

**GEOL 1221**  
**Solar System Exploration**  
**Fall 2015**

**Homepage:** <http://itc.gsw.edu/faculty/speavy/spclass/Astronomy/astronomy.htm>

**Instructor:** Dr. Sam Peavy

**Class:** Roney 301

**Office:** Roney 206

MW 2:00 – 3:15

**Observing Sessions:** Agerton Observatory, roof of Roney Building

**Text:** *The Solar System* (9<sup>th</sup> Ed.) by  
Michael A. Seeds and Dana E. Backman

**Objective Statement:** The student will be introduced to the nature and wonders of the solar system, modern methods of space exploration, and recent discoveries in the field.

**Class Goals:** By the end of the course the student will be able to:

- 1) identify and explain how the science of astronomy has evolved over time;
- 2) identify and explain evidence for the origin of the solar system;
- 3) interpret the history of the different objects in the solar system through comparative planetology; and
- 4) evaluate the significance of manned and unmanned space missions and their contributions to our understanding of our place in the cosmos.

**Class Policies:**

- 1) All students at Georgia Southwestern State University are to abide by published rules outlining academic honesty. Please review the "Policy on Academic Integrity" from the undergraduate bulletin that can be found on p.100 at the following URL:

<https://gsw.edu/Assets/RegistrarsOffice/bulletin/Current-Undergraduate.pdf>

You will be asked to sign a pledge stating that you have read and fully understand the policy. Any violations of academic integrity will result in a grade of zero on an assignment or exam for the first violation, and an "F" in the course for any additional violations.

In addition it is possible that this course will involve the use of plagiarism-prevention technology. For example, you may be required to submit written assignments on-line through a plagiarism-prevention service or to allow me to submit copies of your writing to such a service. The written assignments may then be retained by the service for the sole purpose of checking for plagiarized content in future student submissions.

- 2) Your RADAR account is the official mode of communication at GSW. **Please be sure to check this daily and don't forget to clear your mailbox regularly!**
- 3) A student requesting classroom accommodations or modifications due to a documented disability must notify me within the first two days of the semester. The student has not already done so, he or she must contact the Office of Disability Services located in room 301 of Sanford Hall. The phone number is 229-931-2085.
- 4) **Attendance** is required for course. If you miss a quiz or exam, you **must** have an excuse from a doctor or the Student Health Center to make up missed graded material. Failure to provide an adequate excuse within one week will result in a grade of 0 ("zero") for the assignment. In addition, you must make up the quiz or exam on the day you return to class (no exceptions).
- 5) Come to class prepared to learn. You should not be talking with your neighbor during class unless it is necessary for an activity. Pay attention and take notes as appropriate. In addition, **all electronic devices must be turned OFF before class begins. You will be asked to leave for the rest of that class if your phone rings, I catch you texting, etc.**
- 6) I will be available in my office for questions from 11:00-11:50 MW and 8:30-9:15 TR, and by appointment. I can also be called at 931-2330 or reached by email at Samuel.Peavy@gsw.edu.

7) Your **grade** will be based on a project, the results of your observing session, quizzes over assigned reading material for the class, a series of exams covering topics from lecture, and a Final Exam at the end of the semester. A more detailed listing of each component appears below. Your grade will be determined as follows:

- 1 Group Project – 35 points
- 1 Observing Session – 15 points
- Homework Exercises – 50 points
- 10 Quizzes – 5 pts. each, 50+ points
- 4 Exams — 100 pts. each, 400 points total
- 1 Final Exam — 150 points
- TOTAL = 700 points**

8) The **group project** will be assigned early in the term and will require you and your colleagues to investigate and report on a topic in solar system astronomy. The topics will be introduced at the beginning of the term, and could include actual observations of the planets, Moon or Sun. On December 2<sup>nd</sup>, you and your group will turn in your report and notebook containing your data/observations. You will also make a 10-minute presentation on your project. ALL group members must participate!

9) **You are required to attend at least one observing session**, however you can attend as many as you wish. We will be using the large telescope at the Agerton Observatory to look at several planets and perhaps the Moon and other objects. There are four scheduled dates: August 21 (8:30 PM), August 28 (8:30 PM), September 19 (8:00 PM), and September 25 (8:00 PM). All dates are subject to weather conditions so plan accordingly (i.e. they can be cancelled by poor conditions). You must turn in a description of what you saw by 2 PM on October 7<sup>th</sup>.

10) There are a couple special astronomical events this fall. The first will be in the evening of September 27<sup>th</sup> – a total lunar eclipse. We'll talk more about this as the date approaches. The Orionid Meteor Showers will occur in October, with the peak on October 22<sup>nd</sup>. Best time to them is early in the morning (3 AM – 6 AM) and away from town. More information can be found here: <http://meteorshowersonline.com/orionids.html>.

11) There will be several homework exercises during the term. These will be worth a total of 50 points.

12) Quizzes will be based on information in individual chapters according to the schedule below. Each quiz will have 10 questions (multiple choice and fill-in-the-blank). Since each correct answer will be worth one point, it is possible to earn more than 50 points on quizzes. **There are no make-up quizzes!**

13) Exams will consist of a mixture of multiple choice, fill-in-the-blank, matching, short answer and essay questions over material covered in class.

14) The Final Exam will be of a similar format to the first four exams and will be comprehensive.

15) The grading scale will be as follows:

Total Points	Letter Grade
630 or more points	A
560 – 629 points	B
490 – 559 points	C
420 – 489 points	D
less than 420 points	F

### Quiz Topic List

Date	Chapter(s)
Aug. 24	1 & 2
Aug. 31	3
Sept. 16	4
Sept. 21	5
Sept. 28	6
Oct. 12	7 & 8
Oct. 19	9 & 10
Nov. 2	11 & 12
Nov. 9	13 & 14
Nov. 16	15 & 16

### Lecture Topic List

Date	Topic	Readings
Aug. 19	Scales in Astronomy; The Sky	Chapters 1, 2
Aug. 24 – 26	The Sky; The Moon and its Phases	Chapters 2, 3
Aug. 31 – Sept. 2	Eclipses	Chapter 3
<b>Sept. 9</b>	<b>Exam 1</b>	<b>Chapters 1-3</b>
Sept. 14 – 16	The Origins of Modern Astronomy	Chapter 4
Sept. 21 – 23	Newton, Einstein and Gravity	Chapter 5
Sept. 28 – 30	Light and Telescopes	Chapter 6
<b>Oct. 5</b>	<b>Exam 2</b>	<b>Chapters 4-6</b>
Oct. 7	Atoms and Spectra	Chapter 7
Oct. 12 – 14	The Sun	Chapter 8
Oct. 19 – 21	Origins; The Solar System	Chapters 9, 10
<b>Oct. 26</b>	<b>Exam 3</b>	<b>Chapters 7-10</b>
Oct. 28	The Earth	Chapter 11
Nov. 2 – 4	The Moon, Mercury, Venus and Mars	Chapters 12, 13
Nov. 9 – 11	Jupiter, Saturn, Uranus and Neptune	Chapters 14, 15
Nov. 16 – 18	Pluto and the Kuiper Belt; Meteorites, Asteroids, and Comets	Chapters 15, 16
<b>Nov. 23 – 27</b>	<b>Thanksgiving Break – No Classes</b>	
<b>Nov. 30</b>	<b>Exam 4</b>	<b>Chapters 11-16</b>
Dec. 2	Presentation of Group Projects	
<b>Dec 9</b>	<b>Final Exam, 1:00 – 3:00 PM</b>	<b>All Covered Topics</b>