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**Department of Teaching & Learning**

**Course Title:** Principles and Methods: K-9 School Math

**Course Number:** MAE 4350

**Credit Hours:** 3 Semester Hours

**Prerequisites:** MAE 4310**\***, LAE 4353 & TSL 4080

**\*Note:** Students majoring in ESE are required to complete 6 credits in college-level math, but are not required to complete MAE 4310 as a perquisite to this course.

**Course Logistics:**

* **Terms:** fall, spring, summer
* **Hybrid/Hyflex:** online/in-class/mixed mode
* **Class location and time:** Davie, Boca, Jupiter(time not available)

**Instructor:** To be determined

**Office Address/Office Hours:** To be determined

**Phone Number/Email:** To be determined

**TA contact information:** Not applicable

**Catalog Description:**

A review of mathematics information and skills and a study of methods/materials related to K-9 mathematics teaching in a diverse setting.

**Course Connection to the College of Education (COE) Conceptual Framework:**

As reflective decision-makers students will continue to refine their abilities to make informed decisions, exhibit ethical behavior, and provide evidence of being capable professionals who have mastered the mathematics content knowledge necessary to document emerging numeracy/mathematics development, develop lessons plans that demonstrate respect for the developmental characteristics of young people and needs of ESOL students, follow the standards for mathematical practice, and demonstrate the capability to teach and respect all young people.

**Required Texts/Readings:**

Reys, R., Lindquist, M., Lambdin, D., Smith, N. & Suydam, M. (2015). *Helping children learn mathematics (11th ed.).* Boston, MA: John Wiley & Sons Publishing, Inc.

Individual Professor Required Materials on Blackboard at no charge (to be announced in class).

**Special Course Requirements**:

* Students in this course are required to have an active *LiveText* account to track mastery of programs skills, competencies and critical assignments, and to meet program and college accreditation requirements. To receive a passing grade in this course, you must have a *LiveText* account within the first four (4) weeks of the fall or spring semester, within the first three (3) weeks of summer session, or after the first class of a fast track course. Students who do not have an active *LiveText* account may have an academic hold placed on their records. For information regarding account activation, please go to the COE website at: <http://coe.fau.edu/livetext>. For information pertaining to financial assistance, please go to: <http://www.coe.fau.edu/livetext/livetextfinincialassistane.htm>.
* Clinical field or online observations (10 hours, using Effective Teaching Practices placement).
* Triman Compass, crayons/markers, scissors, glue stick, composition notebook, binder, Texas Instruments *Explorer Calculator, Explorer Plus Calculator, TI-34II* (any fraction calculator.)
* Florida Department of Education Electronic Curriculum Planning Tool, Software for New Florida Curriculum Frameworks, Math. Florida DOE at: <http://www,cpalms.org/Public/>.
* Math Vantage Video Series <http://www.iptv.org/series.cfm/3449/math_vantage/ep:104/episodes>.
* Marilyn Burns Manipulative Video Series at: <http://www.mathsolutions.com/>.
* Beacon Learning Center Website at: <http://www.beaconic.org/BEACON/default2.asp>.
* Blackboard Web-assisted Learning with FAU at: <http://www.blackboard.fau.edu>.

**Supplementary/Recommended Readings:**

Parrish, S. (2014). *Number Talks: Helping children build mental math and computation strategies*. Sausalito, CA: Math Solutions.

Diezmann, C. & Yelland, N. (2000). Developing Mathematical Literacy in the Early Childhood Years. In Nicola J. Yelland (Ed.) *Promoting meaningful learning: innovations in educating early childhood professionals.* Washington, DC: National Association for the Education of Young Children (NAEYC).

National Council of Teachers of Mathematics (2006). *Curriculum focal points.* NCTM: Reston, VA.

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

National Council of Teachers of Mathematics (1989)*. Curriculum and evaluation standards for school mathematics*. NCTM: Reston, VA.

Common Core State Standards for Mathematics (CCSS) at: <http://www.corestandards.org/math>

Florida Department of Education Curriculum Frameworks (Mathematics) at: <http://www.fldoe.org/core/fileparse.php/5390/urlt/0081015-mathfs.pdf>

**Standards and Guidelines Used for Developing Course Objectives:**

Association for Childhood Education International Elementary Education Guidelines (ACEI)

<https://www.acei.org/sites/default/files/aceielementarysupportingexplanation.507.pdf>

Florida Educator Accomplished Practices (EAP)

<http://www.fldoe.org/teaching/professional-dev/the-fl-educator-accomplished-practices.stml>

Florida Subject Area Competencies (ESOL)

<http://www.fldoe.org/core/fileparse.php/7719/urlt/0071749-mnellf.pdf>

Florida Subject Matter Competencies (FSMCS: ELE MA)

[http:///www.fldoe.org/accountability/assessments/postsecondary-assessment/ftce/tdi/comps- and-skills.stml](http:///www.fldoe.org/accountability/assessments/postsecondary-assessment/ftce/tdi/comps-%20%09and-skills.stml)

National Council of Teachers of Mathematics Curriculum and Evaluation Standards for School Mathematics (NCTM) at: [www.nctm.org](http://www.nctm.org)

**Course Objectives/Student Learning Outcomes:**

1. Describe the *Curriculum and Evaluation Standards for School Mathematics* (NCTM, the FloridaSunshine state focus, and the Common Core Standards) and explain their significance to teachers and children in designing lessons exemplifying their focus.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 8.1, 8.2, 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 5.1, 5.2, 5.3, 8.1- 8.9, 16.1, 16.2, 16.3

**2.** Describe and demonstrate methods of instruction that provide well balanced instructional lessons including the experience of informal experiences in introducing concepts, identifying steps in a classroom lesson, and describing ways to facilitate mathematical investigation for all while creating a positive classroom management plan that is conducive to learning and motivating for all students.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 8.1, 8.2, 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 5.1, 5.2, 5.3, 8.1- 8.9, 16.1, 16.2, 16.3

**3.** Explain the role of manipulatives in the teaching of mathematics and describe some commonly used commercial and teacher-made manipulatives for modeling.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4,4.0, 5.1, 5.2
* EAP: 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 5.1, 5.2, 5.3, 8.1- 8.9

**4.** Demonstrate the use of technology in the teaching of mathematics.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 12.1, 12.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 6.1

**5.** Describe the role of collaboration, mentors, cooperation, and drill in the teaching of math.

* ACEI: 5.1, 5.2, 12.1
* EAP: 11.1
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 8.1- 8.9

**6.** Describe the role of verbal and written communication (literature) in the teaching of math.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 2.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 3.1, 3.2, 3.3, 3.4

**7.** Explain alternative assessment forms that provide insight into individual unique learning styles.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 1.1, 5.1, 5.2, 9.1
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 3.4, 7.5, 8.1- 8.9

**8.** Explain the role of integration, family involvement, and resources that provide meaningful math lessons to all children and involve the cultural characteristics of Florida’s LEP population including culture/diversity/equity issues/special needs/ESOL.

* ACEI: 2.3, 3.1, 3,2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 5.1, 5.2, 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 7.1- 7.6, 8.1- 8.9

**9.** Describe and demonstrate the current NCTM/SSS/Common Core view of problem solving and

describe the problem solving strategies.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 4.1, 4.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 12.1, 12.2, 12.3, 12.4
* NCTM: 1.1, 1.2, 1.3, 1.4, 2.1

**10.** Describe and demonstrate the current NCTM/SSS/Common Core view of number sense/

estimation/mental calculation and describe lessons and assessment techniques that encourage

number sense as well as fractions, decimals, ratios, percents, proportions, and number theory.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 1.1, 8.1, 8.2, 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 7.1- 7.9, 12.1, 12.2, 12.3, 12.4
* NCTM: 3.4, 8.1- 8.9, 9.1- 9.8

**11.** Describe and demonstrate the current NCTM/SSS/Common Core view of geometry and spatial

sense and measurement in the curriculum.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 1.1, 8.1, 8.2, 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 8.1, 8.2, 8.3, 8.4, 8.5, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 12.1, 12.2, 12.3, 12.4
* NCTM: 3.4, 8.1- 8.9, 9.1- 9.8, 11.1-11.7, 13.1, 13.2, 13.3, 15.1, 15.2, 15.3, 15.4, 15.5

**12.** Describe and demonstrate the current NCTM/SSS/Common Core view of data analysis and

probability in today’s world and describe activities that encourage students to collect and

analyze data as well as predict outcomes.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 1.1, 8.1, 8.2, 10.1, 10.2
* ESOL: 5.4, 6.10. 14.3, 17.5
* FSMCS: 11.1- 11.6, 12.1, 12.2, 12.3, 12.4
* NCTM: 3.4, 8.1- 8.9, 14.1- 14.6

**13.** Describeand demonstrate the current NCTM/SSS/Common Core view of math as the science

of patterns and order and describe lessons that involve patterns that lead to algebraic thinking.

* ACEI: 2.3, 3.1, 3.2, 3.3, 3.4, 4.0, 5.1, 5.2
* EAP: 1.1, 8.1, 8.2, 10.1, 10.2
* ESOL: 5.4, 6.10, 14.3, 17.5
* FSMCS: 10.1, 10.2, 10.3, 12.1, 12.2, 12.3, 12.4
* NCTM: 3.4, 8.1- 8.9, 10.1- 10.6

**Please note on the Content Topical Outline (below), the specific dates that readings are due to be discussed in class. Prior to class, you are required to read all chapters and have summaries, reflections, and discussion question completed and in your journals. Be prepared to share all of this information with the class, as well as, your math journal problem solving.**

**Content Topical Outline:Reys text - *Helping Children Learn Mathematics (citation page 1)****.*

|  |  |
| --- | --- |
| **Week** | **Topics** |
| **#1** | **Introduction and course overview.** |
| **#2** | Problem Solving, the National Council of Teachers of Mathematics (NCTM) and the Florida Math Standards:  ***Assignments -***Reys: Chapter 1 *Math Education, Overview, 5 Problem Solving and Geometry Beginnings*. |
| **#3** | Geometry Terms, Tessellation, Less/Unit Plans, Learning Theory:  ***Assignments –*** Reys: Chapter 2 *Math Learning Theory* and Chapter 3 *Math Lesson Planning*. |
| **#4** | Geometry, 3-D Geometry, Measurement, Lesson Planning, NCTM Standards:  ***Assignments -*** Reys: Chapter 15 *Geometry* and Chapter 16 *Measurement*. |
| **#5** | Geometry, Coordinate Geometry and Algebra:  ***Assignments -*** Reys: Chapter 14 *Algebra.* |
| **#6** | Lecture/Notes: Numeration Systems:  ***Assignments -*** Reys: Chapter 7 *Prenumber Sense.*  **Assessment #1: Completed in-class** |
| **#7** | Whole Numbers and Operations:  ***Assignments -*** Reys: Chapter 8 *Numbers* and Chapter 9 *Operation Strategies.* |
| **#8**  **Offsite** | Clinical Week:  ***Meeting in Schools, Observations, Teaching and Research.*** |
| **#9** | Money/Time and Math Assessments:  ***Assignments -*** Reys: Chapter 4 *Estimation* & Review and Chapter 16 *Measurement.*  **Distribute take-home examinations for Assessment #2, due in-class week #10** |
| **#10** | Integers/Number Theory and Cooperative Learning:  ***Assignments -*** Reys: Chapter 10 *Computations/Operations,* Chapter11 *Alternative Computational Algorithms,*  andChapter 18 *Number Theory.*  **Assessment** **#2**: **Due in-class (see week #9)** |
| **#11**  **Offsite** | Clinical Week:  ***Meeting in Schools, Observations, Teaching and Research.*** |
| **#12** | Fractions, Decimals, Percents and Technology/ Fractions, Calculators:  **Assignments -** Reys: Chapter 12 *Fractions* andChapter 12 *Decimals, Percents, and Ratios.* |
| **#13**  **Offsite** | Clinical Week:  ***Meeting in Schools, Observations, Teaching and Research.*** |
| **#14** | Statistics/Data Analysis and Probability:  ***Assignments -*** Reys: Chapter 17 *Data Analysis and Probability.*  **Turn in 3 questions for Assessment #3 and turn in all work due for grading (to be returned week #16).** |
| **#15** | **Assessment #3: Oral Final Examination**  **Review and study tips for Assessment #4** |
| **#16** | ***Assessment #4 (Subject Matter Content Test) and Return Work*** |

**Course Assignments/Requirements:**

Assignments will include, but will not be limited to, the following: class work, homework, tests and quizzes, computer/calculator activities, clinical experiences, journal problems, research position paper/case study, and projects (both group and individual). All assignments turned in for a grade must be word-processed, turned in with an attached rubric-grading sheet on the date that appears in the syllabus (no assignments will be accepted after the due date), and handed-in on LiveText, if it is a critical assignment(with the exception of the ABC Math Book). Please see the professor for special needs.

***MAE students are required to apply the ESOL/Accommodation teaching practices, as discussed in class, in unit/lesson plans, journal problem-solving, and clinical field (teaching) experiences.***

As requested by university administration, all students should use their FAU MYFAU E-mail for the course when communicating with the instructor.

1. **Journal**

Keep a Math Problem-Solving Journal in a composition notebook. You will receive 10 Problem- Solving worksheets throughout the semester (approximately one each week). Do each of the assignments in your notebook describing all steps, problem-solving process/strategies used, **and especially your problem-solving thinking processes written in detail** **for full credit**. You will be graded on your effort, completion of the problems, and thinking processes. Please feel free to write about feelings and anything else you confront as you do the problems. **Also,** read each chapter in your textbook and include a short one paragraph summary/reflection in your notebook. Your grade will be determined by the evidence you show in your journal for completing these tasks. Please document all work/readings. **Please show evidence of completing the readings and journal problems and include a grade sheet (next page) when turning in your work to be graded.** MAE Students must pass this **critical assignment with at least "Meets Expectations"** for their program based on the 3-Point rubric for the assignment. You will be allowed a chance for feedback and **remediation** if you "Do Not Meet Expectations." Revisions can be made to improve the critical assignment. You will be given sufficient support and guidance to successfully meet expectations for the critical assignment.

**Journal Grade Sheet**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Possible Points** | **Points Earned** |
| All 10 Problems Tried & Detailed Problem-Solving | 40 |  |
| Problem Solving Strategies Included/Written Out | 20 |  |
| ESOL Strategies for Teaching Written Out | 20 |  |
| Thinking Processes in Solving problems Written Out | 30 |  |
| All Chapters Read w/Paragraph Summaries/Reflections | 60 |  |
| Active Participation in Class Sharing/Neatness | 20 |  |
| Turned in with Grade Sheet | 10 |  |
| **Total** | **200** |  |

**Critical Assignment Title:** Problem-Solving and Content Knowledge Exercises

**Objective(s):** Solves math problems using the problem-solving process and applies problem-solving strategies showing reflection and critical thought in solving the problems and teaching/providing methodology for teaching the mathematics problem in class and displaying content knowledge of the material.

**Assessment:** Problem-Solving in math journal with suggestions for teaching the problem.

**Rubric for Journal**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Performance** | **Criteria for Exceeds Expectations**  **(E)** | **Criteria for Meets Expectations**  **(M)** | **Criteria for Does Not Meet Expectations (D)** | **Rating** |
| Demonstrates accuracy of subject matter knowledge in the problem solving process.  Demonstrates and models the use of higher-order thinking abilities, processes, and strategies.  Uses ESOL, technology, and other strategies/tools in solving/teaching problem solving and critical thought.  Modifies and adapts math concepts with increased attention to the learners’ creative thinking abilities/ thought process. | Complete accuracy demonstrated in the problem solving process.  Chooses and applies a correct strategy and follows a clear thought process.  Clearly identifies ESOL, technology and other strategies/tools used in teaching problem solving.  Clear and sensible modifications of problem for the learner to understand thought process. State math standard covered. | Partial arithmetic error, but shows good problem solving process.  Uses a correct strategy but may lack process and/or explanation to solve.  Shares some ESOL, technology and strategies/ tools used for teaching problem solving.  Teaches/provides methods for teaching problem solving with some class support. Lacks math standard | Incorrect arithmetic and problem solving process.  Incorrect thinking process and strategies employed.  Provides no ESOL, tech or other strategies/ tools used for teaching problem solving.  Does not teach/provide methods for teaching the math problem or problem solving. Math standard not used. |  |
| Overall Rating/Pts Earned: |  |  |  |  |
| Improvements Needed: |  |  |  |  |
| First Attempt Date: |  |  |  |  |
| Second Attempt Date: |  |  |  |  |
| Third Attempt Date: |  |  |  |  |

**(2) Create a Lesson Plan/Currculum Project using Common Course State Standards in Math**

Please see the sample lesson plan in the classroom or at the beaconlearningcenter.com. Incorporate *Best Practices*, grade level expectations from the Common Core State Standards (CCSS), and cite all sources in APA. Include several websites for internet field trips with a guide/activity sheet for students, manipulatives, Cooperative Learning, ESOL strategies, a children’s literature book, etc. (all components of the sample lesson plan). Use the FAU Lesson Plan Format. Incorporate the 4-Mat System in the Instructional Procedures section of the lesson.

**Grade Sheet for Lesson Plan**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Possible Points** | **Points Earned** |
| Name, title, typed, post on Blackboard/LiveText | 20 |  |
| *Best Practices,* activity, manipulative, tech, ESOL, etc. | 40 |  |
| 1 Lesson Plan covering FL math standards/assessments | 80 |  |
| FAU Long Lesson Plan Format used with 4-Mat | 60 |  |
| Websites, technology, manipulatives, Children’s Literature | 60 |  |
| Detail appropriate for a substitute teacher (handouts) | 40 |  |
| Overall quality/thought involved in curriculum/lesson | 40 |  |
| Shares curriculum project and highlights with classmates | 40 |  |
| Above and beyond effort/quality shown | 20 |  |
| **Total** | **400** |  |

**Critical Assignment Title:** Creating a Mathematics Lesson Plan

**Objective(s):** Develops a lesson plan that demonstrates teaching subject matter knowledge through a variety of teaching strategies, for example: ESOL, Cooperative Learning, math manipulatives, technology, problem-solving, and other *Best Practices* for teaching math.

**Assessment:** Development of a lesson plan.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **FEAPs** | **Exceeds**  **Expectations (E)** | **Meets**  **Expectations (M)** | **Does Not Meet Expectations (D)** | **Assignments** |
| **A: Quality of instruction.** |  |  |  |  |
| **A.1: Instructional design and lesson planning.** | **Applying concepts from human development and learning theories, the effective educator consistently:** |  |  |  |
| **A.1.a: Align instruction with state adopted standards at the appropriate level of rigor.** | Within the math lesson plan, excels in subject matter lesson planning, shows a complete understanding of state adopted standards, including CCSS, and prior knowledge of learners. | Within the math lesson plan, excels in subject matter lesson planning showing an adequate understanding of state adopted standards, including CCSS, and prior knowledge of learners. | Within the math lesson plan, does not excel in subject matter lesson planning failing to show an understanding of state adopted standards, including CCSS, and prior knowledge of learners. | **Math**  **Lesson Plan** |
| **A.2: The learning environment.** | **To maintain a student-centered learning environment that is safe, organized, equitable, flexible, inclusive, and collaborative, the effective educator consistently:** |  |  |  |
| **A.2.g: Integrates current information and communication technologies.** | Within the math lesson plan, demonstrates a wide breadth of materials and strategies in the planning process excelling in using the *Best Practices* and technologies. | Within the math lesson plan, demonstrates an adequate breadth of materials and strategies in the planning process and uses the *Best Practices* and technologies. | Within the math lesson plan, demonstrates a breadth of materials and strategies in the panning process, but does not use the *Best Practices* and technologies. | **Math**  **Lesson Plan** |
| **A.2.i: Utilizes current and emerging assistive technologies that enable students to participate in high-quality communication interactions and achieve their educational goals.** | Within the math lesson plan, utilizes current and emerging assistive technologies, like websites, software, and other technologies that enable students to participate in high-quality communication interactions and achieve their educational goals. | Within the math lesson plan, utilizes some current and emerging assistive technologies, like websites, software, and other technologies that enable students to participate in high-quality communication interactions and achieve their educational goals. | Within the math lesson plan, utilizes no current and emerging assistive technologies, like websites, software, and other technologies that enable student to participate in high-quality communication interactions to achieve their educational goals. | **Math**  **Lesson Plan** |
| **Overall lesson is of quality in content and presentation using thoughtful curriculum, proper grammar, creative, and research-based materials.** | Top quality content and presentation, including: grammar, creativity, and research- based materials. | Content and presentation are adequate, may lack good grammar, creativity, and research based materials. | Poor content and presentation with poor grammar, lacks creativity and any research-based materials. | **Math**  **Lesson Plan** |
| **Overall Rating/Points Earned\*:** |  |  |  |  |
| **Improvements Needed/Comments:** |  |  |  |  |
| **First Attempt Date:** |  |  |  |  |
| **Second Attempt Date:** |  |  |  |  |
| **Third Attempt Date:** |  |  |  |  |

**Rating**

**360 to 400 = Exceeds Expectations (E)**

**310 to 359 = Meets Expectations (M)**

**309 and less = Does not Meet Expectations (D)**

**(In order to pass the course, needs to redo and improve to at least an M)**

**Clinical Field or Online Observations/Teaching in Elementary/Middle School**

Using your Effective Teaching Practices placement, observe and if possible, teach a math lesson, and interview the cooperating teacher. If your placement is in Palm Beach County, you may also be required to complete an in-person security clearance at the school district office. ***If you are currently a classroom teacher, you may observe other teachers in your own school and teach the lesson required for this assignment to your own students.*** You are required to spend **10 hours** in the clinical setting observing in elementary and or middle school classrooms and complete teacher observation forms. Observing Teacher Forms are available in your MAE Course pack/Blackboard. If you are able to teach a lesson, you are required to use the FAU Lesson Plan Form found in your MAE Course pack/ Blackboard. In order to receive the entire **100 points** for this assignment, you must return all completed observations forms, along with the form that documents all dates, etc. and includes the cooperating teacher’s signature. Also, you are required to be prompt during all classroom visits to schools and to maintain good communication with your cooperating teacher(s).

**Grade Sheet for Clinical Observations/Teaching Elementary/Middle Schools**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Possible Points** | **Points Earned** |
| Evidence of completed hours (complete form) | 40 |  |
| At least two math teaching observations (complete form) | 20 |  |
| Interview with cooperating teacher (create or use forms) | 10 |  |
| Teach math lesson (using FAU Lesson Plan Form) | 10 |  |
| Include your lesson plan & your teacher-reflection of the plan | 20 |  |
| **Total** | **100** |  |

Although in-person observations/teaching experiences are preferable, if you are not able to observe or teach in a classroom setting, you may complete this assignment online using an ***alternative*** observations tool like edutopia and teachertube. If participating in an online clinical setting, you are required to complete a minimum of 4 formal observations using the Observing Teacher Forms available in your MAE Course pack/Blackboard. In order to receive the entire **100 points** for this assignment, you must return all completed observations forms. If completing this assignment online, follow these instructions in order to participate in one of the approved ***alternative*** observations opportunities.

* The Annenburg Media Teacher Lessons at: <http://www.learner.org/>
* Teacher Tube Website (may require free registration) at: <http://teachertube.com>
* Smart Teaching Website at: <http://www.smartteaching.org/blog/2008/08/100-awesome-classroom-videos-to-learn-new-teaching-techniques/>
* Edutopia Website (a math cooperative learning lesson is recommended from a teacher in Alaska) at: <http://www.edutopia.org/math-social-activity-sel-video>

**Grade Sheet for Alternative Clinical Observations/Teaching Elementary/Middle Schools**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Possible Points** | **Points Earned** |
| Teacher clinical website visits | 20 |  |
| Minimum of 4 math teaching observations (complete forms) | 60 |  |
| Include an in-depth reflection of a lesson you observed | 20 |  |
| **Total** | **100** |  |

***Note: It is to your advantage to keep all work in a binder for use in the future.***

**Assessments**

Each of the 4 assessments will be given to you at the time of or before the date due. Detailed instructions and a grading rubric will be included with each assessment:

* ***Assessment #1*** is an in-class written examination.
* ***Assessment #2*** is a take-home examination to create an extensive unit/lesson.
* ***Assessment #3*** is an oral ***final*** examination. You are each required to contribute questions. Your grade for this assessment is based on the questions you submit and the answers you give to the questions you are asked orally. Instructions are provided below.
* ***Assessment #4*** is a component of a new initiative that requires students to demonstrate mastery of mathematics content by passing a ***Subject Matter Content Test***. You will receive a letter grade on this test (E=Exceeds, M=Meets (minimum passing grade), D=Does not Meet).

***Assessment #3: Oral Examination***

Pertaining to the questions, prepare 3 small index cards, each with an individual question including the answer on the back of the card. One card should include an actual math problem related to our K-8 curriculum. You may use anything discussed in class or from homework. The other 2 cards should be questions related to methods (How would you teach…?). You may use the textbook, handouts and class notes. All questions should be turned in one week before the final exam (u[ to 30 points). All questions must be word processed/typed. Pertaining to the oral examination, you are required to attend (in-person) on the day of the final examination. You will be answering questions orally. Grades will be based on correctness of your answers, confidence in your ability to answer questions, and your participation and cooperation (up to70 points).

***Points for Questions = Points for Oral Exam = Final Exam Grade =***

***Assessment #4*: *Critical Assignment Subject Matter Content Test***

MAE Students must pass this **critical assignment with at least "Meets Expectations"** based on the 3-Point rubric for the assignment. If you "Do Not Meet Expectations,” you will be given feedback and **remediation**, and allowed to retake the examination. You will be given sufficient support and guidance to successfully meet expectations for the critical assignment.

**Critical Assignment Title:** Subject Matter Knowledge Test in Mathematics K-9.

**Objective(s):** Demonstrates mastery of mathematics subject matter knowledge by receiving at least a meets expectations and achieving a minimum score of 75% on the criterion referenced test administered during the semester.

**Assessment:** Subject Matter Knowledge Test in Mathematics.

**Rubric for Assessment #4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Performance** | **Exceeds**  **Expectations (E)** | **Meets**  **Expectations (M)** | **Does Not Meet Expectations (D)** | **Rating** |
| **Demonstrates mastery of subject matter knowledge on either the pre or post CRT subject matter test.** | Scores 75% or higher on the subject matter test on the first attempt. | Scores 75% or higher on the subject matter test after multiple attempts. | Scores less than 75% on the subject matter test. |  |
| Overall Rating/ Points Earned: |  |  |  |  |
| Improvements Needed: |  |  |  |  |
| First Attempt Date: |  |  |  |  |
| Second Attempt Date: |  |  |  |  |
| Third Attempt Date: |  |  |  |  |

**Teaching Methodologies**:

Modeling, guided practice research, sharing simulations lectures, in-class and online discussions, clinical school placement/classroom observations/lesson demonstrations by video, internet communication (use of e-mail, websites, distance learning, Blackboard), powerpoint/screen/ overhead presentations by instructor and students, videos, computer, and other media.

**Course Evaluation Method: Percentage**

**Item of final grade**

* Assessments #1, #2 and #3 (20% each) 60
* Participation, Cooperation and Attendance 10
* Problem-Solving Journal 20
* Projects, Presentations, Assignments, Quizzes, 10

Clinical Experiences, Lesson Plans, etc.

**Grading Scale:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Letter* | *Percent* | *Grade Pts* | *Letter* | *Percent* | *Grade Pts.* |
| A | 93-100 | = 4.0 | C | 73-76 | = 2.0 |
| A- | 90-92 | = 3.67 | C- | 70-72 | = 1.67 |
| B+ | 87-89 | = 3.33 | D+ | 67-69 | = 1.33 |
| B | 83-86 | = 3.00 | D | 63-66 | = 1.00 |
| B- | 88-82 | = 2.67 | D- | 60-62 | = 0.67 |
| C+ | 77-79 | = 2.33 | F | Below 62 | = 0.00 |

**Policy on Make-up tests, Late Work, and Incompletes:**

For the most part there will be no make-up tests or assignments. **All assignments must be submitted on time.** Flexibility by the instructor regarding make-ups will be considered for each student’s individual case. If you miss class or an assignment deadline due to an approved university activity (i.e., scholastic or athletic teams, musical or theatrical performances, and debate activities) preparations can be made on an individual basis with no penalty. According to University policy, “Students are expected to attend all of their scheduled University Classes and to satisfy all academic objectives as outlined by the instructor.” Attendance includes meaningful, active involvement in all class sessions, class discussions, and class activities as well as professional, ethical, conduct in class. Reasonable accommodations are made for religious observances. The responsibility of attending class belongs to each student. The grade of Incomplete (“I”) is reserved for students who are passing a course but have not completed all of the required work because of exceptional circumstances.

If you are absent, you must obtain the information and handouts missed from a classmate or from Blackboard. You are responsible for all information from each class session whether you are present or not. If you are tardy three times, it may be counted as one absence. If you miss more than one class you may lose points toward your final grade. Students must be on time for each class and stay for the entire class period to receive full credit for their attendance, cooperation, and participation grade. Again, please be on time and attend each class in its entirety. Also, during clinical placement weeks, students must attend the school they are assigned to, to do their in-school clinical placement. Please be sure to dress professionally and be on time. According to University policy, “Students are expected to attend all of their scheduled University Classes and to satisfy all academic objectives as outlined by the instructor.” Attendance includes meaningful, active involvement in all class sessions, class discussions, and class activities as well as professional, ethical, conduct in class.

**Classroom Etiquette Policy: (late arrivals, unexcused absences, electronic devices)**

Final grades may be affected by late arrivals and unexcused absences. Unavoidable absences include: family emergencies, illness, military obligations, and court imposed legal obligations. Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastic teams, musical and theatrical performances, and debate activities.

These absences must be accompanied by documentation. The instructor reserves the right to approve or disapprove any absence. Reasonable accommodation must also be made for students participating in a religious observance. University policy on electronic devices states: *In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.*

**Dropping the Course:** If you must drop this course, please complete all necessary forms. Otherwise, the instructor is required to enter a grade of “F” for the course.

**Disability Policy Statement:**

*In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS)—in Boca Raton, SU 133 (561-297-3880); in Davie, LA 203 (954-236-1222); or in Jupiter, SR 110 (561-799-8585) —and follow all SAS procedures.*

**Code of Academic Integrity policy statement:**

*Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see the Code of Academic Integrity in the University Regulations University Regulations at:* <http://fau.eduregulations/chapter4/4.001_Code_of_Acacemic_Integrity.pdf>.

**Use of Student Work:**

All Teacher Education programs undergo periodic reviews by accreditation agencies and the state education department.  For these purposes samples of students’ work are made available to those professionals conducting the review.  Student anonymity is assured under these circumstances.  If you do not wish to have your work made available for these purposes, please let the professor know before the start of the second class.  Your cooperation is appreciated.

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*American Educational Research Journal*

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*Educational Researcher*

*Issues in the Undergraduate Mathematics Preparation of School Teachers*

*Journal of Educational Research*

*Journal of Experimental Psychology*

*Journal for Research in Childhood Education*

*Journal for Research in Mathematics Education*

*Mathematics Teacher*

*Mathematics Teaching in the Middle School*

*Mathitudes Online* at: <http://www.coe.fau.edu/mathitudes/>

*Online Journal for School Mathematics (ON-Math)*

*Review of Educational Research*

*School Science and Mathematics*

*Teaching Children Mathematics*

*Teaching Pre K-8*

*TechTrends*

*TESOL Journal*

*TESOL Matters*

*Young Children*

**Internet**

**Search Engines**

Nanyang Technological University Library at: <http://www.ntu.edu.sg/library/search/tools.htm>

Google <http://www.google.com>

Yahoo <http://www.yahoo.com>

Alta Vista <http://www.altavista.digital.com>

Ask Jeeves <http://www.ask.com>

Excite <http://www.excite.com>

HotBot <http://www.hotbot.com>

Lycos <http://lycos.com>

WiseNut <http://www.wisenut.com>

Proquest Please access using FAU’s library/searching outlets, requires valid FAU account.

**Websites**

Blackboard has many mathematics teacher resources at: [www.blackboard.fau.edu](http://www.blackboard.fau.edu)

National Council of Teachers of Mathematics at: [www.nctm.org](http://www.nctm.org)

Common Core State Standards at: <http://www.corestandards.org/math>

Funbrain at: [www.funbrain.com](http://www.funbrain.com)

Fun School at: [www.funschool.com](http://www.funschool.com)

Math at: [www.math.com](http://www.math.com)

Cool Math Website at: [www.coolmath.com](http://www.coolmath.com)

Math Archives (anything about mathematics) at: [www.archives.math.utk.edu](http://www.archives.math.utk.edu)

Fun Math Lessons at: [www.math.rice.edu](http://www.math.rice.edu)

Beacon Learning Center Lesson Plans at: [www.beaconlc.org](http://www.beaconlc.org)

Marcopolo Standards-Based Lessons at: [www.marcopolo-education.org](http://www.marcopolo-education.org)

Ask Dr. Math at: [www.forum.swarthmore.edu](http://www.forum.swarthmore.edu)

ETA/Cuisenaire Math Manipulatives: [www.etacuisenaire.com/catalog/department?deptId=MATH](http://www.etacuisenaire.com/catalog/department?deptId=MATH)

Math Power and Professor Freedman's Math Help at: [www.mathpower.com](http://www.mathpower.com)

Common Core State Standards Initiative for Mathematics at: <http://www.corestandards.org/math>

**Reports & Standards**

The NCTM Standards at: <http://www.nctm.org>

Florida Department of Education Curriculum Mathematics Frameworks  [http://www.fldoe.org/core/fileparse.php/5390/urlt/0081015-mathfs.pdf)](%20%09http://www.fldoe.org/core/fileparse.php/5390/urlt/0081015-mathfs.pdf))

The Third International Mathematics and Science Study Report at: <http://www.timss.org>

Common Core State Standards Initiative for Math at: <http://www.corestandards.org/Math>

**Professional Organizations**

The National Council of Teachers of Mathematics (NCTM) at: <http://www.nctm.org>

The Florida Council of Teachers of Mathematics (FCTM) at: <http://www.fctm.net/>

American Educational Research Association (AERA) at: <http://www.aera.net>

National Governors Association/Council of Chief State School Officers at: <http://www.nga.org/>

Common Core State Standards Initiative for Math (CCSS) at: <http://www.corestandards.org/Math/>

**Note: In light of the implementation of new, required state standards, the Competency Assessments and rubrics within this course may change during the semester. If changes are made, you will receive advance notification.**