



TED UNIVERSITY

PECE 202 – SCIENCE TEACHING IN EARLY CHILDHOOD EDUCATION SPRING- 2025

Instructor Information:

Instructor: Assoc. Prof. Dr. Elif Buldu

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Office Hours: By appointment

Course Information:

Class Hours: Mondays, 9.00-12.00

Place: GB10

ECTS Credits: 6.0

Course Description

Definition and importance of science and nature education in early childhood. Principles and standards in early science education. Basic science concepts and science process skills in early childhood science education. Techniques and methods to introduce early science concepts to young children. Science learning centers in early science education. Implementation of preschool science activity plans in accordance with objectives and indicators from Early Childhood Education Program.

Course Objective

The aim of this course is to equip pre-service early childhood educators with the knowledge about definition and importance of early science education and also to introduce basic concepts in early science education with appropriate methods to apply and assess in preschool classroom.

Learning Outcomes

1. Identify basic concepts, principles and standards in early science education,
2. Explain importance of science education in early childhood,
3. Use different teaching techniques and methods in early science education,
4. Design appropriate science learning centers in and out of the classroom,
5. Plan activities that support and evaluate early childhood science education,
6. Investigate various methods to integrate early science education.

Suggested Resources:

- Trundle, K. C. & Saçkes, M. (2015). *Research in Early Childhood Science Education*. Springer.
- Worth, K., & Grollman, S. (2003). *Worms, shadows and whirlpools: Science in the early childhood classroom*. Portsmouth, NH
- Chaille, C. & Britain, L. (2003). *The young child as scientist: A constructivist approach to early childhood science education*. Allyn & Bacon.
- Charlesworth, R. & Lind, K. K. (2003). *Math and science for young children* (4th Ed.). NY: Delmar Publishers.
- NSTA. (2022). *Start young: Early childhood science activities*. NSTA Press.

COURSE POLICIES:

1. Professionalism

Plagiarism: All assignments you hand in should be the result of your effort only. Academic dishonesty, including any form of cheating and plagiarism will not be tolerated and will result in failure of the course and/or formal disciplinary proceedings usually resulting in suspension or dismissal. Cheating includes but is not limited to such acts as; offering or receiving unpermitted assistance in the exams, using any type of unauthorized written material during the exams, handing in any part or all of someone else's work as your own, copying from the Internet. Plagiarism is a specific form of cheating. It means using someone else's work without giving credit. Plagiarism is a literary theft. Therefore, you have to acknowledge the sources you use in your assignments.

Attendance & Participation: You are expected to attend class on a regular basis, to be on time, to remain for the whole class period, and to participate fully in class discussions and activities. Your being present in class on time, your in-class participation, and the appearance of your assignments will give me an idea of your interest and dedication for this class so please make sure you pay attention to the issues of professionalism. Attendance will be taken within the first 10 minutes of class. **Exceeding 30% of attendance** with unexcused absences will result a half letter grade reduction. The TEDU policy concerning attendance will be followed strictly. Make-up is accepted if only the student has an official or medical excuse (reported) and the instructor and the school should approve the make-up date for presentations and implementations. It is your responsibility to check in with your instructor for any emergencies prior to class.

Written work: Your assignments are expected to be neat in appearance. Spelling, grammar and syntax are important. All written material must be typed (12 pt) with spacing at one and a half lines. It is therefore of the utmost importance that you proofread your papers before handing them in. ALL OF YOUR ASSIGNMENTS SHOULD BE SUBMITTED BEFORE OR AT THE DUE DATE, THROUGH THE MOODLE SYSTEM AND PRINTED AS WELL. All assignments must be submitted with a cover page which includes; the name of your department, the name of the course with section code, affiliation and name of the instructor, name of the homework, your name, your id number and the date of submission.

Late work: You are supposed to turn in each assignment on time. I will only accept late assignments in unusual circumstances (e.g. documented illness). **In all other cases, I will reduce %10 of the total point per day for late work, and the assignment will not be accepted after three days late.**

Tentative course outline & class schedule: This syllabus and accompanying class schedule is subject to change without advance notice. The intent of the course schedule is to give students a general idea what/when material is covered in class. Due to the nature of the course and group projects, some issues can affect the course schedule resulting in some changes. This is yet another reason why regular attendance at the class is critical.

Announcements: All announcements will be sent to your e-mail address. It is your responsibility to keep your e-mail address operative all times. Check your e-mails regularly in order to be informed.

Tentative Course Schedule			
Week	Dates	Main content	Assignments/ Assessments/ Readings/Contents
1 st	10 th Feb	First Meeting & Syllabus discussion	
2 nd	17 th Feb	The Child as Theory Builder & Constructivist Curriculum & Children's motivation for learning science & Concept Development (Earth, Space, Life, Physical Science)	Chp 1 & 2: Chaille & Britain Chp 1: Charlesworth & Lind
3 rd	24 th Feb	Role of playful discoveries and playful science learning The Role of Constructivist Classroom & Teacher	Chp 11: Trundle & Saçkes
4 th	3 th March	Development of Science Process Skills in the Early Years	Chp 7: Trundle & Saçkes
5 th	10 st March	Connecting children with the nature world during science teaching	Chp 13: Trundle & Saçkes, 2015
6 th	17 th March	Environmental Education & Education for Sustainable Development in Early Childhood	Chp 3 & 4: Chaille & Britain
7 th	24 th March	MIDTERM	
8 th	31 th March	National Holiday Ramadan Aid	
9 th	7 th Apr.	The Role of Constructivist Classroom & Teacher	Discussing activity plans
10 th	14 th Apr.	-Chp 5 (Chaille & Britain): How can I make it move? Constructivist Physics	<i>In class presentation</i>

		-Chp 6 (Chaille & Britain): How can I make it change? Constructivist Chemistry	
11 th	21 st Apr.	-Chp 7 (Chaille & Britain): How does it fit or how do I fit? Constructivist Biology -Chp 34 (Charlesworth & Lind): Life Science	<i>In class presentation</i>
12 th	28 th Apr.	- Chp 36 (Charlesworth & Lind): Space - Technology integrated science	<i>In class presentation</i>
13 th	5 th May	- Chp 37 (Charlesworth & Lind): Earth Science -Chp 38 (Charlesworth & Lind) Health and Nutrition	<i>In class presentation</i>
14 th	12 th May	-Education for Sustainable Development in Early Childhood -Environmental Awareness	<i>In class presentation</i>
15 th	19 th May	Wrap-up	<i>Due date for presentations</i>
16 th	26 th May	Wrap-up	

COURSE REQUIREMENTS

1. **MIDTERM (30 pts):** There will be one mid-term examination. The exam will cover the content presented in class and in the readings. We will have the midterm on March 24th, in the regular class hour.
2. **In Class Presentation (25+ 15=40 pts):** This activity should be prepared as a group (4 or 5 students in each). Each group will prepare three activities referring one science topic (**one hour for each group**). You will present your activities as a group on scheduled dates in the classroom. Each group member is required to write one page reflection about his/her in class presentation performance -due date of the reflection paper is the following week of each performance.

In Class Presentation Evaluation Rubric

- Activities which are designed and applied in the classroom are developmentally and age appropriate.
 - Activities are playfully designed or not.
 - Activities are consistent with the objectives or not.
 - Activities support children's active participation or not.
 - Activities are creative or not.
 - Activities are integrated into different teaching disciplines (language, art, math etc.) or not.
 - The teaching methods are appropriate or not.
3. **FINAL EXAM (30 pts):** There will be one mid-term examination. The exam will cover the content presented in class and in the readings.

Evaluation Criteria:

Course requirement	Due date	% of final grade
MIDTERM	4 th May	30%
In class presentation & activity report	(14 th Apr- 12 th May) 19 th May for uploading teaching plans	25+ 15= 40%
Final Exam		30 %