WAYNE STATE UNIVERSITY
COLLEGE OF EDUCATION

DIVISION: Teacher Education
PROGRAM: Science Education

COURSE #: SCE 5020-004

COURSE TITLE: Physical Science for Elementary and Middle School Educators

COURSE CREDIT: 3 Credit Hours

COURSE SEC: 20163

TERM/YEAR: Winter 2014

LOCATION: College of Education Room 255

DAY: Saturday 9:35a-12:20 pm

INSTRUCTOR: Mrs. Miller-Zelinko

OFFICE ADDRESS College of Education Detroit, MI 48202

HOURS: Call after 9 pm

PHONE: Home: 248-969-7718

EMAIL: ak5057@wayne.edu
COURSE DESCRIPTION

This course covers significant Physical Science principles, generalizations, and understandings in relation to their use with children in elementary and middle school. Appropriate learning activities, experiments, field trips, text, reference materials, technological applications, and evaluations will be a part of this course.

STUDENT OUTCOMES

1) Use inquiry to learn Physical Science concepts and explain their application in the real world.
2) Become familiar with basic concepts and principles of Physical Science and determine their appropriateness for elementary and middle school students.
3) Design and carry out investigations using appropriate methodology and technology, and apply mathematics in the collection, analysis, and interpretation of data.
4) Use appropriate technology to communicate results and make claims and judgments based on evidence.
5) Locate appropriate resources (books, journals, Internet) that may be used to learn about and design instruction related to Physical Science concepts.
6) Use newly learned knowledge to reconstruct previously learned knowledge in Physical Science.
7) Use appropriate lab safety practices when engaged in classroom activities.
8) Become familiar with the National Science Education Standards and Michigan State Science Content Expectations and apply them when preparing instructional activities for elementary and middle school students.
9) Develop a positive and enthusiastic attitude for teaching Physical science.

REQUIRED TEXTS:

3) Michigan Department of Education. (2007). Science grade level content expectations. Lansing, MI: Author. Available at: 
COURSE ASSIGNMENTS: TOTAL: 400 POINTS

1) Assignments will be given in class and can be found on Blackboard. There will be weekly homework assignments, projects and field trips.

2) All assignments will have total points and a date due.

3) Late assignments will decrease in point value by 50% of the allocated points for a 1 week lateness. After this, NO assignments will be accepted unless permission by the instructor. If you are absent, please look on Blackboard or call a class member to get homework. You can always call me during office hours.

4) No quizzes will be made up if there is an absence.

5) To meet professional quality and presentation standards required of practicing teachers, assignments will be graded on clarity of ideas, grammar, spelling, and adequate word choice.

6) Assignments must be typed and double spaced, unless the instructor has designated otherwise.

7) Call the instructor for any clarification or help with the assignment.

8) Record and keep track of your grade and absences.

CLASS PARTICIPATION TOTAL: 15 classes=75 pts 1-3=Participation 1=exit 1=Homework

This class encompasses the learning of scientific content by experimentation, writings, activities, lectures and group discussions. Your attendance and participation is an integral component for being successful in this course.

Each student is expected to prepare for and take an active part in class. This involves completing assigned readings and assignments at home. Homework done during class time will not be graded.

Attendance is also integral to being successful. Walking in late, or leaving early will influence your learning and your points. Absences from class cannot be made up for points. You are expected to be responsible in picking up all handouts. More than two absences will affect your final grade. Points will be subtracted for each day absent. Th
SCIENTIFIC METHOD RESEARCH PROJECT and STORYLINE PRESENTATION TOTAL :100

First:

The student will research, design, and set up an experiment at home. This will be on a specific topic in Physical science. There will be a sign up sheet. The experiment will come from AIMS, FOSS, or approved sources by the teacher. You may not invent your own. The topic will be congruent with the Michigan Curriculum Frameworks.

Using the scientific method, a detailed problem will be stated. A hypothesis, observations, and conclusion will be conducted.

Secondly:

The student will prepare a detailed report describing every aspect that was researched. Refer to Blackboard. 50 points

Finally:

The student will present their project using STORYLINE method. Each student will have a written report for the class. 50 points

#3 E-TRIP REAL WORLD CONNECTIONS

This field trip is comprised of using technology to investigate Physical science concepts in real world places. The student will choose to travel via the internet to a destination. There, they will experience physical science concepts and answer real world questions. For example: travelling to Cape Kennedy, Florida......the student would witness a space shuttle launch and experience Newton’ Laws of motion, gravity, and technology of space. Real world questions will be targeted and specific benchmarks within the GLCE’S will be developed. Students follow directions on Blackboard. TOTAL POINTS: 20
#4 QUIZZES and TESTS
Two quizzes will be given based off of homework assignments and classwork. Final exam is required.
TOTAL POINTS: 120 POINTS  Exam: 100 Pts  Quizzes: 10 pts

#5 CHOICE ASSIGNMENTS
Choose one of the assignments below to complete 20 pts.

POP UP BOOK: Take your physical science topic and write your own five page nonfiction book for children. This book will encompass content and process skills. Follow the rubric on Blackboard.

DIGITAL CAMERA SCIENCE MEMORY GAME: Students will take a set of twenty CAUSE AND EFFECT pictures.(Totaling forty pictures) of Physical Science concepts. They must get pictures from real life, not a book or internet. Creating a memory game for children, follow the rubrics on Backboard.

#6 BINDER: Students will collate a Science binder of their weekly work, including vocabulary words, experiments, demos, lecture notes, and GLCE activities into a well organized binder. Follow rubrics on Blackboard. 5 pts

BACKPACK  75 Points

On the last school day students will bring in a backpack to put their projects in. The instructor will give a rubrics of how to pack this. Students can use this in their future classroom.
ADDITIONAL REFERENCES


AIMS, *Chemistry Matters*, AIMS Education Foundation.


FOSS, *Balance and Motion*, Delta Education.


PLAGIARISM
Plagiarism includes copying material (any more than five consecutive words) from outside texts or presenting information as if it were your own by not crediting authors through citations. It can be deliberate or unintended. If you’re in doubt about the use of a source, cite it. Students caught plagiarizing information from other sources will receive a failing grade in the course. University policy states that students can be subject to multiple sanctions from reprimand to expulsion, a consequence of academic dishonesty. To ensure this policy, all outside references must be submitted with assignments.

RELIGIOUS OBSERVANCE
Because of the extraordinary variety of religious affiliations represented in the University student body and staff, Wayne State University calendar makes no provisions for religious holidays. It is University policy, however, to respect the faith and religious obligations of the individual. Students who find that their classes or examinations involve conflicts with their religious observances are expected to notify their instructors well in advance so that alternative arrangements may be worked out.
CLASS POLICIES

1) Class communication will utilize WSU’S student user ID. Unless you use your user ID as your email, you will miss any communication to you. You may connect your WSU email to another email address by going to http://webmail.wayne.edu, click on “Options” and then on “Forwarding.” Enter the email address that you want your WSU email to be forwarded to and click on “Start.”

2) All course materials (syllabus, assignment guidelines, and grading rubrics) will be available in the course Blackboard site at http://blackboard.wayne.edu. It is the student’s responsibility to learn how to use email and Blackboard. Assistance is available in the Computer lab located in Room 114 of the Education building.

3) Class attendance and timely arrival to class is expected and required. When circumstances do occur, students must communicate with the professor in advance of any anticipated absence or late arrival to class. Consistent late arrivals/departures and absences will negatively impact the student’s final grade in the PARTICIPATION CATEGORY. Arriving late or leaving early will influence whether you receive your points. ABSENCES: Pick up your work when you return and turn it in following week. If an assignment is on the calendar then you must turn it in on that day, or make arrangements with teacher.

4) The door will be locked for safety at 9:45 am. If you arrive late, you will need to wait until the door opens again at 9:55 am. This will be the only time it opens, unless you have communicated in an emergency. DO NOT sign in until we have a break and take your papers then. Sit at the nearest tables. Please do not walk in front of me or interrupt by talking to others if the class has started.

5) Cell phones need to be on MUTE/Vibrate for security purposes and need to be put away. No texting during class time. If you need to use your phone take it outside.

6) Laptops, IPADS, may be used in class to take notes.

7) Security is utmost important. Please look over the tutorial on Protection. This will be listed on Blackboard. Put WSU Police number on your cell phone.

8) Please contact your professor during office hours. Email or phone is appropriate. If you have an issue with grades or assignments please see me after the class and not during.
9) Children K-12 may come on Storyline days and participate in the class. No babies/tots.

ATTENTION STUDENT DISABILITIES
If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services office is located at 1600 David Adamany. Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be happy to meet with you privately during office hours to discuss your special needs. Student Disability Services’ mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.
Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible. http://studentdisability.wayne.edu/

GRADING
The college of Education faculty members strive to implement assessment measures that reflect a variety of strategies in order to evaluate a student’s performance in a course.

Undergraduates/Post Degree Students:
C grades= Satisfactory work that satisfies all course requirements
B grades= Very good work
A grades= Outstanding performance

Graduate students:
B  grades= Satisfactory
B+ grades= Very good work
A  grades= Outstanding performance

There is a distribution of grades from A-F within the College of Education and that plusses and minuses are recorded and distinguish distinct grade point averages.

WITHDRAWAL POLICY
Students who withdraw from a course after the end of the 4th week of class will receive a grade of WP, WF or WN.
WP: awarded if the student is passing the course (based on work due to date) at the time
WF: awarded if the student is failing the course (based on work due to date) at the time
WN: awarded if no materials have been submitted, and so there is no basis for a grade

Students must submit their withdrawal request on-line through Pipeline. The faculty member must approve the withdrawal request before it becomes final, and the students should continue to attend class until they receive notification via email that the withdrawal has been approved. Withdrawals can be requested at any point from the fifth week of class through the study day.

**GRADING SYSTEM UNDERGRADUATE**
The accumulated points from each of these requirements will be totaled. Grades will be assigned as follows:

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<tr>
<th>Points Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>400-350</td>
<td>A</td>
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<tr>
<td>349-330</td>
<td>A-</td>
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<td>179-160</td>
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<tr>
<td>159-140</td>
<td>F</td>
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## Calendar

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<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1/11/2014</td>
<td>Intro/Welcome&lt;br&gt;Orientation&lt;br&gt;Syllabus&lt;br&gt;What is Physical Science&lt;br&gt;Process Skills</td>
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<td>1/18/2014</td>
<td>Scientific Method&lt;br&gt;Safety&lt;br&gt;Tools/Measurement&lt;br&gt;Quiz#1&lt;br&gt;Sign Up Research Project</td>
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<td>1/25/2014</td>
<td>Go over presentation design&lt;br&gt;Matter&lt;br&gt;Properties&lt;br&gt;Phases/State of Matter&lt;br&gt;Chemical/Physical Changes</td>
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<tr>
<td>2/1/2014</td>
<td>Atoms Model</td>
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<tr>
<td>Date</td>
<td>Topic</td>
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<tr>
<td>2/8/2014</td>
<td>Compounds</td>
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<tr>
<td>2/8/2014</td>
<td>Mixtures/Solutions</td>
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<tr>
<td>2/15/2014</td>
<td>Forces and Motion</td>
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<td>2/22/2014</td>
<td>NO CLASS Arts and Scraps Field Trip</td>
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<tr>
<td>3/1/2014</td>
<td>Arts and Scraps Due</td>
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Forces and Motion Continued

3/8/2014

Storyline #1 Sound
Storyline #2 Light

3/15/2014

NO CLASS SPRING BREAK

3/22/14

Storyline #3 Simple Machines
Storyline #4 Heat/Cold/Energy
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<tbody>
<tr>
<td>3/29/2014</td>
<td>Storyline #5 Electricity</td>
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<td></td>
<td>Storyline #6 Magnetism</td>
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<td>Storyline #7 Forces and Motion</td>
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<td>4/19/2014</td>
<td>CHOICES DUE/BACKPACK</td>
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<td></td>
<td>FINAL EXAM</td>
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<td>Binder DUE</td>
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