

Course Approval Document
Southeast Missouri State University

Department: College of Education, Elementary, Early, and Special Education,

Course No. EL 360

Title of the Course: Integrated Math, Science, Social Sciences and Health Instruction

Date: College Council Approval Jan. 20, 2015

Please check: X **New**

- I. Catalog Description: (3 credit hours): This course covers elementary mathematics, science, health, and social studies instructional methods. Some concepts will be integrated.
- II. Pre-Requisite: Content courses in math, science, health and social studies, EL34, EL315, EL316, admission to Teacher Education.
Co-Requisite: EL350, EL355.
- III. Purposes or Objectives of the Course:

The teacher candidates will:

1. use the curriculum standards and concepts of the disciplines for teaching students across the 1-6 grades.
2. create meaningful learning experiences that develop students' competence in subject matter skills for various developmental levels.
3. design and implement age appropriate inquiry lessons to teach concepts of physical, life, and earth/ space sciences to build student understanding for personal and social applications, and to convey the nature of science.
4. use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. In doing so they consistently engage problem solving, reasoning and proof, communication, connections, and representation.
5. use the major concepts, procedures, and reasoning processes of mathematics to foster student understanding and use of patterns, quantities, and spatial relationships.
6. use the connections among concepts, procedures, and applications from the subject matter to motivate elementary students and build their understanding.
7. use the major concepts and modes of inquiry from the social studies—the integrated study of history, geography, the social sciences, and other related areas—to promote elementary students' abilities to make informed decisions as citizens of a culturally diverse democratic society and interdependent world.

8. use the major concepts in the subject matter of health education to create opportunities for student development and practice of skills that contribute to good health.
9. plan and implement instruction based on their knowledge of human and environmental health concepts and related issues.
10. create instructional opportunities that are adapted to diverse students. (Diverse populations include, but are not restricted to, cultural, ethnic, socioeconomic, gender, and special needs differences.)
11. use formal and informal assessment strategies in their instructional plans.
12. know and apply various technological tools to enhance 1-6 students' learning.
13. create an instructional plan that integrates more than one content area.

IV. Student Learning Outcomes

1. Create meaningful learning experiences that develop students' competence and skills in math, science, health, and social studies for various developmental levels in order to encourage elementary students to apply their knowledge, skills, tools, and ideas to real world issues.(A section in the lesson plan rubric)
2. Create instructional plans based on their content knowledge of math, science, health and social studies by using a variety of instructional and assessment strategies. (Lesson plan grades)
3. Create an instructional plan that integrates more than one content area (integrated lesson plan grades)

V. Optional departmental/college requirements:

Alignment of the Objectives with State and SPA Standards

Course Objectives	MoSPE Quality Indicators	ACEI Standards
Use the curriculum standards and concepts of the disciplines for teaching students across the 1-6 grades.	1.2, 1.4, 2.2. 3.1	1, 3.1,
Create meaningful learning experiences that develop students' competence in subject matter skills for various developmental levels.	2.1, 2.3, 2.4, 2.5	1, 3.3
Design and implement age appropriate inquiry lessons to teach concepts of physical, life, and earth/ space sciences to build student understanding for personal and social applications, and to convey the nature of science.	1.1, 1.2, 1.3. 2.1, 4.1, 4.3	1, 2.2, 3.3
Use the major concepts and procedures that define number and operations, algebra,	1.1, 1.2, 3.1, 4.1,	2.3, 3.3, 3.5

geometry, measurement, and data analysis and probability. In doing so they consistently engage problem solving, reasoning and proof, communication, connections, and representation.	4.3	
Use the major concepts, procedures, and reasoning processes of mathematics to foster student understanding and use of patterns, quantities, and spatial relationships.	1.1, 1.3, 2.1	2.3
Use the connections among concepts, procedures, and applications from the subject matter to motivate elementary students and build their understanding.	1.2, 1.4, 2.1, 4.1, 4.3	2.3, 3.1, 3.3, 3.4
Use the major concepts and modes of inquiry from the social studies—the integrated study of history, geography, the social sciences, and other related areas—to promote elementary students’ abilities to make informed decisions as citizens of a culturally diverse democratic society and interdependent world.	1.1, 1.3, 1.4, 2.6, 4.3,	1, 2.4, 3.1, 3.3, 3.4, 3.5
Use the major concepts in the subject matter of health education to create opportunities for student development and practice of skills that contribute to good health.	1.1, 1.4, 4.1, 4.3	1, 2.6, 3.1, 3.3, 3.4
Plan and implement instruction based on their knowledge of human and environmental health concepts and related issues.	1.1, 1.3, 2.1, 2.6, 3.1	1, 2.6, 3.1, 3.3, 3.4
Create instructional opportunities that are adapted to diverse students. (Diverse populations include, but are not restricted to, cultural, ethnic, socioeconomic, gender, and special needs differences.)	2.1, 2.3, 2.4, 2.5, 2.6, 3.3, 5.1, 5.3 6.2	3.2
Use formal and informal assessment strategies in their instructional plans.	7.1, 7.2 7.4	4
Know and apply various technological tools to enhance 1-6 students’ learning.	6.4, 4.2	3.5
Create an instructional plan that integrates more than one content area	1.4	1, 3.1

VI. Course Content or Outline (indicate number of class hours per unit or section)

Main Topics	# of Hours
1. Standards both national and state	5
2. Instructional Strategies and Technologies	20
3. Assessment	5
4. Integration	8
5. Lesson Planning and Implementation	7
Total	45 hours

COURSE SYLLABUS
Southeast Missouri State University

Department: Elementary, Early, and Special Education

Course No: EL360
Title of Course: Integrated Math, Science, Social Sciences and Health Instruction
(3)
Date: College Council Approval Jan. 20, 2015
Please check: New
Semester: Fall 2015
Class Meeting time and location:
Instructor name:
Contact Information:
Office Hours:

- I Catalog Description and Credit Hours of Course: This course covers elementary mathematics, science, health, and social studies instructional methods. Some concepts will be integrated. (3)
- II Prerequisite(s): Content courses in math, science, health and social studies, EL315, EL316, admission to Teacher Education.
Co-Requisite(s): EL350, EL355.
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5. use the major concepts, procedures, and reasoning processes of mathematics to foster student understanding and use of patterns, quantities, and spatial relationships.
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IV. Course Expectations

Students will be expected to fulfill the following course requirements:

1. Attend the class regularly and come to class on time.
2. Participate in class discussions and activities both individually and in groups.
3. Complete assigned readings and projects.
4. Develop and teach assigned lessons either to peers or to elementary students using various instructional and assessment strategies.
5. Use technology in their lessons.

V. Course Topics

(Note: Some of the topics will be integrated during instruction)

Weeks	Topic	MoSPE	ACEI	Hours	Assessment
1	Math Standards, Assessment	2.2, 3.1, 7.1, 7.2	2.3	2	Standard assignment, Lesson plan
2	Number Operations: Fraction, decimal, percent	1, 3	2.3	3	Math lessons, class presentations
3	Algebra, Geometry	1.1, 1.3, 3.1, 3.3	2.3	2	Math lessons, class presentations
4	Data and probability,	1.1, 1.3	2.3	2	Math lessons, class presentations
5	Real life connections, problem solving, and communication in math.	4.1, 4.3, 6.1	2.3	2	Math lessons, class presentations
5	History of math, technology,	1.2, 2.4, 3.3, 6.4	2.3	2	Math lessons, class

	differentiation				presentations, class assignments
6-7	Integration among various content areas	1.4, 3.1, 4.2	2.2, 2.3, 2.4, 2.6	3	Class presentations, lesson plans.
8	Science and Health Standards and assessment	2.2, 3.1, 7.1	2.2	2	Standard assignment, Lesson plan
9	Nature of science, various disciplines of science	1.3, 1.4, 4.1, 4.3	2.2	3	Class assignments, lesson plans
10	Inquiry science, differentiated inquiry teaching.	1.3, 2.4, 3.2, 4.1, 4.3	2.2	2	Class presentations, lesson plans
11	Science and human life, interrelationships among living and non-living things. Human impact on environment.	1.3, 1.4, 4.1	2.2, 2.6	4	Lesson plans
12	Human systems, nutrition, various issues such as physical, drug, and environmental issues	1.1, 1.2, 4.1	2.2, 2.6	4	Class presentations, activities, and lesson plans
13	Social Studies standards and assessment.	2.2, 3.1, 7.1	2.4	3	Standard assignment, lesson plans.
14-15	Integrated study of SS disciplines such as history and geography, economics, civics	1.2, 1.4	2.4	6	Lesson plans, class presentations,
16	Social studies and social, cultural, and global issues; science, technology and society.	1.1, 1.3, 1.4, 4.1	2.2, 2.4, 2.6	3	Class presentations, opinion paper, class presentations.

VI. Student Learning Outcomes (SLOs)

Student Learning Outcomes

1. Create meaningful learning experiences that develop students' competence and skills in math, science, health, and social studies for various developmental levels in order to encourage elementary students to apply their knowledge, skills, tools, and ideas to real world issues. (A section in the lesson plan rubric)

2. Create instructional plans based on their content knowledge of math, science, health and social studies by using a variety of instructional and assessment strategies. (Lesson plan grades)
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VII. Textbook(s) and/or Other Required Materials or Equipment:

No textbook for this class. Other reading material will be provided.

VIII. Basis for Student Evaluation:

Assignment	Percentage	Due Date
Lesson Plans		
Assignments		
Participation		
Lesson Implementation		

Note: The weight of the evaluation criteria may vary according to each instructor and will be communicated at the beginning of the course.

IX. Grading Scale

100-90%=	A
89-80% =	B
79-70% =	C
69% and below=	F

X. Course Policies

Attendance

The official University attendance policy, located at <http://www.semo.edu/bulletin/pdf/2008Bulletin.pdf>, p. 17:

Students are expected to attend all classes and to complete all assignments for courses in which they are enrolled. An absence does not relieve the student of the responsibility to complete all assignments. If an absence is associated with a university-sanctioned activity, the instructor will provide an opportunity for assignment make-up. However, it is the instructor's decision to provide, or not to provide, make-up work related to absences for any other reason.

A student not present for class during the entire initial week of a scheduled course may be removed from the course roster unless the student notifies the instructor by the end of the first week of an intention to attend the class. Questions regarding the removal process should be directed to the Registrar.

Attendance is required at all class meetings of developmental courses. (See Developmental Courses.)

Academic Honesty

The official University academic honesty policy, located at <http://www.semo.edu/bulletin/pdf/2008Bulletin.pdf>, pp. 18-21:

Academic honesty is one of the most important qualities influencing the character and vitality of an educational institution. Academic misconduct or dishonesty is inconsistent with membership in an academic community and cannot be accepted. Violations of academic honesty represent a serious breach of discipline and may be considered grounds for disciplinary action, including dismissal from the University. Academic dishonesty is defined to include those acts which would deceive, cheat, or defraud so as to promote or enhance one's scholastic record. Knowingly or actively assisting any person in the commission of an above-mentioned act is also academic dishonesty. Students are responsible for upholding the principles of academic honesty in accordance with the "University Statement of Student Rights" found in the STUDENT HANDBOOK. The University requires that all assignments submitted to faculty members by students be the work of the individual student submitting the work. An exception would be group projects assigned by the instructor. In this situation, the work must be that of the group. Academic dishonesty includes:

Plagiarism: In speaking or writing, plagiarism is the act of passing someone else's work off as one's own. In addition, plagiarism is defined as using the essential style and manner of expression of a source as if it were one's own. If there is any doubt, the student should consult his/her instructor or any manual of term paper or report writing. Violations of academic honesty include:

1. Presenting the exact words of a source without quotation marks;
2. Using another student's computer source code or algorithm or copying a laboratory report; or
3. Presenting information, judgments, ideas, or facts summarized from a source without giving credit.

Cheating: Cheating includes using or relying on the work of someone else in an inappropriate manner.

It includes, but is not limited to, those activities where a student:

1. Obtains or attempts to obtain unauthorized knowledge of an examination's contents prior to the time of that examination.
2. Copies another student's work or intentionally allows others to copy assignments, examinations, source codes or designs;
3. Works in a group when she/he has been told to work individually;
4. Uses unauthorized reference material during an examination; or
5. Have someone else take an examination or takes the examination for another

Civility

The Southeast Missouri State University Office of Student Conduct website, located at <http://www6.semo.edu/stuconduct/>, includes a "Faculty Resource Guide" that directs

readers to a Common Sense and Civility in the Classroom document. Suggested language from that document includes the following:

Every student at Southeast is obligated at all times to assume responsibility for his/her actions, to respect constituted authority, to be truthful, and to respect the rights of others, as to respect private and public property. In their academic activities, students are expected to maintain high standards of honesty and integrity and abide by the University's Policy on Academic Honesty. Alleged violations of the Code of Student Conduct are adjudicated in accordance with the established procedures of the judicial system.

Disabilities

The Office of Learning Assistance Programs and Disability Support Services, located at <http://www6.semo.edu/lapdss/>, provides specific information about how to address disabilities brought to the attention of the instructor. The LAP/DSS office suggests that faculty include the following statement in their syllabi:

Southeast Missouri State University and Disability Support Services remain committed to making every reasonable educational accommodation for students with disabilities. Many services and accommodations which aid a student's educational experience are available for students with various types of disabilities. It is the student's responsibility to contact Disability Support Services to become registered as a student with a disability in order to have accommodations implemented. Accommodations are implemented on a case by case basis. For more information visit the following site: www.semo.edu/lapdss or contact Disability Support Services at 573-651-2273

Technology

You are allowed and encouraged to use technology in the class and for assignments, exams, and participation. All the work should be submitted typed.

Follow the rules regarding the use of cell phones, portable technology, and recording devices. Cell phone and other portable devices will be used in some class activities; however, activities such as texting should not be done in class.

Writing Effectively

A common objective across the curriculum is the students' ability to write effectively. You should use the Center for Writing Excellence for this purpose. A link to the Center is located at <http://ustudies.semo.edu/writing>.

A direct link to the Center for Writing Excellence's Online Writing Lab (OWL), located at: <http://ustudies.semo.edu/writing/owl.asp>.

Solution to Problems

Questions, comments or requests regarding this course or program should be taken to your instructor. Unanswered questions or unresolved issues involving this class may be taken to Dr. Julie Ray, chair of the department.

XI. Potential Readings and Resources (More will be added to this list!)

Association for Childhood Education International (2007). *Standards: ACEI-NCATE/CAEP*. Retrieved on November 20, 2014 from:

<http://www.acei.org/images/stories/documents/ACEIElementaryStandardsSupportingExplanation.5.07.pdf>

National Association for Sport and Physical Education. (2001) NASPE standards. Retrieved November 20, 2014 from <http://www.shapeamerica.org/standards/health/index.cfm>

Aronin, S., & Israel, M. (Eds.). (2013). Adapting Mathematics Core Curricula to Meet the Needs of Students With Disabilities [Special issue]. *TEACHING Exceptional Children, 45*(4).

Aronin, S., & Israel, M. (Eds.). (2013). Celebrating the Reality of Inclusive STEM Education: Co-Teaching in Science and Mathematics [Special issue]. *TEACHING Exceptional Children, 45*(4).

Aronin, S., & Israel, M. (Eds.). (2013). Promoting Inclusive Practices in Inquiry-Based Science Classrooms [Special issue]. *TEACHING Exceptional Children, 45*(4).

Aronin, S., & Israel, M. (Eds.). (2013). Understanding STEM Education and Supporting Students Through Universal Design for Learning [Special issue]. *TEACHING Exceptional Children, 45*(4).

Doabler, C., Cary, M., Jungjohann, K., Clarke, B., Fien, H., Baker, S., & Chard, D. (2012). Enhancing Core Mathematics Instruction for Students at Risk for Mathematics Disabilities. *TEACHING Exceptional Children, 44*(1), 48-57.

Dunn, A., & Perez, L. (2012). Universal Design for Learning (UDL) in Action: The Smart Inclusion Toolkit. *TEACHING Exceptional Children, 45*(2), 41.

Flannagan, J. S., & Spaulding, L. S. (2012). DIS₂ECT: A Framework for Effective Inclusive Science Instruction. *TEACHING Exceptional Children, 44*(6), 6-14.

Hitchcock, C., & Rao, K. (2013). Power-Assisted Writing for Science: Developing Expository Writing in a Multimedia Environment. *TEACHING Exceptional Children, 46*(1), 25.

Hunt, J., & Little, M. (2014). Intensifying Interventions for Students by Identifying and Remediating Conceptual Understandings in Mathematics. *TEACHING Exceptional Children, 46*(6), 187-196.

Koellner, K., Colson, M., & Risley, R. (2011). Developing Computation Competence Among Students Who Struggle With Mathematics. *TEACHING Exceptional Children, 44*(2), 38-46.

Miller, S., Stringfellow, J., Kaffar, B., Ferreira, D., & Mancl, D. (2011). Developing Computation Competence Among Students Who Struggle With Mathematics. *TEACHING Exceptional Children, 44*(2), 38-46.

National Council for the Social Studies. (1994). *Expectations of excellence: Curriculum standards for social studies*. Silver Springs, MD: Authors.

National Council for the Social Studies. (2004). *NCSS standards for social studies teachers*, Silver Springs, MD: Authors.

National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, VA: Authors.

National Council of Teachers of Mathematics. (2006). Curriculum focal points for kindergarten through grade 8 mathematics: A quest for coherence. Reston, VA: Authors.

National Research Council. (1996). National science education standards. Washington, DC: National Academy Press.

iPad Apps

A Sunny Day: A Sunny Day is an app for kids with autism to understand simple behaviors in daily life.

Brainpop: This app has a lot of educational games, videos, and lessons.

Base Ten Math: This is an app that demonstrates how to use the base ten system for elementary math.

Class Dojo: This can be used to track students' attendance and behavior. It also produces reports that you can share with parents and colleagues.

Dragon Shapes: A Geometry Challenge-This app supports math learners with problem solving and reasoning as they progress through a fun puzzle pathway. Kids gain an intuitive sense for geometric relationships and boost their thinking skills at the same time.

Endless Numbers: This app can be used to teach children numbers and basic math.

Evernote: Keep all your notes

Essential Skeleton 4: Health/PE – It shows you the skeleton and different parts and its functions

GeoGebra: Helps with geometry and can graph.

Geography: For elementary age students.

Haikudeck: An app that is helpful for things like speeches and presentations that only allow you to put keywords on slides so that you have to identify the main ideas of your topic.

Keynote: presentations app.

Khan Academy: This app contains math videos that break down math processes. After you watch a video, you can complete questions to test your knowledge.

Math Animations: For grades 1-8, animations to learn different math procedures like addition, subtraction, multiplication and division.

My Script Calculator: You can write your calculation on the screen, and it calculates it for you.

National Geographic World Atlas: This app has maps, info sections for each country, a currency calculator; see latitude and longitude, and much more. The globe is 3D, so the students can see where each country is on the globe.

Pollination 2 Plate: This is a game that helps students to learn how various food crops are pollinated and how the food gets on our tables. It teaches about the three types of pollination.

Spellyfish Phonics: For early childhood education, aligned with common core and you can choose category of words to practice from.

Sphere: It takes people on virtual trips of various places around the world.

Stack the States: This app is a game where it asks you questions about states and you have to answer them and then you have to stack the states up to get past a certain point.

Study Blue - Make flash cards, join a class, and review other classmates' flashcards and share your study tools.

SuperNote: You can type out notes for your classes and also record lectures.

Videos (Will be added)