



Course Competencies Template - Form 112

| GENERAL INFORMATION | | | |
|--|---|--|---|
| Name: Dr. Susan Neimand | Phone #: (305) 237-6152 | | |
| Course Prefix/Number: MAE 4642 | Course Title: Advanced Topics in Mathematics Education Practicum | | |
| Number of Credits: 3 | | | |
| Degree Type | <input type="checkbox"/> B.A. <input checked="" type="checkbox"/> B.S. <input type="checkbox"/> B.A.S <input type="checkbox"/> A.A. <input type="checkbox"/> A.S. <input type="checkbox"/> A.A.S. <input type="checkbox"/> C.C.C. <input type="checkbox"/> A.T.C. <input type="checkbox"/> V.C.C | | |
| Date Submitted/Revised: 3/10/08 | Effective Year/Term: 20081 | | |
| <input type="checkbox"/> New Course Competency <input checked="" type="checkbox"/> Revised Course Competency | | | |
| Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework): <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| The above course links to the following Learning Outcomes: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking <input checked="" type="checkbox"/> Information Literacy <input checked="" type="checkbox"/> Cultural /Global Perspective </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Social Responsibility <input checked="" type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility </td> </tr> </table> | | <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking <input checked="" type="checkbox"/> Information Literacy <input checked="" type="checkbox"/> Cultural /Global Perspective | <input checked="" type="checkbox"/> Social Responsibility <input checked="" type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility |
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| Course Description (limit to 50 words or less, must correspond with course description on Form 102): This course is designed to introduce and provide practice in classroom research and expand pre-interns' experiences in instructional planning and the implementation of mathematics instruction. Students will use action research strategies to identify and address issues related to learning about mathematics concepts in grades 6-12. Forty hours of field experience are required. | | | |
| Prerequisite(s): MAE4360 | Corequisite(s): | | |

Course Competencies: (for further instruction/guidelines go to:

Competency 1: The student will be able to value the significance of educational research to the teaching and learning of mathematics by:

<http://www.mdc.edu/asa/curriculum.asp>

1. Identifying current educational research pertaining to instructional strategies for mathematics. (FEAP 3)
2. Summarizing and critiquing articles discussing research-based practices from a refereed mathematics education journals and/or publications. (FEAP 7)
3. Utilizing the library and electronic databases to find specific information about current mathematics educational research in refereed journals. (FEAP 12)
4. Applying research-based instructional practices for developing students' critical thinking and conceptual understanding of mathematics concepts. (FEAP 4, 7,10)
5. Developing a repertoire of teaching practices that are congruent with current mathematics educational research and research based pedagogy. (FEAP 7,10)

Competency 2: The student will be able to design and manage mathematics learning environments which are responsive to the needs and abilities of all students by:

1. Exploring the current literature/research related to mathematics education and design activities that will enable all students to improve their conceptual understanding of mathematics concepts.
2. Constructing and implementing methods of assessment (formative and summative) for a mathematics unit plan with daily lesson plans. (FEAP 1, 10, NCTM 7,8)
3. Analyzing the needs of students as demonstrated through their classroom behavior and performance on pre and post data assessment tools. (FEAP 1,10)
4. Select teaching and assessment strategies that support the development of student understanding and nurture a community of mathematics learners. (FEAP 1,10, NCTM 8)
5. Designing appropriate learning activities that address the current literature/research related to mathematics education and design activities that will enable all students to improve their conceptual understanding of mathematics concepts. (FEAP 3, NCTM 8)
6. Developing and/or selecting and using instructional content, materials, resources, and strategies that respond to cultural, linguistic, communication, disability, and gender differences and are aligned to the State and National Standards and incorporate problem solving. (FEAP 4, 7, 10, NCTM 8)
7. Designing, sequencing, and implementing appropriate lesson plans and instructional units that incorporate inquiry to carry out the goals and objectives of the State and National Standards. (FEAP 4, 7, 10, NCTM 8)
8. Compiling a portfolio of resources for general and specific mathematics teaching activities. (FEAP 7)

Competency 3: The student will be able to effectively communicate with parents, students, community partners, and school-based colleagues by:

1. Communicating and sharing action research findings accurately and effectively orally and in writing.
2. Observing and identifying techniques for leading effective classroom discourse to help bring about mathematics understanding. (NCTM 3)
3. Providing students with clear and specific instructions for completing lesson activities. (FEAP 9)
4. Orchestrating discourse among all students about mathematical ideas and processes. (FEAP 2,5, ESOL 6, NCTM 2, 3)
5. Facilitating ongoing formal and informal discussion based on a shared understanding of rules of discourse. (FEAP 2,5, ESOL 6, NCTM 3)
6. Utilizing verbal, nonverbal, and written language effectively. (FEAP2)
7. Interacting with colleagues, supervisors, and students to develop effective lesson plans. (FEAP 10)
8. Interacting effectively with colleagues, parents, and students; mentor new colleagues; and foster positive relationships with the community. (FEAP 2)
9. Integrating information and feedback from students, faculty supervisors, cooperating teachers, and others to improve the teaching of mathematics and student learning.

Competency 4: The student will be able to assess the learning of their students to guide their teaching by:

1. Utilizing student data, observations of teaching, and interactions with colleagues to report student achievement and opportunities to learn to students, teachers, parents, policy makers, and the general public.
2. Utilizing multiple methods and systematically gather data about student achievement and ability. (FEAP1)
3. Utilizing multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and the needs of students. (FEAP 1)
4. Analyzing assessment data and using the results of these multiple assessments to guide and modify instruction, the classroom environment, or the assessment process. (FEAP 1)
5. Utilizing the results of assessments as vehicles for students to analyze their own learning, engaging students in reflective self-analysis of their own work. (FEAP 1)
6. Reflecting constantly upon their teaching and identify ways and means through which they may grow professionally. (FEAP 3)

Competency 5: The student will be able to value the importance of continuous personal and professional growth and change to meet the needs of their student, school community, and profession by:

1. Exploring the theoretical and practical literature related to effective learning environments and design and establish a classroom environment that is conducive to the high achievement of all students. (FEAP 3,9,NCTM 8)
2. Conducting an action research project at their field experience site in order to identify aspects of the educational process that they wish to enhance.
3. Implementing a scientific investigation to develop skills for implementing the education change.
4. Utilizing student data, observations of teaching, and interactions with colleagues to reflect on and improve teaching practice. (FEAP 10,11)
5. Using the results of multiple assessments and data (both qualitative and quantitative) as part of their action research project to guide and modify instruction to shape learning experiences for students, keeping in mind both cultural and political influences. (FEAP 1, NCTM 7,8)
6. Utilizing information from students, supervisors, colleagues and others to improve their teaching and facilitate their professional growth. (FEAP 3)
7. Engaging in self-reflection regarding research-based performance and pursue opportunities for feedback to demonstrate commitment to continuous improvement in effective goal-setting through a professional development plan. (FEAP 3)
8. Engaging in mathematics education professional development activities sponsored by National, State, and/or Local professional organizations. (FEAP 3, 11)
9. Participating in mathematics teaching professional organizations and conferences. (FEAP 3)
10. Engaging actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements. (FEAP 3)