

# **Astronomy 305: Frontiers in Astronomy**

Sonoma State University  
Department of Physics and Astronomy  
Fall 2009

## ***General Information***

**Instructor: Dr. Scott A. Severson**

**Class Schedule: 1:00 – 2:15 PM Tuesday & Thursday**

**Classroom Location: Darwin 38**

**Office Hours: 10:00 - 11:30 AM Monday and Thursday**

**Office: Darwin 300L**

**Email: [scott.severson@sonoma.edu](mailto:scott.severson@sonoma.edu)**

**Phone: (707) 664-2376**

**Course Website:**

**<http://www.phys-astro.sonoma.edu/people/faculty/severson/a305>**

**Course WebCT site:**

**<https://webct6.sonoma.edu/webct/logon/306004858001>**

## ***Course Description***

This is a three-hour lecture course. The course will present a survey of recent developments in astronomy: the exploration of the solar system; the study of extrasolar planets; the nature of high-energy phenomena in the universe and the evolution and future of the universe.

## ***General Education***

This course may be used to satisfy general education requirements in category B3.

## ***Prerequisite:***

One prior course in astronomy.

## ***Textbook***

### **On The Cosmic Horizon: Ten Great Mysteries for Third Millennium Astronomy**

**Author**

Jeffrey Bennett.

**ISBN**

0-3210-2971-2.

**Note:**

This text may not be available via the local bookstores but online retailers (e.g. abebooks, amazon etc. *no endorsement implied*) have it. It serves as the starting point for our course. There will be other required reading presented in the form of articles and web references and at least one additional popular-science book for the book report assignment.

## **Policies**

### **University Policies**

There are several important University policies of which you should be aware, such as the add/drop policy; cheating and plagiarism policy, grade appeal procedures; accommodations for students with disabilities and the diversity vision statement.

Go to this URL for details:

<http://www.sonoma.edu/uaffairs/policies/studentinfo.shtml>

### **Grading**

#### **Relative Weighting**

##### ***Attendance / Participation*      15 %**

Participation will be a component of your final grade. I will occasionally and randomly require students to sign attendance. I will also make note of participation during in-class discussion and the asking of pertinent questions. There will be occasional in-class activities that will be turned in for credit. Finally, I encourage at least one office visit during the semester.

##### ***Research Paper*                      25 %**

The research paper is an assignment designed to enable you to study one topic in depth. The paper should be six to ten pages of double-spaced typed text, plus footnotes or endnotes and a bibliography. Late papers will be penalized. Your paper should have at least three sources, including at least one from the world wide web and at least one from a book or article in a periodical. There will be a list of pre-approved topics presented in class, and students may suggest other topics which will require instructor approval. Topics for this paper are due on 10/29/09. The paper itself is due 12/03/09.

##### ***Writing Assignments*                35 %**

There will be three short writing assignments during the semester. These assignments include, a synthesis of web-based research (10%), a summary of *Scientific American*-level magazine articles (10%) and a book report (15%). Details of the three assignments will be provided in class and on the course WebCT site.

##### ***Final Exam*                              25 %**

There will be a final exam, which will consist of several short answer questions. A list of questions will be handed out prior to the exam, from which several will be chosen. It will be held on: *Thursday, December 17<sup>th</sup>, 2:00 – 3:50 PM.*

##### ***Extra Credit*                              up to 9%**

Extra Credit is available for attending a public talk on some current astronomical or physics topic and submitting a one-page synopsis via WebCT. The submission will be checked for originality. You may submit up to three synopses for three different talks. Each is worth up to 3% extra credit, meaning you can earn up to 9% total extra credit on your course grade. The assignments are graded on a scale from one to three based on presenting a one-page, double-spaced, coherent and comprehensive summary of the talk. Researching and defining unclear concepts is recommended.

The [Department of Physics and Astronomy](#) will present a free public lecture in its renowned “[What Physicists Do](#)” series Mondays during the semester, from August 31<sup>st</sup> through November 23<sup>rd</sup> at 4:00 p.m. in Darwin 103. The lectures on August 31<sup>st</sup>, September 21<sup>st</sup>, 28<sup>th</sup>, October 12<sup>th</sup>, 19<sup>th</sup>, 26<sup>th</sup>, November 2<sup>nd</sup> and 9<sup>th</sup> should be of special interest to you as you study astronomy. See the following URL for details: <http://phys-astro.sonoma.edu/wpd/>. Other appropriate external work may be substituted with instructor approval.

### ***Instructor Discretion***

I reserve the right to raise your grade if exceptional effort and class participation are observed through the semester. Improvement throughout the semester is also noted.

### **Course Standards**

The bulk of the graded course materials are writing assignments. These assignments will be graded according to a rubric and assigned a letter grade. These letter grades will be averaged, taking into account their relative course weighting described above, in order to determine your final grade. Writing assignments will be submitted via WebCT and checked for originality. Example rubric categories for assignment grading includes;

- *Ideas* – how interesting the and sophisticated are the ideas presented,
- *Organization/Coherence* – is it well structured with a logical progression,
- *Support* – do you provide appropriate evidence and citations,
- *Style* – how effective are the choice of words, is it geared toward the appropriate audience
- *Mechanics* – is it free of spelling and grammatical errors.

### **Other Class Policies**

- Questions are encouraged.
- Turn off phones and small electronics.
- Arrive to class on time.
- Try your best to attend every class.
- Read subject material before each class.
- Start assignments early. Do not fall behind!
- Come to office hours with questions

## Course Schedule

Week	Tuesday	Thursday	Class Reading	Assignment Due (Thurs)
1	-	Aug 27	-	
2	Sep 01	Sep 03	Extrasolar Planet Article	
3	Sep 08	Sep 10	Giant Stars Article	
4	Sep 15	Sep 17	Cosmic Horizon Mystery 10	
5	Sep 22	Furlough	Cosmic Horizon Mystery 6	Writing #1
6	Sep 29	Oct 01	Cosmic Horizon Mystery 1	
7	Oct 06	Oct 08	SETI Article	
8	Oct 13	Furlough	Cosmic Horizon Mystery 9	
9	Oct 20	Oct 22	Cosmic Horizon Mystery 5	Writing #2
10	Oct 27	Oct 29	Cosmic Horizon Mystery 8	
11	Nov 03	Nov 05	Cosmic Horizon Mystery 7	
12	Nov 10	Nov 12	SMBH Articles	Writing #3
13	Nov 17	Nov 19	Cosmic Horizon Mystery 4	
14	Furlough	-	-	
15	Dec 01	Dec 03	Cosmic Horizon Mystery 3	Research Paper
16	Dec 08	Dec 10	Cosmic Horizon Mystery 2	
17	-	Dec 17	-	Final Exam

### **CSU Employee Furloughs – Impact on Classes**

This year across this campus and around the CSU system some class days will be cancelled because of furloughs. A furlough is mandatory un-paid time off; faculty and staff on each CSU campus are being “furloughed” two days per month.

These cancelled class days are marked on your syllabus above. It is important to recognize that these days off are not holidays. Instead, they are concrete examples of how massive state budget cuts have consequences for you as students and for me as a faculty member.

The CSU has suffered chronic underfunding for at least 10 years. This year the budget cuts are the worst in the history of our university system — \$584 million or 20% of our budget.

The CSU administration is attempting to deal with these cuts with increases in your student fees (32%), eliminations of your classes, and lay-offs of faculty and other university employees.

In addition to paying higher fees, you will be affected by reduced services and classes. The library will have shorter hours. Many campus support services will be decreased or eliminated. It will be more difficult to get signatures to meet deadlines. Classes you need may have been cut from the class schedule or are full.

If you would like to take action or simply learn more, I recommend you contact the California Faculty Association located on campus in Stevenson 3004-A.