

PHSC 4024 Astronomy and Geology

Department of Chemistry & Physics, Brailsford College of Arts and Sciences

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OFFICE HOURS: Monday and Wednesday 1pm – 3pm
COURSE LOCATION: E. E. O'Banion Science Building, Room 103
CLASS MEETING DAYS AND TIMES: NSCI A104, Tues. and Thurs. 3:30pm – 4:50pm

TEXTBOOK: *Earth Science, Tenth Edition.* Tarbuck and Lutgens (OPTIONAL)

PREREQUISITES: PHSC 2103 or PHYS 2123 or PHYS 2523

COREQUISITES: None

ACCESS TO LEARNING RESOURCES:

PVAMU Library:

phone: (936) 261-1500;

web: <http://www.tamu.edu/pvamu/library/>

University Bookstore:

phone: (936) 261-1990;

web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

COURSE GOALS: This course is designed for science teachers in junior and senior high schools. It covers the Earth Science concepts of Astronomy and Geology but with a more advanced approach. We will focus on the basic principles of geology and apply these to planetary surfaces. Basic principles of astronomy are also included. Given this is a 4000-level course, the approach will be a little more advanced than the basic level course.

COURSE OUTCOMES: The student should be able to gain an understanding of the concepts of Geology and Astronomy and how the two overlap. In the Astronomy portion, we will focus primarily on the solar system and planetary geology. Selected lab exercises to illustrate concepts in the course will be provided.

COURSE POLICIES: This course will use a variety of formats, including lecture, discussion, and in-class projects. We will use, as a starting point, selected chapters in the Earth Science text, specifically those covering geology and astronomy. Although the book is optional it will be helpful to have a copy in order to keep up with the class. I will have one to two copies of the text in my office for you to borrow if and when you need it. I have several reserve copies at the library as well. I also have several different astronomy textbooks that you can borrow to assist you with the astronomy homework assigned in class.

HOMEWORK AND GRADING: Makeup exams and in class activities will be given only for university-approved absences verified in writing. Homework is to be turned in on time; no late homework will be accepted. As mentioned in the previous section, there will be a variety of elements used in determining the final grade for this course. The breakdown is as follows:

- Exams (one midterm and one final), 100 pts each.
- Homework assignments (10), 10 points each.
- In-class laboratory exercises (12, almost every week), 10 points each.
- Reading assignments will be given at the start of the semester; they will help to enhance the in class experience as well as your experience on the exams.

The grading system is as follows:

A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

LABORATORY SCHEDULE: There will be a total of 12 in-class laboratory exercises. The schedule is tentative and could change at short notice. Labs marked with CLEA are exercises from the Contemporary Laboratory Experiences in Astronomy modules.

- LAB 1: NASA-Geologic Landforms Seen on Aerial Photos
- LAB 2: The Reasons for the Seasons
- LAB 3: The night sky with Stellarium
- LAB 4: The Distance to the Pleiades, M45 (CLEA)
- LAB 5: Solar Rotation by Sunspot observation (CLEA)
- LAB 6: The Rotation of Mercury (CLEA)
- LAB 7: Landform Mapping: the Terrestrial Planets
- LAB 8: Geologic Features of Venus
- LAB 9: Geologic Features of Mars
- LAB 10: Asteroid Astrometry (CLEA)

- LAB 11: The Mass of Jupiter using the Galilean Moons (CLEA)
- LAB 12: NASA-Geologic Features of the Outer Planet Satellites

ATTENDANCE POLICY: Class meets from 3:30pm until 4:50pm every Tuesday and Thursday starting January 17th. (For independent study work, we will agree upon a 3-hour time block each week to work on the material). Since our meeting time will be limited, attendance at every class is expected and is each student's responsibility-it is also imperative that you be on time as much as it is possible. Absence or tardiness, accumulated from day 1, may result in lowered grades; excessive absenteeism, whether EXCUSED or UNEXCUSED, may result in a student's course grade being reduced or assignment of a grade of "F". You can find more details in the University Undergraduate Catalog (2005 – 2007, pp.111-116).

STUDENT ACADEMIC APPEALS PROCESS: (Refer to the University Undergraduate Catalog, 2004 –2005, pp. 73-75)