain thought questions and exercises designed to help you synthesize information from the readings, tutorials, and lectures, and a few math-based problems. Every homework assignment has a firm due date. Homework submitted the following day will be scored for 50% credit, and any homework more than 1 day late will receive no credit. In addition to the problem sets, there will be assigned reading from the textbook. It is expected that you read the assigned sections at least once before lecture, as this will help the information presented in class make more sense.

Exams:
There will be two in-class exams during the semester, each covering one main section of the material. Exams will take place during the second half of the class period. There will also be one cumulative final exam on the last class meeting, covering material from the entire course. Exams will be closed book and closed notes, and primarily multiple-choice questions. You will need a #2 pencil and an 882-E Scantron form for each exam, and you are allowed a calculator. It is recommended that you obtain these before the day of the test, and bring extras to all exams. Exam dates are listed above in the “Important Dates” section, please take note and arrive on time. If you arrive after someone else has finished, you may not take the exam. The final exam date is set by the College and is inflexible, but you may schedule to take a lecture exam earlier, with sufficient advance warning. **There will be no make-up exams, for any reason.**

**Grading Policy**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade Range</th>
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<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
<td>A = 90-100%</td>
</tr>
<tr>
<td>Participation</td>
<td>15%</td>
<td>B = 75-89.9%</td>
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<tr>
<td>In-class Exams</td>
<td>40%</td>
<td>C = 60-74.9%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
<td>D = 45-59.9%</td>
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**Student Learning Outcomes**

Upon completion of this course the student will be able to:

1. Describe and explain the motion of the night sky as seen from various locations on Earth at different times of the day and year.
2. Describe the fundamental properties of electromagnetic radiation and how these properties are used to discover the characteristics of stars, nebulae, and galaxies.
3. Explain the observational techniques that are used to compute the distances, temperatures, brightness, motions, compositions, and masses of stars.
4. Describe the nuclear processes that power the stars.
5. Determine the ages of stars from their temperature-magnitude diagrams.
6. Compute the distances to galaxies from the Hubble law.
7. Identify the major galactic Hubble types.
8. Compute the age of the universe from the Hubble constant.

**Student Expectations**

All students are expected to attend class regularly, participate in group activities and discussions in class, complete the homework assignments neatly and on time, attend all exams, and communicate with the instructor about any questions about the course requirements or material.
Please show respect for everyone’s learning environment. If you arrive late, enter quietly and
do not walk across the front of the classroom. If you anticipate needing to leave the room in the
middle of class, please sit near an exit. Do not eat, talk over others, or sleep during class.
Leave your cell phone or pager OFF. Students who frequently disrupt class will be asked to
leave.

Notes About Grading, Studying, and Attendance

We are covering a very broad range of material in a short span of time, so make sure to leave
yourself adequate time for studying outside of our class meetings. For every hour of lecture,
you should budget at least two hours outside of class time to do readings, homework, and
prepare for exams (for us this means 6 hours per week OUTSIDE of class). You are
responsible for any announcements, schedule changes, or information from class, and our in-
class activities are specifically designed to prepare you for the homework problems and exams.
Therefore, regular attendance is to your benefit. I expect you to have read the sections we will
be covering BEFORE class, so that you can ask questions in class if you don’t understand
something. If at any time you have questions about the material or your grade, get in touch with
me so we can discuss your questions (see “Contacting Me” below).

Contacting Me

If you have questions about the anything related to this class (or even astronomy in general),
please don’t hesitate to ask me. The best way to do this is in person, during office hours. Office
hours are your chance to get one-on-one help from me, so use them as often as you can! If
your question is short, I might have time to answer it outside office hours, or right before class,
but I may ask you to come back if I am busy. If you would like to meet in person and are not
free during the regular office hours, let me know so we can make an appointment. You can also
contact me via email (see the first page for my email address). When emailing me, please
include the words “Astro 3” somewhere in the subject line so the spam filter doesn’t block your
message, and sign your name so I know who you are. I will try my best to reply before the next
class, but this is not always possible.

Academic Integrity

Santa Rosa Junior College holds that its primary function is the development of intellectual
curiosity, integrity, and accomplishment in an atmosphere that upholds the principles of
academic freedom. All members of the academic community - student, faculty, staff, and
administrator - must assume responsibility for providing an environment of the highest
standards, characterized by a spirit of academic honesty and mutual respect. Because personal
accountability is inherent in an academic community of integrity, this institution will not tolerate
or ignore any form of academic dishonesty.

Academic dishonesty is regarded as any act of deception, benign or malicious in nature, in the
completion of any academic exercise. Examples of academic dishonesty include cheating,
plagiarism, impersonation, misrepresentation of idea or fact for the purpose of defrauding, use
of unauthorized aids or devices, falsifying attendance records, violation of testing protocol,
inappropriate course assignment collaboration, and any other acts that are prohibited by the
instructor of record. Any student who performs one of these acts will be immediately failed from
this course and may be expelled from Santa Rosa Junior College.
Accommodations for Students with Disabilities

If you need disability related accommodations for this class, such as a note taker, test taking services, special furniture, use of service animal, etc., please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to me as soon as possible. You may also speak with me privately during office hours about your accommodations. If you have not received authorization from DRD, it is recommended that you contact them directly. DRD is located in Analy Village-C and can also be reached by calling 527-4278.

Schedule of Topics & Readings (Subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topics</th>
<th>Reading</th>
<th>Homework</th>
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<tbody>
<tr>
<td>June 14</td>
<td>Overview, Scales, The Night Sky</td>
<td>Chapters 1-2</td>
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<tr>
<td>June 15</td>
<td>Daily &amp; Yearly Motion of the Sky</td>
<td>Chapter 2</td>
<td></td>
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<tr>
<td>June 16</td>
<td>Ptolemy, Copemicus, and Kepler</td>
<td>Chapter 4</td>
<td>HW 1 due</td>
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<tr>
<td>June 21</td>
<td>Galileo, Newton, and Gravity</td>
<td>Chapters 4-5</td>
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<tr>
<td>June 22</td>
<td>The Nature of Light, Exam #1</td>
<td>Chapter 6</td>
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<tr>
<td>June 23</td>
<td>Telescopes, Light and Atoms</td>
<td>Chapters 6-7</td>
<td>HW 2 due</td>
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<tr>
<td>June 28</td>
<td>Blackbodies, Doppler Shift</td>
<td>Chapter 7</td>
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<td>June 29</td>
<td>The Sun</td>
<td>Chapter 8</td>
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<td>June 30</td>
<td>Parallax and Distance</td>
<td>Chapter 9</td>
<td>HW 3 due</td>
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<tr>
<td>July 6</td>
<td>The HR Diagram, Nebulae</td>
<td>Chapters 9-10</td>
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<tr>
<td>July 7</td>
<td>Formation of Stars, Exam #2</td>
<td>Chapter 10</td>
<td>HW 4 due</td>
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<td>July 12</td>
<td>Lives of Stars</td>
<td>Chapters 11-12</td>
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<tr>
<td>July 13</td>
<td>Deaths of Stars</td>
<td>Chapters 13-14</td>
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<tr>
<td>July 14</td>
<td>The Milky Way and Galaxies</td>
<td>Chapters 15-16</td>
<td>HW 5 due</td>
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<td>July 19</td>
<td>Galaxies and Cosmology</td>
<td>Chapters 16 and 18</td>
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<td>July 20</td>
<td>Cosmology, Life in the Universe</td>
<td>Chapters 18-19</td>
<td>HW 6 due</td>
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<tr>
<td>July 21</td>
<td>Final Exam</td>
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