CENTRAL CONNECTICUT STATE UNIVERSITY
Elementary Mathematics Methods
Math412

Instructor: JoAnne Harper

Office Hours: ______________

Section: ___

Credits: 3 Undergraduate

Term: Spring 2017

Telephone: (860) 738-1254

E-Mail harperjo@ecsu.edu

Location: MS. – Room214

Catalog Description:

Concepts underlying contemporary mathematics curriculum for
Elementary grades: developmentally appropriate methods for developing,
through problem solving, concepts and the meaning of operations and
procedures in arithmetic for 15 NCTM Standards

Prerequisite:

Math 213 (C- or higher) and admission to the Professional Program
Structure in Mathematics II: Probability and Geometry

Students for Who Course is Intended:

Students planning to be certified in Elementary Education

Text:

Burns, M., Math: Facing an American Phobia, Sausalito, CAL Math
Solutions Publications, 1998
Supplies:

Manila folders (25) with expandable file or
Three ring notebook with 25 sections
Notebook for daily math notes

Index Cards (50) (lined or unlined – any size)
Fine Tip Markers (red and black)
Stapler

Other ‘Make and Take’ materials as needed
for course (notice will be given ahead)

Overview: This course examines the methods and procedures in teaching mathematics at the elementary level. It is designed to prepare pre-service elementary teachers to become independent professionals who can effectively arrange learning environments, plan educational activities and assess learning outcomes. The course content will be presented using practices that are aligned with the National Council of Teachers of Mathematics Standards and the Common Core State Standards. Teacher candidates will have an opportunity to apply the content and pedagogy from this course and other methods courses (EDT 415, RDG 412, SCI 412, FA 412) by taking part in a field experience practicum during the semester.

In addition to the NCTM Standards and the Common Core State Standards, these standards will, also, be emphasized:

Principle #1: The Teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) s/he teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

Principle #9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
Course Objectives:

A. To examine the content and presentation of mathematics currently being taught in elementary schools

B. To introduce students to curricular reforms and current literature in the area of teaching mathematics in the elementary schools

C. To encourage students to examine their professional background in mathematics with a goal of self improvement

D. To anticipate current educational trends with a view to the future needs of all educated people in the area of mathematics

University Policy:

1. If you need course adptions or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

2. In the event of a weather emergency which requires the cancellation of classes, listen to WTIC (1080AM) or call (860) 832-3333.

3. The last day to drop a course is ____________. Drop forms are available in the Enrollment Center, Willard Hall. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered an official notice of a student’s intention to drop the course.

4. Academic integrity is the responsibility a student assumes for honestly representing all academic work. Cheating or plagiarism on any assignment will result in a grade of zero.
Attendance:

You are expected to attend all BUT one class meetings and participate in class activities and discussions. All reading assignments should be completed prior to the appropriate class session. Please bring your textbook on the agreed dates, your journal entries only when the due and additional materials when they are assigned. In the unlikely event that you are unable to attend a class session, please email the reason for your absence and make arrangements for your math buddy to collect all handouts and assignments. A doctor’s note will excuse a medical absence.

Assignments:
Reference the Tentative Time Line Schedule for semester distributed during the first class.

Course Requirements:
1) **Participation:** Share math opinions on math issues discussed in class. Share math techniques or math lessons ideas used in your math field experience classroom. Participate in all classroom activities. (Minimum participation is considered - per students agreement).

20% of grade

2. **Class Journals:** There will be three journal entries. (Topics are: Math Phobia, Common Core explained to parents and how I will implement it, and a parent newsletter introducing yourself to student teaching).

Specifics for each journal entry will be given ahead of time throughout the semester.
Be sure that each entry is one full page (minimum requirement) and double spaced.

**Use past experience, websites, any text and this methods course as specifics to support your opinions.**

30% of grade

3) **Math Lesson Presentation (‘Stand and Deliver’):** You are required to teach one lesson in your field experience math classroom. The lesson that you prepare and present to the children will be taught, also, *in part* to your classmates in Math #412. A 10 minute presentation will
include: 1) A detailed written Math Lesson Plan and Reflection of your experience with children, 2) A piece of math children’s literature to match your chosen math topic, 3) A tailor-made student worksheet, 4) a posted vocabulary list and 5) Access to a copy of your complete lesson plan for each classmate on the day that you present.

30% of grade

4) Math Box: Since manipulatives are essential for each child to touch in your math classroom, you are asked to accumulate homemade supplies in a storage container. Every ‘math box’ will be different, but supplies may include scissors, counters of any sort, stickers, string, dice, playing cards, flashcards, games, or graph paper.

Think as you collect of K – 6 grade level supplies that you will need in your classroom.

20% of grade

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**FINGERPRINTING REQUIREMENT**

CT law requires fingerprinting and a criminal background check for the field experience class. Fingerprinting must be completed prior to the beginning of class.

*(Added Spring 2011)*

**DISABILITY POLICY**
Please contact me privately to discuss your specific needs if you believe you need course accommodations based on the impact of a disability, medical condition, or if you have emergency medical information to share. I will need a copy of the accommodation letter from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, room 241, Copernicus Hall if you are not already registered with them. Student Disability Service maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

(Added Spring 2011)
Math 412
Attachment A - Scoring Rubric for PARTICIPATION

- participates with Math Buddy in all activities
- participates in class (minimum agreed upon times)
- attends classes regularly (sign in roster)
Math 412

Rubric B – Journal Entries General Guidelines (specific criteria will be given for each journal entry before assignment is due)

- Entries show specific examples of activities to be used
- Entries use plain language (easy to understand)
- Entries are free of grammatical errors and editing errors
- Entries include restatement at end
- Entries are double spaced
- Ideas are supported by research or website
- Entries communicate effectively with intended audience
- Entries refers to children’s math activities for appropriate age group
MATH 412

Attachment C: Lesson Presentation Criteria

Grade is determined on submission of a detailed lesson plan of 50 to 60 minute math lesson with children (50%) and class presentation of part of lesson plan (10 minute) (50%).

Lesson plan and presentation should include evidence of:

- **HOOK** – Piece of children’s literature related to lesson (only in lesson plan because of time constraints)
- **VOCABULARY** – (Minimum 5 words displayed for student and referred to in lesson presentation)
- **MANIPULATIVES** (Concrete for each student or set of partners to touch)
- **IN VolvEMENt OF STUDENTS wiTH EACH OTHER AND TEACHER**
- **MODELING** (showing examples with role-playing or overhead or chalkboard or posters throughout lesson presentation)
- **PROVIDING CLEAR DIRECTIONS TO STUDENT ACTIVITY**
- **QUESTIONING** (Asking ‘Why’ or ‘How’ questions)
- **TAILOR-MADE WORKSHEET** (that children use during presentation to create a product)
- **REFLECTION** (Minimum of 1 page of self-assessment of both positive and improvement aspects of math lesson)
- **ENTHUSIASM** by teacher during presentation.
- **PRAISE AND ENCOURAGEMENT** by teacher
- **EVIDENCE OF LEVELS OF LEARNING** (Concrete to pictorial to abstract during presentation)
- **SIGNALS OR CUES** to focus or refocus by teacher during presentation)
- **CLOSURE** (only in lesson plan because of time constraints)

A copy of your complete lesson plan will be provided the day that you present to each of your classmates.

Your Math Buddy will assist you with distributing materials before your presentation and keeping time to guide you through your presentation.

(Revised 07)
I Do and I Understand.

I See and I Remember.

I Hear and I Forget.

— Chinese Proverb
## TENTATIVE SCHEDULE

### ELEMENTARY MATHEMATICAL METHODS

<table>
<thead>
<tr>
<th>MATH 412</th>
<th>SPRING 2017</th>
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</thead>
<tbody>
<tr>
<td><strong>Jan. 18</strong></td>
<td>Overview of Course</td>
</tr>
<tr>
<td></td>
<td>Math Phobia and new research</td>
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<tr>
<td><strong>Jan. 23</strong></td>
<td>Finish Overview &amp;</td>
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<td></td>
<td>Number Sense</td>
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<tr>
<td><strong>Jan. 25</strong></td>
<td>Number Sense</td>
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<tr>
<td><strong>Jan. 30</strong></td>
<td>Number Sense</td>
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<tr>
<td><strong>Feb. 1</strong></td>
<td>Place Value</td>
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<tr>
<td><strong>Feb. 6</strong></td>
<td>Place Value (continued)</td>
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<tr>
<td><strong>Feb. 8</strong></td>
<td>Place Value (continued)</td>
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<tr>
<td><strong>Feb. 13</strong></td>
<td>Place Value (continued)</td>
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<tr>
<td>And</td>
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<tr>
<td><strong>‘Math Phobia’ Journal Entry</strong></td>
<td>due</td>
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<tr>
<td><strong>Feb. 15</strong></td>
<td>Add and Subtract Word Problems</td>
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<tr>
<td><strong>Feb. 22</strong></td>
<td>Multiplication &amp; Division Stories</td>
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<tr>
<td><strong>Feb. 27</strong></td>
<td>Division Stories</td>
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<tr>
<td><strong>March 1</strong></td>
<td>Graphing</td>
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**Notes Setup Activities**

**Burns - 1**

**Activities**

**Burns 3**

**Activities**

**Burns 6 & 9**

**Activities & Manipulatives**

**Activities & Notes**

**Activities & Notes**
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Topic</th>
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<tbody>
<tr>
<td>March 6</td>
<td>Fractions</td>
<td>Make and Take</td>
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<tr>
<td>March 8</td>
<td>Fractions (continued)</td>
<td>Activities &amp; Manipulatives</td>
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<tr>
<td>March 20</td>
<td>Fractions (Continued)</td>
<td>Burns 4 &amp; 10</td>
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<tr>
<td>March 22</td>
<td>Fractions (continued)</td>
<td>Activities</td>
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<td><strong>And</strong></td>
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<td></td>
<td><strong>Common Core Journal Entry Due</strong></td>
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<tr>
<td>March 27</td>
<td>Decimals and Per Cents</td>
<td>Conversion Rules</td>
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<tr>
<td>March 29</td>
<td>Catch Up</td>
<td>Activities</td>
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<tr>
<td>April 3</td>
<td>Measurement -- Linear</td>
<td>Activities</td>
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<tr>
<td>April 5</td>
<td>Measurement - Linear Cont.</td>
<td>Activities</td>
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<tr>
<td>April 10</td>
<td>Measurement – Non-Linear</td>
<td>Activities</td>
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<td>April 12</td>
<td>Measurement- Non Linear (cont.) and</td>
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<td><strong>Math Journal Entry - Newsletter Due</strong></td>
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<td>April 17</td>
<td>Symmetry – Geometry</td>
<td>Activities</td>
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<tr>
<td>April 19</td>
<td>MATH BOXES DUE</td>
<td>NO CLASS</td>
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<tr>
<td>April 24</td>
<td>LESSON PRESENTATIONS</td>
<td>PER SIGN UP</td>
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PAGE 2
April 26  LESSON PRESENTATIONS  PER SIGN UP
May 1    LESSON PRESENTATIONS  PER SIGN UP
May 3    LESSON PRESENTATIONS  PER SIGN UP