

EASTERN MENNONITE UNIVERSITY
Course Syllabus for ED 371
Methods for Middle and Secondary Teaching: Biology
FALL 2012

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Class Time: Mondays 8:00-9:50 p.m.
Location: Eastern Mennonite School
Semester Hours: 2 semester hours

Required Texts

R.W. Bybee, J.C. Powell, L.W. Trowbridge (2008). Teaching Secondary School Science: Strategies for Developing Scientific Literacy (9th Edition). Pearson Allyn Bacon Prentice Hall

P. Palmer (1998). The Courage to Teach: Exploring the Inner landscape of a Teacher's Life.
John Wiley & Sons, Inc.

Useful Websites

The following websites will be helpful in developing and aligning your unit and individual lesson plans with state and national standards. Some of the sites offer ideas on innovative teaching strategies and methods, classroom management, and developing trends in education. You should also search for sites of organizations representing specific content areas such as American history or geography.

Virginia SOLs
<http://www.doe.virginia.gov/VDOE/Superintendent/Sols/home.shtml>

National Science Teachers Association
<http://www.nsta.org/>

National Association of Biology Teachers
<http://www.nabt.org/>

National Education Association
<http://www.nea.org/>

Virginia Education Association (or the affiliate in your state)
<http://www.veanea.org/>

EMU Teacher Ed. Dept. Resources page
<http://www.emu.edu/education/resources/>

Course Description

This course focuses on the application of specific curriculum and pedagogical concepts relevant to the student's certification area in teaching of Biology in middle and high schools. It will be tailored to help each student align specific content, instructional methods, and concepts to the State and National curriculum standards.

Teacher Candidate Performance Outcomes

The successful teacher candidate is able:

Scholarship: to acquire knowledge through the liberal arts, Core General Education Curriculum and specialty area studies and to organize and integrate that knowledge across disciplines and cultures.

Inquiry: to generate questions and to use critical thinking to self-assess, to view problems collaboratively and from multiple perspectives, and to make informed, research-based decisions to enhance student learning.

Professional Knowledge: to demonstrate pedagogical and professional knowledge in order to create, manage, and assess diverse environments conducive to learning and setting high expectations.

Communication: to acquire and use knowledge of effective verbal, nonverbal, and technological communication strategies to support student learning, to solve problems, and to create peaceable climates.

Caring: to develop a nurturing spirit that honors diversity, advocates for students, integrates Christian faith and ethics, and promotes peacebuilding in diverse settings.

Leadership: demonstrate high aspirations for themselves and their profession and to influence positive change in educational settings.

Course Objectives

EMU TEP goals/outcomes are referenced in parentheses following each course objective. In addition, each is designated whether it is a K=knowledge, S=skill, or D=disposition objective. The student will be assessed on his/her ability to:

Formulate a personalized philosophy as to the teaching of science in middle school and high school (Leadership, D)

Demonstrate the ability to align the school curriculum and daily instruction with the Virginia Standards of Learning curriculum standards and National Science Teachers Association (NSTA) standards. (K, S)

Demonstrate the ability to design lessons fostering understanding of and respect for diverse cultures (K,S)

Demonstrate the ability to plan, organize, and implement effective Science units and lessons using a variety of instructional methods, relevant primary and secondary resources, and using the skills, knowledge and methods of the science disciplines. The student will be able to incorporate Virginia's Standards of Learning (SOLs) into planning lessons. (S)

Demonstrate the ability to modify and assess science instruction for individual learner needs (S)

Demonstrate ways of using community resources in teaching science (K, S)

Demonstrate the ability to use a variety of instructional strategies/models in science (S)

Demonstrate the ability to use a multi-media program with instructional materials appropriate to the outcomes and to the learners in the class (K, S)

Develop a variety of assessments for measuring student achievement in science (K, S)

Develop the ability of self-reflection to successfully assess and adapt all facets of classroom instruction for continuous improvement of science instruction. (S)

Attendance Policy

Students are expected to attend class regularly. Should a student be unable to attend class, it is the student's responsibility to communicate with the instructor in advance by email or phone.

Academic Integrity

EMU faculty and staff care about the integrity of their own work and the work of their students. They create assignments that promote interpretative thinking and work intentionally with students during the learning process. Honesty, trust, fairness, respect, and responsibility are characteristics of a community that is active in loving mercy, doing justice, and walking humbly before God. EMU defines plagiarism as occurring when a person presents as one's own someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source. (Adapted from the Council of Writing Program Administrators). [Taken from "Academic Integrity," 2012-13 Undergraduate Catalog.] This course will apply EMU's AIP (see catalog, pp. 16-19) to any events of academic dishonesty.

Academic Support Services

If you have previously received services related to a learning disability or attention deficit disorder and/or feel you may have such a problem in this course, please make an appointment to speak with the instructor during office hours or with the Coordinator of Student Disability Support services in the Academic Support Center, 3rd floor of Sadie Hartzler Library, 432-4233.

Writing Tutors

Please take advantage of the free individual tutoring from our writing tutors. Writing tutors are strong writers who hold scheduled one-on-one sessions with students and are an excellent resource for writers at any level or at any stage in the writing process. Please remember that writing tutors do not provide an editing or proofreading service. They will help you put what you learn into practice and will work with you to improve your own proofreading and editing skills. To make an appointment, please access ASC Tutoring (also accessible through myEMU).

Disability Statement:

If you have received services in the past related to a learning disability or attention deficit disorder and/or feel you may have such a problem in this course, please make an appointment to speak with the instructor during office hours or with the Coordinator of Student Disability Support services in the Academic Support Center, 3rd floor of Sadie Hartzler Library, 432-4233.

Professional Organization Membership

Students are *required* to join the National Science Teachers Association (NSTA) or its affiliate, Virginia Association of Science Teachers (VAST) as a student member, as part of the requirements for this course. Join online.

Grading Scale:

A	96 – 100%	C+	83 - 85%
A-	94 - 95%	C	79 - 82%
B+	92 - 93%	C-	75 - 78%
B	89 - 91%	D+	71 – 74%
B-	86 - 88%	D	67 - 70%

Course Assignments

I. Professional Portfolio (20%)

Each student will need to plan, organize, and maintain an up-to-date professional portfolio. This should include:

- Vitae
- A collection of resources and ideas gained from this class and related activities.
- SOLs, resource guide, and other related materials from a chosen content area.
- Creative assessment devices, games, simulations, labs, demonstrations, activities, fieldtrip ideas, etc. that you come across.
- Web sites and other computer assisted instructional ideas.
- Course syllabus or other published material on advanced level courses (AP, IB, etc)
- Professional development ideas, possibilities and activities.
- Professional Science Organizations information, membership forms, etc. Each student is expected to join a SPA of their choice: VAST, NSTA, NABT. Evidence is required.
- Other

The Professional Portfolio is for your own use. The grade will be based on meeting the above standards but will not be graded for your choice of specific content. Collect and include materials that you find useful.

II. Annotated Bibliography/Professional Journal Reviews (15%)

You will be expected to read three professional journal articles in order to increase your knowledge and awareness of current trends in science instruction in grades 6-12. Document each article and write a 150 to 200 word annotated bibliography and reflection of key components learned. You will lead a 5-10 minute discussion or activity about one of your chosen articles in class. Copies of your summary/reflection will be provided via email to classmates 24 hours prior to the class presentation. Grades will be based on the following rubric:

- 0 1 2 Summary exhibits professional writing (grammar, spelling, word choice, etc.)
- 0 1 2 Summary clearly articulates the main concepts and exhibits an understanding of the author's research and/or opinion.
- 0 1 2 The summary and reflection indicates an understanding of implications for science education.
- 0 1 2 The summary and reflection indicates you have reacted to the author's views and provided justification for agreeing or disagreeing with those views.
- 0 1 2 The class discussion of the article is well organized, engaging, and includes at least two reflection questions raised by the article for consideration.

III. Instructional Activities (20%)

These activities will vary in size, nature and complexity. Each student will need to:

- a. Observe a middle and high school class whose emphasis is science instruction. Choose an instructional issue to focus on. A reaction paper is required.
- b. Develop a "Safety and Science Instruction" document. This should include state and national guidelines, ideas, procedures, equipment list, fieldtrip forms and policies, etc. that will ensure the safety of students within the context of science instruction.
- c. Read and summarize two published articles or books on the topic of experiential science instruction. These may and should vary in content and perspective. Not only should the work be summarized but also a reaction statement should be included.
- d. Develop a priority paper that describes the most important skills, concepts and big picture knowledge areas that a secondary school student should possess after completing a course in your subject area. Providing a good rationale and/or reasons for your list is critical.
- e. Identify several concrete examples of instructional methods concerning "brain-compatible learning" in your area of teaching. This should be documented from Jansen's *Teaching with the brain in mind*.

IV. Class activities/ journaling (15%)

Throughout the class sessions you will be asked to participate in learning exercises that will help you gain proficiency in designing instructional strategies specific to the science. You will be asked to write and/or discuss your thoughts and reflections about class topics during each class session. An example is the sharing of a significant quote from Parker Palmer, *The Courage To Teach*.

V. Unit Plan (30%)

Development of an instructional unit assessed to achieve a competent "2" rating on the rubric. The assignment will be due in three states: planning, unit, and reflection. You should anticipate teaching one lesson, 20-25 minutes in length, which will be videotaped. We expect to combine with the other Methods classes for lesson presentations.

The lesson plan evaluation will be used for admission to student teaching decisions. A minimum score of 2.0 is required on four criteria (Lesson Outcome/Objectives, Aligned Assessment, Planning for Instruction, and Differentiation) at least once out of the two lesson plan evaluations that have been selected for review for admission to student teaching. If you score less than 2.0 on any of the criteria, you will be given opportunity to outline a plan for growth in the identified area through the creation of a Student Growth Plan. See the Entrance Requirements to Student Teaching in the Teacher Education Handbook for more information.

The unit shall include:

- Five daily lesson plans for a class 90 minutes in length.
- The lesson plan criteria includes Lesson Outcome/Objectives, Aligned Assessment, Differentiation, and Planning for Instruction will be used for admission to student teaching decisions beginning July 2012. The template of the ED 351 Lesson Plan Rubric with these designations noted is below.
- Lesson plans must be appropriately aligned with the Virginia SOLs.
(<http://www.doe.virginia.gov/testing/index.shtml>) The unit plan will include at least one rubric for assessing student achievement.
- **This assignment may not duplicate an assignment submitted for any other course.**

Due dates:	Planning (general outline of unit) – October 8
	Unit (specific daily lesson plans) – November 12
	Reflection (what you learned, would improve, etc) – December 3

Assessment

1. Content and process skills to be assessed as identified in the instructional objectives.
2. Specific strategies or methods of assessment: (Describe & attach specific assessments)
3. Differentiation: How will you differentiate your assessment for the specific needs of diverse learners?

Lesson Body:

Anticipatory Set: Write out verbatim

Instruction:

(Step-by-step procedures include teacher notes on content, teaching strategies, questioning, guided practice, independent practice activities, and time allotments for each procedure.)

Differentiation, Support Learning, & Adaptations

What modifications, accommodations, and adaptations will you make to meet the needs of your students?

Closure: Write out verbatim.

Self-Reflection: To be written once the lesson has been presented in your practicum.

Eastern Mennonite University Middle/Secondary Lesson Plan Rubric

	Exemplary 3	Competent 2	Does Not Meet Expectations 1	Score (Weight)
Introductory Information	Information of course, grade level, lesson/unit, SOLs, SPAs, materials, is thorough and accurate	Information of course, grade level, lesson/unit, SOL's, SPAs, materials, is complete and accurate	Information is missing, inaccurate or inappropriate	(__X 1 = __)
Instructional Objectives¹	Objectives are observable & measureable; ABCD format is thoroughly and accurately included in all objectives; aligned with SOLs and SPA standards	Objectives are observable & measureable; ABCD format is addressed in all objectives; linked to SOLs and SPA standards	Objectives are not observable & measureable; one or more components of the ABCD format is missing in one or more objective	(__X 2 = __)
Task Analysis	Thorough and accurate statement of Prerequisite, Essential, and Desired content knowledge	Complete and accurate statement of Prerequisite, Essential, and Desired content knowledge	Incomplete statement of Prerequisite, Essential, and Desired content knowledge or missing category	(__X 2 = __)
Assessment¹	Clearly linked to learning outcomes and monitored throughout the lesson (formal and informal)	Assessment linked to learning outcomes or monitored somewhat throughout the lesson	Assessment not linked to learning outcomes or monitored throughout the lesson	(__X 2 = __)
Anticipatory Set/Closure	Compelling introduction draws students into the lesson and closure focuses on student summary of learning; procedure is written out verbatim	Introduction draws students into the lesson; Closure focuses on student summary of learning; written out verbatim	Introduction or closure not included in lesson; not written out verbatim	(__X 1 = __)
*Instruction: Instructional Strategies/Independent Practice¹	Detailed and purposeful teacher notes, instructional strategies, guided practice, independent practice. Reflects best practice; organized, sequential, varied strategies, timing optimizes student learning; practice extends student learning	Includes: teacher notes, instructional strategies, guided practice, independent practice. Reflects best practice; organized, sequential, varied strategies, timing optimizes student learning.	Does not include or is missing some required components. Does not reflect best practice; lacks one or more components: organized, sequential, varied strategies, timing; jeopardizes student learning	(__X 4 = __)
*Instruction: Support Learning/Differentiation of Instruction¹	Extends and adjusts instruction appropriately for all students	Extends and adjusts instruction appropriately for most students	Instruction designed without consideration for individual student learning	(__X 2 = __)
*Instruction: Questions	Types/levels of questions identified; extend and promote, and extrapolate higher level thinking from students	Types/levels of questions identified; extend or promote some higher level thinking	Questions do not extend or promote higher level thinking; types/levels not identified	(__X 1 = __)
Total				**

*An interactive SmartBoard activity is required in one of these categories.

¹Criteria will be used for admission to student teaching decisions beginning July 2012.

Assignment is completed when a competent "2" rating is achieved in every category.

Tentative Class Schedule, Fall 2012

Assignments are to be read prior to class to facilitate discussion. In addition to these readings, you may have other assignments given to you some weeks for the following class. Typically, these will be to design/develop/present a mini-lesson on a particular topic. For your professional journal presentations, please attempt to read articles that relate to the topic of that class or the prior week's class.

Date	Topics	Readings
September 3	Introductions, orientation, expectations The Science Classroom	Palmer Intro
September 10	Teaching: An Art or a Science? VA SOLs and NSES - Professional Portfolio (c,h completed)	Teaching Secondary Sci, Ch.1,2 Palmer I
September 17	Teaching as Inquiry Student Motivation	Teaching Secondary Sci, Ch.3,4,7,8 Palmer II
September 24	Historical, Current Perspectives -Theorist Presentations	Teaching Secondary Sci, Ch.5,6 Palmer III
October 1	Developing Science Curriculum	Teaching Secondary Sci, Ch.10,11,12 Palmer IV
October 8	Planning for Effective Instruction Student Motivation	Teaching Secondary Sci, Ch.13,14,15 Palmer V
October 15	Assessing Student Learning	Teaching Secondary Sci, Ch.9 Palmer VI
October 22	No Class - Fall Break	
October 29	SmartBoard Lesson- Emily Fagan, Computer lab, EMU	
November 5	The Laboratory	Teaching Secondary Sci, Ch.16 Palmer VII
November 8-10	VAST, Williamsburg, VA	
November 12	Cooperative Learning, Differentiation Brain Based Research	Teaching Secondary Sci, Ch.17,19,20
November 19	Lesson plan presentation/videotaping	
November 26	Lesson plan presentation/videotaping	
December 3	Lesson plan presentation/videotaping	
December 10	Exam Activities Unit reflection	