



UNIVERSITY OF NICOSIA ΠΑΝΕΠΙΣΤΗΜΙΟ ΛΕΥΚΩΣΙΑΣ

University of Nicosia, Cyprus

Course Code EDUE-140	Course Title Designing Experiments in Elementary School	ECTS Credits 6
Department Paedagogical Studies	Semester Fall	Prerequisites None
Type of Course Elective	Field Science Education	Language of Instruction Greek
Level of Course 1 st Cycle	Year of Study 2 nd or 3 rd	Lecturer(s) Dr Maria Evagorou
Mode of Delivery face-to-face	Work Placement N/A	Co-requisites None

Objectives of the course:

The main objectives of this course is that the students will:

- Be able to design long term investigations to study scientific concepts that are appropriate for elementary school students.
- Present the outcomes of their scientific investigations in the form of a scientific document (use of evidence, use of diagrams and tables to present their evidence, explanation of findings).
- Be familiarized with an array of natural phenomena and will develop an understanding and an appreciation of the natural world and how it functions.
- Design scientific investigations to study natural phenomena, with an emphasis on the collection of authentic data.
- Apply scientific reasoning to explain their results.
- Apply the experiments they design in a context that is appropriate for elementary school students.
- Participate in a science fair with elementary school students to present the outcomes of a long term investigation along with a teaching activity.

Learning outcomes:

With the completion of the course the students will be able to:

- Apply the scientific method in new scientific constructs.
- Design experiments that can help them explain a natural phenomenon.
- Analyze the data from their investigations and explain the natural phenomenon under study.
- Compare their own experiments with those of the others and discuss the differences.
- Demonstrate their understanding of the scientific methodology.
- Design a long-term investigation with a younger child and collaboratively participate in a science fair.

Course content:

<ol style="list-style-type: none"> 1. The scientific process 2. Scientific method skills 3. Scientific investigations for elementary school <ol style="list-style-type: none"> a. Breath and heart rate relationship b. How machines work c. Volcanic eruptions d. Designing cameras e. How to make antibacterial hand gel with simple materials <ul style="list-style-type: none"> • Science fair
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Learning activities and teaching methods:

Lecture, workshops, experiential seminars, individual and group work, individual feedback, student presentations, science fair
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Assessment methods:

Formative assessment, feedback, individual research, collaborative work, presentations, discussions

Required textbooks/reading:

Authors	Title	Publisher	Year	ISBN
Evagorou, M.	<i>EDUE 140 Notes (in Greek)</i>	UNIC	2010	N/A
Ερευνητική Ομάδα Μάθησης στις Φυσικές και Περιβαλλοντικές Επιστήμες	Το πανηγύρι της Επιστήμης ως μέσο καλλιέργειας δεξιοτήτων διερεύνησης.	Υπουργείο Παιδείας και Πολιτισμού Κύπρου, Λευκωσία.	2005	N/A

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Michaels, S., Shouse, A. & Schweingruber, H.	Ready, Set, Science! Putting Research to Work in K-8 Classrooms	National Research Council	2008	978-0-309-10615-3