

Sci 319

SCI 319 Syllabus of Record - Science in Elementary Education

Instructor:
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Lecture/Discussion: (Day, Time, and Room)

Credits: two

Introduction

Science 319 is designed for Integrated Science majors to practice preparing and presenting science lessons, demonstrations, and hands-on activities for use in teaching science at the elementary (K-8) level.

Objectives: The student will:

1. Construct four lesson plans that illustrate science content appropriate for given grade levels in K-8. Appropriate content will
2. Demonstrate the ability to develop lessons that match the State Curriculum Framework.
3. Write lessons will communicate content, assessment, connection to the state standards, and correct science explanations. One lesson will be drawn from each of four science disciplines: physics, chemistry, biology, and earth/space science. The goal of this objective is to help students merge science content with classroom practice appropriate to elementary school, and to become familiar with the state content standards.
3. Collaborate in groups to present lessons, respond to comments and questions from peers, and critique their work and the work of their peers. The goal of this objective is to provide students with some teaching experience in hands-on science, respond to questions, and critique effective teaching in their lessons and in the lessons of others. Experience with team-teaching will also be acquired.
4. Since science content from physics, biology, chemistry, and earth/space science will be presented, this course will heighten awareness of the types of demonstrations and activities appropriate to different levels of students, and how to adapt lessons as needed.

Course Prerequisites

ED 200; 15 or more credits of science courses spread among three science disciplines, including physics, chemistry, biology, geology, or natural resources management; integrated science major.

Course Materials (“popular science” books available for considerably less cost than a text)

📖 *Teaching Chemistry with Toys: Activities for Grades K-9*, J.L. Sarquis, M. Sarquis, J.P. Williams.

McGraw-Hill, 1995.

📖 *Teaching Physics with Toys: Activities for Grades K-9*, B.A.P. Taylor, J. Poth, D.W. Portman.

McGraw-Hill, 1995.

📖 Biology for K-8, appropriate text

📖 *How the Earth Works*, J. Farndon, Reader's Digest, ISBN 0-9577-411-9.

📖 *Michigan State Curriculum Framework*. Available (download or print) from http://www.michigan.gov/documents/Updated_Science_Benchmarks_27030_7.pdf

Resources

KCRC, area teachers, teacher manuals for science books (including text for class), school libraries, Regional Math Science Center (225 Padnos), internet, journals or magazines, peers...

Lecture/Discussion

This class will meet once a week for a two-hour session. Class time will be used for a description of the resources/sources for materials, modeled lessons, activities designed to deepen content understanding of common and important science topics, student presentations of lessons, and discussion of science concepts related to the lessons presented.

Lesson Plans

You will individually prepare FOUR (4) detailed lesson plans throughout the semester, roughly one every other week. Each lesson plan must have a different science discipline as its focus: biology, chemistry, earth/space science, and physics/physical science. Due dates are noted on the Class Schedule. The format of the lesson plans will be discussed. Each lesson plan must be typed and must incorporate a demonstration or hands-on activity appropriate for K-8 students. Lesson plans will be returned the next class meeting with comments and suggestions; lessons are to be modified and turned in again the following week for final grading, copying, and for class distribution. Each lesson is worth 100 points (85 for the initial, 15 for corrections and the final). Copies of all lesson plans will be distributed throughout the semester. Make sure your lesson plans are of a quality you wish others to remember about your work. *Please note: Plagiarism or violation of copyright laws is not allowed.* We will discuss both in class.

Presentation Requirements

Each person will be assigned to a group with 2-3 other students. Each group will present four lessons to the class, one each from biology, chemistry, earth/space, and physics. These presented lessons will come from the individual lesson plans. Two of the lesson presentations must be hands-on activities, the other two may be hand-on activities or demonstrations. Two lesson presentations will be 15-20 minutes; the other two will be 30-35 minutes. You are responsible for gathering the materials needed (other than typical science materials such as beakers, some chemicals, tuning forks, stop watches, thermometers, grow lights, models, rock or mineral

Class Schedule

<u>Date</u>	<u>Activity</u>		<u>Items Due (<i>items returned</i>)</u>
Week 1	Introduction, discuss "MI State Curriculum Framework"		
Week 2	Group Activities and Instructor Lessons		
Week 3	Instructor Lessons		Initial Lesson Plan 1 is due
Week 4	Presentation #1	Groups 1, 2, 3	<i>Return Initial lesson plan 1</i>
Week 5	Presentation #1	Groups 4, 5, 6	Final Lesson Plan 1 is due Initial Lesson Plan 2 is due
Week 6	Presentation #2	Groups 1, 2, 3	<i>Return Initial lesson plan 2</i>
Week 7	Presentation #2	Groups 4, 5, 6	Final Lesson Plan 2 is due
Week 8	Presentation #3	Groups 1, 2	Initial Lesson Plan 3 is due
Week 9	Presentation #3	Groups 3, 4	<i>Return Initial lesson plan 3</i>
Week 10	Presentation #3	Groups 5, 6	Final Lesson Plan 3 is due
Week 11	Presentation #4	Groups 1, 2	Initial Lesson Plan 4 is due
Week 12	Presentation #4	Groups 3, 4	<i>Return Initial lesson plan 4</i>
Week 13	Presentation #4	Groups 5, 6	Final Lesson Plan 4 is due
Week 14	Make-up Presentations, Wrap-up		

FINAL: The Final Exam is scheduled for XXXXXXXXXXXX.
The exam will cover material from the entire course.