



METADATA

Title: Geoscience Teaching and Learning

Other Titles: -

Language: Greek

Authors: Antonarakou, A., Professor, UOA, Koumoutsakou, O., Laboratory and Teaching Staff, UOA, Lyras, G., Associate Professor, UOA, Smyrnaioy, Z., Associate Professor, UOA

ISBN: 978-618-228-094-2

Subject: NATURAL SCIENCES AND AGRICULTURAL SCIENCES, HUMANITIES AND ARTS

Keywords: Geoscience didactics / History of geology / Didactic approaches / Alternative conceptions / Cognitive conflict

Bibliographic Reference: Antonarakou, A., Koumoutsakou, O., Lyras, G., & Smyrnaioy, Z. (2024). Geoscience Teaching and Learning [Undergraduate textbook]. Kallipos, Open Academic Editions. <http://dx.doi.org/10.57713/kallipos-330>

Abstract

The teaching and learning of the earth sciences constitute an interesting and distinct scientific field within the earth sciences, with unique characteristics. In recent years, the role of earth science education has been significantly elevated, primarily due to the need to promote and develop earth sciences in schools. This need arises from our collective responsibility to shape future citizens with a deep awareness of the growing problems facing our planet (environmental pollution, biodiversity loss, climate crisis etc.), while also fostering critical thinking, creativity and self-confidence in them so that they can effectively contribute to their resolution. The book deals with the history and epistemology of the earth sciences. Various teaching approaches that can be applied in the context of natural science education are presented, which educators can use in the design of their educational activities. Emphasis is

placed on students' alternative conceptions and how students can be guided towards conceptual change to acquire new knowledge. Detailed attention is given to curriculum programs, lesson organisation and design, as well as educational assessment, serving as a useful guide for earth science educators. One of the main themes of the book is the educational techniques that can be used in the classroom to lead students towards knowledge acquisition, skill development and the formation of attitudes and values. Furthermore, the book thoroughly analyses teaching with the use of digital technologies, presenting institutions that develop informal and non-formal forms of education, along with practices developed within them. Considering the contemporary framework of "Science with and for Society" in education, the earth sciences are connected to everyday life and society, from the local level to the global geopolitical stage.

