

**AMERICAN UNIVERSITY OF BEIRUT
FACULTY OF ARTS AND SCIENCES
DEPARTMENT OF EDUCATION
Educ 255 (2:2): Teaching of Science I**

1. Course Learning Outcomes

After completing this course students should be able to:

1. Describe the general characteristics of modern science and their implications for science education.
2. Analyze the goals and objectives of science teaching in Lebanon at the intermediate and secondary levels
3. Design science lessons that are consistent with the Lebanese curriculum and account for the nature of science and the nature of the learner
4. Apply various approaches to the teaching of science at the intermediate and secondary levels with emphasis on inquiry and cooperative learning
5. Explicate the merits of using different instructional media in the science classroom
6. Modify curriculum materials and instruction to meet the needs of various student populations
7. Develop a personal approach to the teaching of science.
8. Demonstrate effective research and writing skills
9. Demonstrate effective critical thinking skills

2. Resources Available to Students

- Textbook: Chiappetta, E.; Koballa, T., & Collette, A., & (1998). *Science instruction in the middle and secondary school* (4th ed.). New York: Merrill. (Referred to as Chiappetta and others in the course outline).
- Samples of portfolios, resource card collections, lesson plans, lesson videotapes, and projects are available at SMEC Library
- Official Lebanese Curriculum available at SMEC Library

3. Grading Criteria

There will be *no curve*. Grades will be based upon total points received from:

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| 1. | Resource cards | 20% |
| 2. | Lesson plan 1 | 15% |
| 3. | Lesson plan 2 | 15% |
| 4. | Practicum in cooperating school and portfolio | 20% |
| 5. | Final examination | 30% |

4. Schedule

Week #	Topics	Activities	Assignments
I	<ul style="list-style-type: none"> • Introduction to science teaching: What is your instructional theory • Resource cards 	<ul style="list-style-type: none"> • Hands-on activity • Survey on and discussion 	<ul style="list-style-type: none"> • Handouts prepared by the instructor
II and III	<ul style="list-style-type: none"> • Directions and goals of science teaching • Goals of science education in Lebanon 	<ul style="list-style-type: none"> • Analysis of the Lebanese curriculum • Comparing the Lebanese Curriculum to National Science 	<ul style="list-style-type: none"> • Read relevant parts of the Lebanese Curriculum • Read handouts

	and the Lebanese science curriculum	Education Standards (USA)	prepared by the instructor
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Week #	Topics	Activities	Readings / Assignments
IV and V	<ul style="list-style-type: none"> Nature of science 	<ul style="list-style-type: none"> Hands-on activities to introduce nature of science (NOS) Lecture on NOS 	<ul style="list-style-type: none"> Chiappetta and others Ch. 1 Handouts
VI and VII	<ul style="list-style-type: none"> Cognition and learning Review of psychological theories of learning 	<ul style="list-style-type: none"> Hands-on activities related to learning theories Lecture on learning theories 	<ul style="list-style-type: none"> Chiappetta and others Ch. 3 and Ch. 4
VIII	<ul style="list-style-type: none"> Planning science lessons 	<ul style="list-style-type: none"> Videotape of science lesson Rubrics to evaluate lesson plans 	<ul style="list-style-type: none"> Chiappetta and others Ch. 12 Resource cards due
IX, X	<ul style="list-style-type: none"> Models of effective science teaching: Inquiry: General Inquiry model 	<ul style="list-style-type: none"> Laboratory sessions using general inquiry model Discussion of the characteristics of general inquiry 	<ul style="list-style-type: none"> Chiappetta and others Ch. 5
XI, XII	<ul style="list-style-type: none"> Models of effective science teaching: Learning Cycle, Suchman Inquiry, problem solving 	<ul style="list-style-type: none"> Laboratory sessions using Learning Cycle, Suchman Inquiry, and problem solving Discussion of the characteristics of the inquiry models mentioned above 	<ul style="list-style-type: none"> Chiappetta and others Ch. 5
XIII	<ul style="list-style-type: none"> Models of effective science teaching: Demonstrations and Lecture. 	<ul style="list-style-type: none"> Hands-on activity Discussion of the characteristics of a lecture and discussion sessions 	<ul style="list-style-type: none"> Chiappetta and others Ch. 6 Lesson plans #1 and #2 due
XIV and XV	<ul style="list-style-type: none"> Models of effective science teaching: discussion and inductive and deductive models 	<ul style="list-style-type: none"> Model inductive and deductive models Lecture and discussion on Characteristics of deductive and inductive teaching 	<ul style="list-style-type: none"> Handouts prepared by the instructor Chapter 6
XVI	<ul style="list-style-type: none"> Final examination 	<ul style="list-style-type: none"> Take final examination 	<ul style="list-style-type: none"> Student teacher portfolio due

5. Course Policy

1. You are expected to attend *all* class meetings and actively participate in hands-on and laboratory activities throughout the course.
2. If you are unable to attend class, it is *your responsibility* to inform the instructor *prior* to the class meeting. Absences will be dealt with on a case-by-case basis.
3. Reading assignments are to be completed *before* the class meeting for which they are assigned.
4. Written and all other assignments should be handed in *on or before* the due dates indicated in the course outline. These assignments include planning two

lessons using methods discussed in class and preparing at least 12 resource cards. Requirements for resource cards will be discussed in class.

5. After being placed in a cooperating school you will be expected to carry out observations of science teaching in assigned classes and under the supervision of a cooperating teacher. In addition, you will be expected to participate in other activities described in the “Student-Teacher Professional Field Experiences” that will be distributed in class.
6. **Plagiarism. Any act of plagiarism on the student’s part will result in serious consequences.**