

Fall 2023

## PHYS 203 - 001: 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 001  
Phys 203–001  
Fall 2023**

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

**Kupfrian Hall, Room 209  
Kupfrian Hall, Room 209**

### Textbook

David McConnell and David Steer. *The Good Earth: Introduction to Earth Science*, Fifth Edition. McGraw-Hill Education, United States of America, 2020.

### 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	Tuesday, September 26, 2023
Second Examination	Tuesday, October 24, 2023
Third Examination	Tuesday, November 14, 2023
Fourth Examination	Tuesday, December 05, 2023
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. Although the following table will be used to determine your final grade, all examinations must be taken to earn a satisfactory final grade in the course.

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, and the final grades will not 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, topics discussed in the textbook, and topics discussed in the online notes. 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  
understand the Theory of Plate Tectonics  
discuss the observational evidence for the Theory of Plate Tectonics  
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  
understand the Bjørgvin Theory of Meteorology  
apply the Bjørgvin Theory of Meteorology to meteorological processes using air masses and fronts  
comprehend climatological processes that cause ice ages, glacial periods, and interglacial periods  
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 are best and which are 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