

## Course Syllabus

**COURSE NUMBER: SCIC 5000.01 COURSE TITLE: Introduction to Science TERM: S  
2005 SITE: St. Louis INSTRUCTOR CONTACT INFORMATION:  
William McConnell CREDIT HOURS: 3**

**Course Description: The concept of energy and the use of this concept form the base of the laboratory oriented course. The use of some phenomena that changes with the sense of hot and cold will be used to build a measuring device. Students will explore the mixing of hot and water and construct a way to predict the final temperature. This prediction system will be expanded to include other liquids and solids. From this data a model of energy conservation will be constructed and applied to a broader range of phenomena. The activities and class will serve as models of the science process and science teaching.**

### 1. Learning Outcomes:

Course Outcomes Program Goals SOE Goals, SOE Dispositions, and MoSTEP/Prof Standards  
Development of measuring instruments 1,2 SOE 1.1  
MoSTEP 1.2.1.1-1,1.2.1.1-4 Use of instruments to predict systems behavior 1 SOE 1.1  
MoSTEP 1.2.1.1.1-1,1.2.1.1.1-4 Development of theory of heat 1,2 SOE 1.1  
MoSTEP 1.2.1.1.1-1 Using theories to predict in new situations 1,3 SOE 1.1  
MoSTEP 1.2.1.1.1-1,1.2.1.1.1-5,1.2.1.1.3-3, 1.2.1.2-7 Development of lesson plans to implement course content that fit in their curriculum 4 SOE 1.1, 2.1,2.2,2.3,2.3  
MoSTEP 1.1

### Class Schedule

1. Developing instruments that respond to temperature or pressure.  
Assign: measuring temperatures around home, readings on the historical development of
2. Using Instruments to develop systems for predicting temperatures.  
Assign: practice sheets on predictions and readings on temperature scale development.
3. Prediction of temperatures in new situations using the systems previously developed.  
Assign. Practice sheets
4. Developing a theory of heat.  
Assign. Readings on the historical development of the concept of heat.
5. Testing theory with different liquids and altering theory. (specific heat)  
Assign. Practice sheets.
6. Applying theory to solids and altering the theory. (phase changes)  
Assign. Practice sheets
7. Gravitational Potential Energy and Kinetic Energy.  
Assign. Readings on energy
8. Mid term
9. Conservation of energy. ( heat and gravitational)  
Assign: Develop lesson plan for a lesson at your grade level on some topic we have discussed materials to present a lesson to this class.
10. Demonstrations that raise questions and/or discrepant events.  
Assign: Bring in any demonstrations that you use that fit in this category and if you don't have some source, including internet, and find one to try and bring to class.

11. Energy use and your home.  
Assign: Gather information about energy use in your home.
12. Energy use and your school  
Assign. Gather information about energy use in your school.
13. Energy use and exponential growth.  
Assign: Select some of the data presented and graph using rectangular paper and semi log
14. Exponential growth in other areas of human endeavors
15. Presentation of lessons.
16. Final Exam and finishing of lesson presentations.

## 2. RESOURCES:

Required Text(s): Selected readings

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

**Home work evaluated in discussion with student.**

**Lesson plans evaluated by instructor and other students.**

**Exams graded by instructor.**

**Assessments** Links to Course Outcomes Percentage of Grade Homework 1.2.3.420  
Plans 530 Exams 1,2,3,4506. **GRADING SCALE:**

<b>90 – 100</b>	<b>A</b>
<b>80 - 89</b>	<b>B</b>
<b>70 – 79</b>	<b>C</b>
<b>65 – 69</b>	<b>D</b>
<b>&lt;64</b>	<b>F</b>

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

## 4. 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 an

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:

(Instructor may list specific consequences here)

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

## 5. ACCESSIBILITY/ACCOMODATIONS POLICY:

If you have a disability that may have some impact on your work in this class and for may require accommodations contact the Director of the Academic Resource Center, 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 know 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 reflection 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 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 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 "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 goals and integrated concepts. Each quadrant represents one of the school's four goals candidates: to develop knowledgeable learners, informed instructors, reflective collaborators, 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 MoS Subject specific competencies if desired).