

## Course Syllabus

**COURSE NUMBER: EDUC 3560.01 & 05 COURSE TITLE: Science Methods TERM:**

**Spring 2006 SITE: Long School St LOUIS**

**Room 21 INSTRUCTOR CONTACT INFORMATION:**

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**CREDIT HOURS: 3**

**1. Course Description: Science Methods prepares pre-service teachers by focusing on methods and techniques of good science instruction. Students will focus on designing and implementing instructional strategies that are congruent with state and national standards.**

**2. Learning Outcomes:**

Students will:

- ⊘ Define, identify and implement inquiry based learning strategies.
- ⊘ Use information technology strategies and essential questioning techniques.
- ⊘ Define Marzano's learning strategies and describe how each can be infused in good science instruction.
- ⊘ Write a unit plan following the Webster University format.
- ⊘ Write weekly reflections examining what was learned and discussing implementation.
- ⊘ Create and design a portfolio of science.
- ⊘ Recognize how to infuse science disciplines with each other.
- ⊘ Constructs a lab and demonstrates in class.
- ⊘ Utilize techniques infusing state and national standards.
- ⊘ Examine texts with a critical eye.
- ⊘ Assess one's own work with specific criteria.

SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4

Dispositions: 1.3, 1.4, 2.4, 3.4

National Science Standard: A, B, C, D, E

SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 4.1, 4.2, 4.3  
Dispositions: 1.3, 1.4, 2.4, 3.4  
National Science Standard: A, B, C, D, E

SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4  
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SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4  
Dispositions: 1.3, 1.4, 2.4, 3.4  
National Science Standard: A, B, C, D, E, F

SOE 3.1, 3.2  
Dispositions: 1.3, 1.4, 2.4, 3.4  
National Science Standard: C, D, E

SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4  
Dispositions: 1.3, 1.4,2,3, 2.4, 3.3, 3.4  
National Science Standard: A, B, C, D, E

SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4  
Dispositions: 1.3, 1.4, 2.4, 3.4  
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SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4  
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SOE 1,1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4  
Dispositions: 1.3, 1.4, 2.4, 3.4  
National Science Standard: C, D, E

SOE 3.1, 3.2  
Dispositions: 1.3, 1.4, 2.4, 3.4  
National Science Standard: A, D, E, F

*All objectives coincide with standards on the MO MAP placement*

) January 23, 2006 - class one

Introductions, Syllabus, NCLB, National Science Standards, Marzano,  
What is elementary science?

Assign: reflection number 1, off campus site visit

- ) January 30, 2006 - class two  
 Science Instruction - writing good questions  
 Assign: reflection number 2, lab due March 6, 2006
- ) February 6, 2006 -class three  
 Labs, 5 E's  
 Assign: reflection number 3, portfolio due March 27, 2006
- ) February 13, 2006 - class four  
 The Great Oreo Investigation  
 Assign: reflection number 4
- ) February 27, 2006 - class five  
 Doloris Pepple - Discrepant Events  
 Assign: reflection number 5
- ) March 6, 2006 - class six  
 Presentation of labs  
 Assign: reflection number 6

## **BREAK**

- ) March 20, 2006 - class seven  
 Big 6 and Essential Questioning  
 Assign: reflection number 7, Big 6 Presentation Due May 1, 2006  
 Assign: reflection number 1
- ) March 27, 2006 - class number eight  
 Meet off campus (Hessler's) to present PORTFOLIOS  
 Assign: reflection number 8
- ) April 3, 2006 - class number nine  
 Writing a Unit plan using the 5 E's and Webster's format  
 Assign: reflection number 9, work on Unit Plan that we started in class
- ) April 10, 2006 - class number ten  
 Completion of Unit and sharing, Work on Big 6  
 Assign: reflection number 10, Make-up class site visit due
- ) April 17, 2006 - class number eleven  
 Clair Gempp Davidson Nature Center - Ecology and Using the Outdoors as  
 Your Classroom  
 Assign: reflection number 11

- 1) April 24, 2006 - class number twelve
  - A Fledging Science Teacher - Now What Do I Do?
  - Big 6 check in
  - Assign: reflection number 12
- 1) May 1, 2006 - class number thirteen
  - Big 6 Presentation, discuss final
  - Final Reflection number 13
- 1) May 8, 2006 - Final

**Attendance in this course is mandatory. If a student is going to be absent, s/he must submit a note by e-mail before the beginning of class in which they are not going to miss. Any student that misses class for any reason will result in grade reduction. Family vacations or travel are not considered an excused absence. Attending or participating in sporting events, concerts, plays, or performances is also not an excused absence.**

**3. RESOURCES: no text**

**4. EVALUATION: (basis of evaluation with explanation regarding the nature of the assignment and the percentage of the grade assigned to each item below:**

Assessments 10 Links to Course Outcomes 10 Percentage of Grade 25 Off campus site visit 10 Alternatives to text 10 Unit PLANSOE requirement 10 Reflections 10 Self assessment 25 Portfolio Alternative to text, inquiry 15 Big 6 Alternative to text, inquiry 15 Lab Alternative to text, inquiry 15 Final Assessment 10

**6. GRADING SCALE: Student grades will be measure by self-assessment, specific scoring guides, and completion of assignments. Students are expected to strive for mastery and can request to re-do an assignment if it not completed meeting the standards of the SOE. Students who miss assignments or do not turn them in on the date assigned will be penalized. An incomplete for a class will only be an option incase of serious illness or agreed upon by the instructor prior the May 1, 2006.**

**Note: ALL PAPERS/PROJECTS MAY BE RETURNED VIA A SELF-ADDRESSED, STAMPED ENVELOPE. PAPERS ARE NOT AVAILABLE FOR PICK-UP IN THE SOE OFFICE.**

**5. ACADEMIC HONESTY POLICY:**

**Students at Webster University are expected to practice academic honesty.**

**Avoiding Plagiarism**

Plagiarism is intentionally claiming that another person's work is his/her own or implying that another person's work is his/her own (through inadequate or inaccurate citations of reference material.)

Students:

- Should not copy whole portions of text from another source as a major component of papers or projects.
- Should identify the title, author, page number/webpage address, and publication date of works when directly quoting small portions of texts, articles, interviews, or websites.

- Should appropriately identify the source of information when paraphrasing (restating) ideas from texts, interviews, articles, or websites.
- Should follow the guidelines of the American Psychological Association Style Guide when referencing all research sources.

Consequences of Academic Dishonesty:

The consequences of academic dishonesty is failure of course.

For further information about the consequences of academic dishonesty please consult the Webster University Student Handbook.

6. ACCESSIBILITY/ACCOMODATIONS POLICY:

If you have a disability that may have some impact on your work in this class and for which you may require accommodations contact the Director of the Academic Resource Center, Dr. Pat McLeese, at (314) 968-7495.

**WEBSTER UNIVERSITY  
SCHOOL OF EDUCATION**

**Vision:** “. . . We all must work to make this world worthy of its children.” (Casals, 1970)

**Mission:** The School of Education at Webster University provides its students with the knowledge, experiences, and practical tools that help them guide both themselves and others toward lifelong learning. The School of Education is a community of educator-scholars who apply critical reflections and creative energies to enhance learning in schools and other educational settings. The faculty strives to support this community by modeling effective teaching practices based on sound theory and research. Personalized approaches create a challenging, yet supportive environment that permits the risk-taking necessary for learning and growth. The School of Education encourages its faculty and students to work actively toward this end, keeping in mind that action must be rooted in visionary, yet realistic, thinking. This thought and action process underscores the development of an inner-directed self-understanding, an outer-directed global perspective, and an appreciation of human diversity that arises from both.

**Theme:** Developing a world of learners through knowledge, leadership, and life-long learning.

The universal mandala (a circle with intersecting vertical and horizontal lines) graphically represents the conceptual framework of the School of Education. The outer circle provides the framework for a "world of learners" in cultural settings. The two axes represent the theme components of knowledge, leadership, and life-long learning. These lines are broken to emphasize the fluid relationship of the goals and integrated concepts. Each quadrant represents one of the school's four goals for its candidates: to develop knowledgeable learners, informed instructors, reflective collaborators, and responsive educators.

## **Goals**

1. Education candidates will demonstrate knowledge of the subject matter, knowledge of the learner, and knowledge of pedagogy based on inquiry and scholarship.

### The knowledgeable learner:

- 1.1 knows content that supports conceptual understanding;
- 1.2 applies tools of inquiry to construct meaningful learning experiences;
- 1.3 identifies developmental factors in student learning; and
- 1.4 understands theoretical principles of effective instruction to plan learning experiences.

2. Education candidates will incorporate multiple assessment and instructional strategies to support effective educational practices based on research and theory.

### The informed instructor:

- 2.1 designs curriculum based on students' prior knowledge, learning styles, strengths, and needs;
- 2.2 understands and uses a range of instructional strategies;
- 2.3 uses a variety of communication modes, media, and technology to support student learning; and
- 2.4 employs a variety of formal and informal assessments to monitor learning and modify instruction.

3. Education candidates will reflect on the roles educators take as leaders of change through collaboration with colleagues, students, and families in schools and communities.

### The reflective collaborator:

- 3.1 values and integrates reflection to grow as a professional;
- 3.2 promotes communication and collaboration with colleagues, families, and community leaders;
- 3.3 seeks relationships with families and students to support student learning; and
- 3.4 initiates change that benefits students and their families.

4. Education candidates will demonstrate respect for diversity through responsive teaching and learning that values individual differences.

### The responsive educator:

- 4.1 understands and responds appropriately to issues of diversity
- 4.2 acknowledges social and cultural contexts to create effective teaching and learning environments;
- 4.3 adapts instruction to the learner's knowledge, ability, and background experience; and
- 4.4 identifies resources for specialized services when needed.

## **Dispositions:**

NCATE defines dispositions as “the values, commitments and professional ethics that influence behaviors toward students, families, colleagues, and communities and affect student learning, motivation, and development as well as the educator’s own professional growth. “ (Professional Standards, p. 53) There is significant value in focusing attention on qualities that make an effective teacher.

1. Understands and Respects Self
  - 1.1 Understands and respects that s (he) may be different from others
  - 1.2 Embraces an openness to change (adaptability, flexibility)
  - 1.3 Exhibits curiosity
  - 1.4 Engages in reflection
  
2. Understands and Respects Others
  - 2.1 Understands, respects, and responds appropriately to diversity in a variety of settings
  - 2.2 Exhibits empathy
  - 2.3 Commits to fairness and honesty
  - 2.4 Listens respectfully to other points of view
  
3. Understands and Respects Professional Communities
  - 3.1 Commits to professional behavior in university and school cultures
  - 3.2 Practices informed decision-making in university and school cultures
  - 3.3 Communicates and collaborates in university and school cultures
  - 3.4 Accepts academic rigor (willingness to work/ high expectations)
  - 3.5 Affects change with courage and confidence

(Attach Specialty Program Area Professional Standards, MoSTEP General Standards, and MoSTEP Subject specific competencies if desired).