

Fall 2018

# PHYS 203-005: The Earth in Space

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**New Jersey Institute of Technology  
College of Science and Liberal Arts  
Department of Physics  
The Earth in Space, Section 005  
Phys 203–005  
Fall 2018**

**Tuesdays, 10:00 a.m. to 11:20 a.m.  
Fridays, 01:00 p.m. to 02:20 p.m.**

**Central King Building, Room 303  
Kupfrian Hall, Room 207**

### Textbook

David McConnell and David Steer. *The Good Earth: Introduction to Earth Science*, Fourth Edition. McGraw-Hill Education, United States of America, 2018.

### Grade

Your final grade will be based upon four examinations (20% each) and one Final Examination (20%). The examinations will be administered on the following dates.

First Examination	Friday, September 14, 2018
Second Examination	Friday, October 12, 2018
Third Examination	Friday, November 02, 2018
Fourth Examination	Friday, November 30, 2018
Final Examination	to be announced

If you miss an examination, you will receive a grade of zero that will be calculated into your final grade. There are no make-up examinations. The following table will determine your final grade.

85% to 100%	A
80% to 84%	B+
70% to 79%	B
65% to 69%	C+
50% to 64%	C
40% to 49%	D
0% to 39%	F

The examination grades will not be curved, nor will the final grades be curved. Each examination, including the Final Examination, will consist of multiple-choice and/or true-false questions, all of which will come directly from topics discussed in class and/or topics discussed in the textbook. Each examination, including the Final Examination, will be closed book and closed notes. No formula sheet or cheat sheet will be provided, nor will either be permitted for any of the examinations.

The Earth in Space (Phys 203) and The Earth in Space Laboratory (Phys 203A) are two separate courses for which you will receive two separate and independently-determined grades. Moreover, you are free to be registered for either one of these courses without being registered for the other course. If you are registered for both courses, withdrawal from one course does not mean you must withdraw from the other course.

## Learning Objectives and Outcomes

understand that the Earth is a geological, oceanographic, atmospheric, and biological system  
recall the geographic coordinate system  
understand different types of map projections  
comprehend atomic theory, including subatomic particles  
comprehend molecular theory, including different types of chemical bonding  
describe states of matter and phase changes  
discuss the properties of minerals  
understand different mineral groups, with strong emphasis on the silicate minerals  
analyze the different types of rocks and how they form  
comprehend the interior structure of the geosphere  
discuss the theory of plate tectonics, and discuss the observational evidence for this theory of geology  
use the theory of plate tectonics to study orology, seismology, and vulcanology  
calculate the age of the Earth from radioactive dating  
discuss the geological processes on the ocean floor  
analyze the chemistry and the thermodynamics of the oceans using salinity, temperature, and pressure  
understand the biological processes in the oceans  
describe the currents and waves in the oceans  
discuss landforms of coasts and shores  
summarize the basics of the atmosphere, including its composition and its layers  
analyze the thermodynamics of the atmosphere using pressure, temperature, and relative humidity  
discuss meteorological processes using air masses and fronts  
comprehend climatological processes that cause ice ages, glacial periods, and interglacial periods  
apply the global circulation of air to predict the terrestrial landscapes/environments we find on continents  
understand the continuous weathering and erosion of terrestrial landforms  
analyze different types of soil and determine which is best and which is worst for agriculture  
compare and contrast different types of mass wasting processes  
explain how fluvial processes operate in river valleys and floodplains  
understand how groundwater processes sculpt karst topographies  
explain how aeolian processes affect deserts  
summarize how glacial processes shape mountains and valleys