

# Astronomy 3: Stellar Astronomy

## Section 4400 – Course Syllabus

### Instructor

**Dr. Anne Metevier**

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Office Hours: Thursdays 9:30-10:30am or by appointment, Lark 2023

### Course Description

A description of the universe, concentrating on celestial bodies and phenomena beyond the Solar System. Topics will include electromagnetic radiation, observed properties of stars, variable and binary stars, extra-solar planets, stellar evolution, black holes, relativity, the interstellar medium, star clusters, the Milky Way and other galaxies, cosmology, and the possibility of other life forms in the universe.

### Student Learning Outcomes

Upon completion of this course, students will be able to:

1. Evaluate astronomical hypotheses using evidence-based reasoning and the scientific method.
2. Recognize and describe the various astronomical bodies, concentrating on the celestial bodies beyond the Solar System.
3. Summarize the processes that govern the evolution of a star and use this knowledge to predict when and how stars of varying color and mass will die.

### Recommended Preparation

Completion or concurrent enrollment in Math 150A and English 100 or ESL 100

### Textbook

*OpenStax Astronomy* by Franknoi, Morrison, and Wolff

The course textbook is free and can be downloaded at <https://openstax.org/details/astronomy>

If you prefer a paper copy of the book, you may be able to buy one at the SRJC bookstore or at Amazon, or you can check out the book at the library for a few hours at a time:

- call number QB2.A1 F73 PersCopy Sparks (Doyle library)
- call number QB2.A1 F73 2017 (Petaluma campus library)

### Course Web Site and Announcements

This course will rely on the Canvas course web site for assignment instructions, submitting assignments, sharing resources, and viewing grades.

Any important messages about the course (such as changes to the course schedule) will be made via email and/or Canvas announcements. Please be sure to check both regularly.

### Special Needs

Students with disabilities who believe they need accommodations in this class are strongly encouraged to contact Disability Resources (527-4278) as soon as possible to better ensure such accommodations are implemented in a timely fashion. It is important to me that every student has a fair opportunity to learn in this class.

Students with disabilities should also see me if they might need accommodation in case of an emergency. Your safety is important to me.

## Important Dates

Date Class Begins: 1/15/2019

Date Class Ends: 5/16/2019

Last Day to Add without add code: 1/20/2019

Last Day to Drop with refund: 1/27/2019

Last Day to Drop without a 'W' symbol: 2/3/2019

Last Day to Add with add code: 2/3/2019

Last Day for P/NP option: 2/24/2019

Last Day to Drop with a 'W' symbol: 4/21/2019

Date of Final Exam: 5/21/2019

## Dropping the Class

If you decide to discontinue this course, it is your responsibility to officially drop it to avoid getting no refund (after 10% of course length), a W symbol (after 20% of course length), or a grade (after 60% of course length).

## Pass–No Pass (P/NP)

You may take this class P/NP. If you choose to do this, you must file for the P/NP option by 2/24/2019. You can add the option online with TLC or file the P/NP form with Admissions and Records. With a grade of C or better, you will get P.

Once you decide to go for P/NP, you cannot change back to a letter grade. If you are taking this course as part of a certificate program, check with a counselor to be sure that you can take the class P/NP and still get the credit you need toward your certificate.

## Classroom Etiquette and Standards of Conduct

Students who register in SRJC classes are required to abide by the SRJC Student Conduct Standards. Violation of the Standards is basis for referral to the Vice President of Student Services or dismissal from class or from the College. For more information, see the Student Code of Conduct page here: <https://student-conduct.santarosa.edu/code-conduct-0>

Examples of disruptive behaviors that are not permitted in the class are:

- Inappropriate use of phones, tablets, laptops, or headphones
- Excessive tardiness, leaving class early, or leaving and returning to the classroom
- Talking, whispering, or note-passing that is distracting to other students or to the instructor

## Academic Honesty

Collaborating on or copying of tests or homework in whole or in part will be considered an act of academic dishonesty and result in a grade of 0 for that test or assignment. I encourage students to share information and ideas, but not their work. Please refer to the SRJC Student Conduct Standards (see link above) for more information on how to avoid plagiarism.

Some examples of cheating or plagiarism that will not be tolerated are:

- Copying work from another student, or giving work to another student to copy
- Copying and pasting text from internet sources into homework assignments or projects
- Viewing, comparing, or copying the work of another student during an exam
- Intentionally allowing another student to view your work during an exam
- Using a phone or “cheat sheet” during an exam or quiz

## Grading Policy

Visit “Grades” in Canvas to keep track of your grades, but please note that Canvas does not quite provide a perfect calculation of your grade. For instance, I do not post your participation grade until the end of the semester, so this isn’t included till late May. If you have questions about grades, please check with me in person (I do not provide grade information over email).

### Overall grade policy:

A	90-100%	900 points or more
B	80-89%	800 to 899 points
C	70-79%	700 to 799 points
D	60-69%	600 to 699 points

### Course components: 1000 points total

Class participation	100 points (10%)
Weekly homework	200 points (20%)
Exams 1, 2, 3	150 points each (15% each)
Final Exam	250 points (25%)

If you are taking this course Pass/No Pass, you will need at least 70% of the total class points (700 points) to pass the class.

## Class Participation

Participation is an important component of your final grade. I regularly take attendance, and I encourage and make note of participation during in-class discussions. There will be several in-class small-group activities that will be turned in for credit. Office visits also count toward your participation grade, and I encourage at least one office visit during the semester.

## Weekly Homework

I will give 11 homework assignments this semester through the course Canvas site. Some assignments will require a bit of writing, others will be multiple choice or short answer, and some will include a bit of each. These assignments are meant to help you keep up with course readings and develop a stronger understanding of the course material. Homework assignments will be made available over the weekend and will be due the following Friday at 11:59pm. Your lowest homework score will be dropped, so that only 10 homework assignments will count toward your grade. It is your responsibility to keep up with the coursework and turn your homework in on time. No late homework assignments will be accepted.

## Exams

There are three midterm exams and one final exam, as listed in the course schedule. The exams will cover material from lectures, homework, reading, and in-class activities. Exams will be in multiple-choice format. Make-up exams are rarely given, only in cases of serious illness or other very serious circumstances, at the instructor’s discretion.

The final exam will cover the entire course and will take place on Tuesday, May 21, from 10am – 12:45pm. No make-up final exams will be given for any reason once grading is completed.

## Extra Credit

Extra credit is available for attending an astronomy-related presentation, exhibit, or other event, and submitting a one-page write-up of your experience. Specific ideas for events you can attend and instructions for what to include in your write-up will be given on the course Canvas site. You may submit up to 2 extra credit assignments worth up to 25 points each, for a total of 50 points. This has the potential to boost your grade by up to 5%. Extra credit may be submitted any time up to the last day of classes this semester, May 17.

## Approximate Course Schedule

If any changes are made to the class schedule during the semester, I will update this schedule and post an announcement on Canvas.

#	Day	Date	Chapter	Topic	Assignment/Test
1	Tues	Jan 15		Course introduction	
2	Thurs	Jan 17	1	Our place in the universe	
	Tues	Jan 22		Staff Professional Development	no classes
3	Thurs	Jan 24	1, 2.4	Our place in the universe	HW #1 due Friday
4	Tues	Jan 29	5	The nature of light	
5	Thurs	Jan 31	5	Light and spectra	HW #2 due Friday
6	Tues	Feb 5	5	Types of spectra, telescopes	
7	Thurs	Feb 7	16	The Sun: basic characteristics	HW #3 due Friday
8	Tues	Feb 12	16	Gravity, energy, and the Sun	
	Thurs	Feb 14		Staff Professional Development	no classes
9	Tues	Feb 19			<b>Exam 1</b>
10	Thurs	Feb 21	17	Stars and spectra	
11	Tues	Feb 26	17, 18	Hertzsprung-Russell diagrams	
12	Thurs	Feb 28	18	Masses and sizes of stars	HW #4 due Friday
13	Tues	Mar 5	19	Distances to stars	
14	Thurs	Mar 7	19	Parallax and cosmic distances	HW #5 due Friday
15	Tues	Mar 12	20.1-20.3	Between the stars	
16	Thurs	Mar 14	21.1-21.3	How stars are born	HW #6 due Friday
	Tues	Mar 19		Spring Break	no classes
	Thurs	Mar 21		Spring Break	no classes
17	Tues	Mar 26	22	Star clusters	
18	Thurs	Mar 28	22	Star life stages	HW #7 due Friday
19	Tues	Apr 2			<b>Exam 2</b>
20	Thurs	Apr 4	23	Planetary nebulae, supernovae	
21	Tues	Apr 9	23	Star deaths and remnants	
22	Thurs	Apr 11	23	Star deaths and remnants	HW #8 due Friday
23	Tues	Apr 16	24	Relativity	
24	Thurs	Apr 18	24	Black holes	HW #9 due Friday
25	Tues	Apr 23	25	Our Galaxy, the Milky Way	
26	Thurs	Apr 25	25, 26	Our Galaxy, types of galaxies	HW #10 due Friday
27	Tues	Apr 30			<b>Exam 3</b>
28	Thurs	May 2	26	The expansion of the universe	
29	Tues	May 7	27.1, 28	The distribution of galaxies	
30	Thurs	May 9	28	Dark matter	HW #11 due Friday
31	Tues	May 14	29	The Big Bang	
32	Thurs	May 16	29	The evolving universe	Extra credit due Friday
	Tues	May 21			<b>Final Exam</b> <b>10am – 12:45pm</b>