ST. PETERSBURG COLLEGE

COLLEGE OF EDUCATION

*The mission of the Education Community is to prepare future educators*

*who will promote lifelong learning and empower diverse communities.*

COURSE SYLLABUS

**MAE 4114: Mathematics Content for the Elementary Grades**

**Fall 2023 {0625}**

*The syllabus course calendar and other attending documents are subject to change during the semester in the event of extenuating circumstances.*

|  |  |
| --- | --- |
| **Course Prefix:** | MAE 4114 |
| **Section #:** | 3179 |
| **Credit Hours:** | 3 |
| **Co-requisites:** | None |
| **Pre-requisites:** | Admission to ELEDR-BS or MGMED-BS or ESEDR-BS |

|  |  |
| --- | --- |
| **Day, Time and Campus:** | Online |
| **Modality:** | Online - Weekly participation is required for attendance. Participation in this course is defined as posting to the discussion board or submitting an assignment. |
| **Professor:** | Dr. Andrea Kelly   |
| **Office Hours:** | Posted: <http://web.spcollege.edu/instructors/id/kelly.andrea/OFC/>    |
| **Office Location:** | Tarpon Springs; BB-110 |
| **Office Phone:** | (727) 791 - 2667   |
| **Email Address:** | kelly.andrea@spcollege.edu    |

**ACADEMIC DEPARTMENT: College of Education**

|  |  |
| --- | --- |
| **Dean:** | Kimberly Hartman, Ph.D. |
| **Office Location & Number:** | Tarpon Springs | BB 101 |

1. **COURSE DESCRIPTION**

This course is designed to prepare individuals to teach conceptually and developmentally appropriate mathematics content at the elementary grade level. Major topics include fundamental mathematical properties; algebra; fractions, ratios, and integers; measurement; data analysis; and geometry.

1. **MAJOR LEARNING OUTCOMES AND COURSE OBJECTIVES**
2. The student will apply fundamental mathematical properties by:
	1. analyzing and utilizing appropriate mathematical concepts, procedures, and vocabulary
	2. using the order of operations to simplify mathematical expressions and solve mathematics-based problems.
	3. analyzing strategies (models, estimation, reasonableness) to solve single and multistep word problems.
	4. describing number theory concepts such as prime and composite numbers, multiples, factors, parity, rules of divisibility, and properties
	5. choosing strategies (compensation, combining tens and ones) based on place value to perform multi-digit arithmetic in all four operations.
3. The student will apply algebraic concepts by:
	1. selecting the representation of an algebraic expression, equation or inequality that models a real-world situation.
	2. analyzing the properties of equality and operations in the context of interpreting solutions
	3. solving algebraic equations
	4. describing functions algebraically, numerically and graphically
	5. recognizing and utilizing numerical patterns
4. The student will apply basic concepts of fractions, ratios and integers by:
	1. identifying different fraction units and making accurate comparisons
	2. performing conversions within and between measurement systems in the context of multistep real-world problems
	3. performing the four basic operations with fractions and converting fractions to decimals to percentages to model real world problems.
	4. solving real world problems involving rates, ratios, proportions with equations and inequalities
	5. utilizing the representation (e.g., linear, area, set model) that best represents the problem and solution, given a word problem or equation involving fractions.
5. The student will apply measurement concepts and interpret data by:
	1. calculating and interpreting measures of central tendency and variability
	2. creating frequency tables and graphs
	3. choosing appropriate measurement units to solve problems involving estimates and measurements.
	4. solving real world problems involving distance, area, time, capacity, volume, mass, temperature, and money using integers, fractions and decimals
6. The student will apply basic concepts in geometry by:
	1. using correct geometric notation and terminology to calculate perimeter, area, surface area and volume.
	2. identifying and locating ordered pairs in all four quadrants of a rectangular coordinate system
	3. identifying relational and transformational properties of geometric shapes
	4. classifying two dimensional figures in a hierarchy based on mathematical properties.
	5. analyzing properties of three-dimensional shapes using formal mathematical terms such as volume, faces, edges and vertices.
7. **REQUIRED TEXTBOOK(S), RESOURCES AND MATERIALS**
8. **Required Textbooks**

|  |  |
| --- | --- |
| Textbook(s) | Required: Larson, R. & Silbey, R. (2015). Mathematical Practices: Mathematics for Teachers. Cengage Learning. 9781285447100. |
| Recommended: None |
| **Anthology Portfolio** | Anthology Portfolio is a requirement for students enrolled in all College of Education bachelor’s degree programs (Secondary Mathematics Education, Middle Grades Mathematics Education, Exceptional Student Education, Elementary Education, Educational Studies) and for all Educator Preparation Institute (EPI) students. |

Students using **eBooks** must have access to the **eBooks** during class sessions.

1. **Supplemental Material**

|  |
| --- |
| Resources: |
| Materials: Webcam for Live Online classes. Ruler, Protractor, Circular Protractor, Markers / Crayons (multi-color). |
| Library: | <http://www.spcollege.edu/libraries/> |

1. **Technology**

|  |
| --- |
| Technology is an essential tool for receiving and developing instruction. Students are expected to reference MYCOURSES continuously to assure all current content for class has been accessed.  |
| All work must be submitted in an original electronic file format unless otherwise specified. Links to files are not acceptable. |

1. **COURSE REQUIREMENTS & EXPECTATIONS**
2. **School Based Hours (SBH) or Field Experience Hours (FEH) Course Requirements**

This course requires **0** hours of observation/participation in an appropriate setting as approved by the Office of School Partnerships.

Any student who is registered for a course with SBH/FEH is required to complete the application in Anthology Portfolio by the due dates specified by the OSP to guarantee placement.

1. **ALL Course Assignments**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
| **Assignment**     | **Points**    |
| **Discussions (**4 @ 15 points each)  | 60    |
| **Labs** (4 @ 50 points each)   | 200   |
| **Quizzes**(9 @ 10 points each)  | 90   |
| **Midterm Exam**     | 75   |
| **Final Exam**     | 100   |
| **POSSIBLE POINTS**    | 525  |
| **Extra Credit**  | 45  |

  |

|  |
| --- |
| **Grading Scale**  |
| 90% – 100%  | **A**  |
| 83% – 89%  | **B**  |
| 75% – 82%  | **C**  |
| 68% – 74%  | **D** (Repeat course)  |
| 67% or less  | **F** (Repeat course)  |

 |

\*Students who exceed the maximum number of absences allowed for this class will receive 0% for attendance. If the absences are due to extenuating circumstances (e.g., death in the immediate family or military duty) and there is an agreement in writing between the student and the instructor, the student will be given an assignment and the grade earned on that assignment will determine the percentage entered for attendance. For example, if a student completes the assignment at 80%, then 8% will be entered for attendance.

|  |
| --- |
| ***UCC Assignments:*** *Teacher candidates must demonstrate Uniform Core Curriculum (UCC) competencies and earn a 2 or higher for each indicator on all UCC assignments [FEAP, ESOL, FSAC, Reading Competencies (RC), Other Elements and Florida State Standards (FSS)] in order to successfully pass the course.* *Educational Studies students must earn a 2 or higher on each indicator on all PLO assignments.**If the teacher candidate has not successfully demonstrated the UCC competency as stated above, he/she may have an opportunity (within the term) to work with the instructor to improve the understanding of the concept. The assignment must then be corrected and resubmitted, and will not receive a grade higher than a C.  In the event of cheating or plagiarizing, see BOT Rule 6Hx23-4.72 for consequences.**Students in a degree program must upload into Anthology Portfolio all FEAP, ESOL, PLO, and RC assignments (identified as Critical Reading Tasks) as denoted in the Uniform Core Curriculum Assessments table at the end of the syllabus.* |

*For courses with lesson planning:*

Adapting or modifying a lesson plan from an existing source (i.e., the internet) does not mean “copy and paste.”  It means that, if you use someone else’s intellectual property for this purpose, you may read through the given source for ideas, but then rethink and rewrite the idea in your own words with your own modifications to meet the needs of the assignment.  Anything adapted or used verbatim must be cited with credit given to the author(s).  This includes specific citations on all supplementary materials (i.e., assignment sheets, graphic organizers, checklists) that are not originally your work.  This applies to all COE lesson plans unless the instructor directly specifies otherwise.

1. **Assignment Late Policy**
* Submissions for discussions, quizzes, and exams will not be accepted after the due date.
* Assignments submitted up to one week after the due date will receive a 10% grade reduction.
* Assignments not submitted within one week after the due date will receive a zero in the grade book.
1. **SYLLABUS STATEMENTS COMMON TO ALL COE SYLLABI**
2. **COE SYLLABUS STATEMENTS**

<https://docs.google.com/document/d/1VrvFtlW9RPl2YgbSrHdstAkktd-BtneMQuttI5khNzQ/edit?usp=sharing>

1. **SPC Syllabus Statements**

<http://www.spcollege.edu/addendum/>

***Each student must read all topics within this syllabus and the content of the links.  If the student needs clarification on any items in the syllabus or linked statements, he/she should contact the course instructor.***

***If you remain enrolled after the drop date this signifies that you agree to abide fully by the parameters set in this syllabus and any syllabus addendum.***

1. **CALENDAR AND TOPICAL OUTLINE**

No assignments will be accepted after the last date to submit posted on the syllabus/calendar/MyCourses.

| **Week**  | **Topics / Activities**  | **Assignments** due on Sunday by 11:30 pm |
| --- | --- | --- |
| 1 *8/14 – 8/20* | Course Overview ***Problem Solving***, *Text 1.1, 1.2****Module 1 Introduction: Numbers & Operations*** | * Pre-Test due Aug-20
* Discussion 1: Numbers & Operations due Aug-20
 |
| **2***8/21 – 8/27* | Module 1.1: Numbers, *Text Chap. 2* | Quiz 1.1 due Aug-27 |
| **3***8/28 – 9/3* | Module 1.2: Operations – Addition and Subtraction*Text 3.1, 3.2, chap. 4, 6.1, 6.2, 7.1, 8.1, 8.2*  | Quiz 1.2 due Sep-3 |
| **4***9/4 – 9/10* | Module 1.3: Operations – Multiplication and Division*Text 3.3, 3.4, chap. 4, 6.1, 6.3, 7.1, 7.3, 7.4, 8.1, 8.3* | * Quiz 1.3 due Sep-10
* Lab 1 due Sep-10
 |
| **5***9/11 – 9/17* | ***Module 2 Introduction: Algebra & Functions*** | Discussion 2: Algebra & Functions due Sep-17 |
| **6***9/18 – 9/24* | Module 2.1: Algebra, *Text 9.2* | Quiz 2.1 due Sep-24 |
| **7***9/25 – 10/1* | Module 2.2: Functions, *Text 15.4* | * Quiz 2.2 due Oct-1
* Lab 2 due Oct-1
* Extra Credit 1: Modules 1 and 2 due Oct-1
 |
| **8***10/2 -10/8* | Midterm Exam Review & Midterm Exam  | Midterm Exam due Oct-8 |
| **9***10/9 – 10/15* | ***Module 3 Introduction: Geometry & Measurement*** | Discussion 3: Geometry & Measurement due Oct-15 |
| **10***10/16 – 10/22* | Module 3.1: Geometry, *Text chap. 10, 12, 15* | Quiz 3.1 due Oct-22 |
| **11***10/23 – 10/29* | Module 3.2: Measurement, *Text chap. 11* | * Quiz 3.2 due Oct-29
* Lab 3 due Oct-29
 |
| **12***10/30 – 11/5* | ***Module 4 Introduction: Data Analysis & Probability*** | Discussion 4: Data Analysis & Probability due Nov-5 |
| **13***11/6 – 11/12* | Module 4.1: Data Analysis, *Text chap. 17* | Quiz 4.1 due Nov-12 |
| **14**11/13 – 11/18 | Module 4.2: Probability, *Text chap. 16* | * Quiz 4.2 due Nov-26
* Lab 4 due Nov-26
* Extra Credit 2: Modules 3 and 4 due Nov-26
 |
| **Thanksgiving Break {Nov. 19 – 25} College Closed** |
| **15***11/27 – 12/3* | Final Exam Review & Final Exam  | * Post-Test due Dec-3
* Final Exam due Dec-3
 |

1. **Uniform Core Curriculum / Program Learning Objectives Assignments**

[ UCC Tables for Active Courses.xlsx](https://nam02.safelinks.protection.outlook.com/ap/x-59584e83/?url=https%3A%2F%2Fspcollegeedu-my.sharepoint.com%2F%3Ax%3A%2Fg%2Fpersonal%2Fcaruana_victoria_spcollege_edu%2FEUkz7J7OnDlCn0a88jTI28wBD3Qmg5VG1aGcZwmsdFVh-A&data=05%7C01%7CKelly.Andrea%40spcollege.edu%7Cedbd30db05bc4f4923fa08db83dea498%7C575038c8ac704295810e0df79c005f41%7C0%7C0%7C638248764545686423%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=QPFthw2tXpLb5bJD0Aa2KjXyXlkIhEKCm8rYP8eVQXQ%3D&reserved=0)

This course offers opportunities for students to engage with the following Universal Design for Learning (UDL) General Understandings and Essential Components (1.0s and 2.0s): Not mapped on UDL framework.