האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Selected issues in Science Education - 34317

Last update 10-10-2024

HU Credits: *2*

Degree/Cycle: *1st degree (Bachelor)*

Responsible Department: *Education*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *E. Safra*

Course/Module Coordinator: *Avi Merzel*

Coordinator Email: *avraham.merzel@mail.huji.ac.il*

Coordinator Office Hours: *personal scheduling*

Teaching Staff:

Dr. Avraham Merzel

Course/Module description:

The course will deal with science education issues as they emerge from the field and from the research literature

Course/Module aims:

The aim of the course is to expose the students of science to science education, which is a totally different discipline from the scientific disciplines.

Learning outcomes - On successful completion of this module, students should be able to:

Students will know about science education issues, their origins, how they are expressed in the classroom by both students and teachers point of view.
Students will experience ways for science-lesson design.

Attendance requirements(%):

95

Teaching arrangement and method of instruction: The course will include lectures, working in groups and other formats of learning.

Course/Module Content:

In the course we will deal with the following subjects:
- concepts understanding("energy", in particular)
- misconceptions
- teaching/learning methods
- the role of the teacher in science education

Required Reading:

1. Carlson, J., & Daehler, K. R. (2019). The refined consensus model of pedagogical content knowledge in science education. In: Repositioning pedagogical content knowledge in teachers' knowledge for teaching science (pp. 77-92). Springer, Singapore.
2. Etkina, E., & Van Heuvelen, A. (2007). Investigative science learning environment – A science process approach to learning physics. Research-based reform of university physics, 1(1), 1-48.
3. Etkina, E., Planinsic, G., & Vollmer, M. (2013). A simple optics experiment to engage students in scientific inquiry. American journal of physics, 81(11), 815-822

4. Linn, M. C., & Eylon, B. S. (2006). Science Education: Integrating Views of Learning and Instruction.
5. Lehavi, Y., Merzel, A., Segal, R., Baram, A., & Eylon, B. S. (2019). Using self-video-based discourse in training physics teachers. In E. McLoughlin & P. van Kampen (Eds.), Concepts, strategies and models to enhance physics teaching and learning (pp. 159-169). Cham: Springer
6. Levy, S., Bagno, E., Berger, H., & Eylon, B. S. (2018 August 1-2). Physics teacher-leaders' learning in a national program of regional professional learning communities. Physics education research conference proceedings, Washington, DC.
7. Levy, S., Bagno, E., Berger, H., & Eylon, B. S. (Accepted to be published in 2019). Motivators, contributors, and inhibitors to physics teacher-leaders' professional Development in a Program of professional learning communities: The case of a collaborative reading assignment. In Kolikant, Y. B. D., Martinovic, D. & Milner-Bolotin, M. (Eds.), STEM teachers and teaching in the digital era: Professional expectations and advancement in 21st century schools. Springer.
8. Kapon, S., & Colton, A. (2020). Physics in Chavruta–A Model for Supporting Early Career Teachers. The Physics Teacher, 58(6), 425-429.
9. Kapon, S., & Merzel, A. (2019). Content-specific pedagogical knowledge, practices, and beliefs underlying the design of physics lessons: A case study. Physical Review Physics Education Research, 15(1), 010125.

Additional Reading Material:
None

Grading Scheme:
Essay / Project / Final Assignment / Home Exam / Referat 35 %
Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 35 %
Presentation / Poster Presentation / Lecture 20 %
Attendance / Participation in Field Excursion 10 %

Additional information:
None