New Jersey Institute of Technology College of Science and Liberal Arts Department of Physics The Earth in Space, Section 005 Phys 203–005 Fall 2023 Mondays, 01:00 p.m. to 02:20 p.m. Thursdays, 01:00 p.m. to 02:20 p.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.

Thursday, September 28, 2023
Thursday, October 26, 2023
Thursday, November 16, 2023
Thursday, December 07, 2023
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%	Α
80% to 84%	B+
70% to 79%	В
65% to 69%	C+
50% to 64%	С
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