

COLLEGE OF CHARLESTON

HONS 159–HONORS ASTRONOMY I

Instructor: T. R. Richardson

Fall 2017
Harbor Walk West, Room 112
Monday, Wednesday and Friday
2:30–3:20 PM

Lecture Syllabus

Honors 159 HONORS ASTRONOMY I

Contact Information:

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Office Hours:

Check the web link on the right for the latest listing of my office hours. http://richardsont.people.cofc.edu/trr_hours.html

Contacting me:

Contacting me is easy. Email if it is not complicated or time sensitive (i. e. something in the next 36 to 48 hours. Otherwise use the phone. These days it is best to use my cell phone. Because of classes and meetings it may be turned off. If I don't answer, text me with your phone number or message. My cell phone for school will not take voice messages, even if it seems to, so please don't try to leave a message. I will do my best to call you back but I am never "it" when it comes to phone tag. Also don't text me without trying to call first unless you are unable to talk at that time. I choose not to text back and forth when a call will be simpler.

Pre-requisite/Co-requisite:

This course is the first in a two-semester survey of contemporary astronomy. The course is designed to accompany HONS 159L and that lab course is a pre-requisite or co-requisite to this lecture.

Goals:

In the instructor views this course has a number of goals. They are to provide the student with:

1. A broad understanding of the nature, scope, and evolution of the Universe, and where the Earth and our Solar System fit in.
2. An understanding of a few crucial astronomical quantities, together with some knowledge of appropriate physical laws.
3. An understanding that physical laws and processes are universal.
4. An understanding that the world is knowable, and that we are coming to know it through observations, experiments, and theory.
5. An understanding of the types, roles, and degrees of uncertainty in science.
6. An understanding of the evolution of physical systems.
7. Some knowledge of related subjects and a set of useful "tools" from related subjects such as mathematics.
8. An acquaintance with the history of astronomy and the evolution of scientific ideas.
9. A familiarity with the night sky and how its appearance changes with time and position on Earth.
10. One last goal is to have a reasonably good time accomplishing the previous ones.

General Education Objectives and Learning Outcomes:

At the end of the syllabus are the College general education objectives and learning outcomes as well as the departmental learning outcomes for this course. Expect me to direct your attention to specific ones as the course progresses through its topics. You will be tested on the general education learning outcomes at the end of the second semester of the this two-course sequence.

Textbooks:

Our textbook, *The Cosmic Perspective*, by Bennett, Donahue, Schneider and Voit, 8th edition is a good one. I know the lead author personally and he has come to the College to talk with our students.

Attendance:

Roll will be taken. The wise student will attend all classes since lecture is intended to supplement rather than duplicate the reading of the textbook. Be there or be left out.

Tests:

There will be four major tests and a major writing assignment. The lowest test grade will be dropped in the computation of the final grade. If a student is absent from a test, that absence is normally treated as that student's dropped grade depending on the circumstances.

Little Grades:

There will be reading quizzes, in-class graded activities and homework. The reading quizzes will allow the use of your written notes both from lecture and from your reading at home. All of these activities are averaged together and constitute a student's Little Grade average. Two (or more at the instructor's discretion) Little Grades will be dropped in the computation of the Little

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Grade average. Make-ups are not available for these Little Grade activities since the instructor expects a student to attend all classes. The dropped grades are intended to correct for illness and unplanned absences. There may be optional outside class activities including lectures, relevant movies and any other events.

Makeup Assignments:

It is the policy of this class to allow makeup work when the request for makeup is accompanied a signed and notarized endorsement by the sitting president of the Republic of Palau. Otherwise such requests are considered on a case-by-case basis and the decision depends on the timing and reason for the request. On assignments where a grade can be dropped, that may be the best option although there are often other possibilities to be considered.

Writing Assignments:

There will be one major writing assignment. Information about this assignment will be provided at a later time.

Grading:

There will be a final exam. It will be comprehensive. The final grade in this course has the following components:

- Major tests 42% (14% each)
- Writing assignment 12%
- Planet Project Report 14%
- Little grade average 14%
- Final exam 18%

Grading Scale:

A	92.5 – 100	B	82.5 – 87.4	C	72.5 – 77.4	D	62.5 – 67.4
A-	89.5 – 92.4	B-	79.5 – 82.4	C-	69.5 – 72.4	D-	59.5 – 62.4
B+	87.5 – 89.4	C+	77.5 – 79.4	D+	67.5 – 69.4	F	0.0 – 59.4

Important Dates:

If you keep a calendar, then you will want to put these dates on it now. If you don't keep a calendar, consider getting one and using it to stay organized.

- Test #1 Fri, Sep. 8
- Test #2 see our web schedule
- Test #3 see our web schedule
- Writing Assignment Mon, Oct. 30
- Final Exam Fri, Dec. 8 noon – 3 PM, in our regular classroom

Disabilities and SNAP:

This class is SNAP friendly. If your situation comes under the guidelines of the programs in the SNAP office, please come to my office so we can talk about how to handle your particular situation. Sooner is better than later if we have to arrange accommodations.

The College Honor Code:

Every society has its rules that help that society to function. The College Honor Code contains some of the rules all of us are expected to follow for the years we are together here. Every individual has rules of their own to guide their life. Make your rules consistent with the College Honor Code and trust that I have done the same. Please visit the College Student Handbook online at <http://www.cofc.edu/generaldocuments/handbook.pdf> for details about the Honors Code and see my summary of the Honor Code in our classroom at http://richardsont.people.cofc.edu/shared_folder/honor_code.pdf.

Online Resources:

My webpage: <http://richardsont.people.cofc.edu/>

Course webpage: http://richardsont.people.cofc.edu/15a_h159_f17.html

The course webpage is the source for course comments and links to the course schedule and supplemental material. You can access the link through your account on OAKS. However you can access all the material for this course without having to login by using the link above or the link on my homepage found on the college people server.

Some Study Tips:

1. Have a special place to study.
2. Take breaks for 5–10 minutes each hour.
3. Switch subjects every hour or at some interval that works for you.

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4. Review your class notes right after lecture, before the next lecture and every day until the test.
5. Get some vigorous exercise every day.
6. Eat your vegetables and stop eating junk.

General Education Natural Science Learning Outcomes:

The following general education learning outcomes will be assessed in the **second semester** of this two-course sequence where you will:

1. Apply physical/natural principles to analyze and solve problems.
2. Demonstrate an understanding of the impact that science has on society.

Honors Astronomy Course Learning Outcomes:

To successfully complete this course the student is expected to demonstrate competence in the following areas through quizzes and tests by being able to:

1. Identify and explain the key concepts of planetary science including but not limited to gravitation, circular motion, states of matter, electromagnetic radiation, the Doppler effect, accretion, differentiation, energy transport, and the greenhouse effect
2. Identify and explain the basic properties of terrestrial and jovian planets.
3. Explain the nature of planets and detail the stages of both types of planets planet from formation until the end of its host star's life.
4. Relate the expected conditions on any planet given its mass, bulk density, age and distance from its host star.
5. Make a detailed written expiation of the greenhouse effect and explain the climatic consequences on Earth due to the current increase in our greenhouse effect.
6. Construct a detailed model of a hypothetical planet through computational analysis using spreadsheet programming.
7. Describe the means of ongoing searches for extrasolar planets and civilizations.