COLLEGE OF EDUCATION
Course Initiation Format

Branch: Credential
Course Number and Name: EDTE 386A: Methods in Mathematics Education A
  1. Completed Course Proposal Form (Form A) (attached)
  2. Instructional Activities: See below
  3. Required/recommended course readings and activities (see below)

Course Outline

EDTE 386A: Methods I Mathematics Education, A

Analysis of objectives and organization of instructional materials for secondary school mathematics; critical examination of experimental mathematics programs. Articulated with student teaching and should be taken the same semester. Activities include discussions, presentations and demonstrations.

Expected Outcomes

The candidate will be able to:
  1) teach the state-adopted academic content standards for students in mathematics (7-12).
  2) enable students to understand basic mathematical computations, concepts, and symbols, to use them to solve common problems, and to apply them to novel problems.
  3) demonstrate understanding of appropriate student goals, through discussion of theories of learning as they relate to secondary mathematics
  4) help students understand different mathematical topics and make connections among them.
  5) help students solve real-world problems using mathematical reasoning and concrete, verbal, symbolic, and graphic representations.
  6) provide a secure environment for taking intellectual risks and approaching problems in multiple ways.
  7) model and encourage students to use multiple ways of approaching mathematical problems, and encourage discussion of different solution strategies. Provide a secure environment for taking intellectual risks and approaching problems in multiple ways.
  8) foster positive attitudes toward mathematics, and encourage student curiosity, flexibility, and persistence in solving mathematical problems.
  9) help students in Grades 7-12 to understand mathematics as a logical system that includes definitions, axioms, and theorems, and to understand and use mathematical notation and advanced symbols.
 10) assign and assess work through progress monitoring and summative assessments that include illustrations of student thinking such as open-ended questions, investigations, and projects.
 11) demonstrate a variety of delivery techniques through modeling and discussion of traits and characteristics of successful lectures, values and techniques of asking questions, materials and devices useful for demonstrations, methods of providing for students with cultural differences.
Assessments

- Tests
- Journal writing
- Written lesson plans
- Classroom Discussions
- Simulations of teaching strategies

Sample Course Activities

1. Candidate will discuss in groups and reflect individually on Common Core State Standards for California in Mathematics and the NCTM Standards.
2. Candidate will discuss and explore in groups as well as individually on theories of learning as they relate to secondary mathematics.
3. Candidate will use a variety of delivery techniques through modeling and discussion of traits and characteristics of successful lectures, values and techniques of asking questions, materials and devices useful for demonstrations, methods of providing for students with cultural differences.
4. Candidate will exam and demonstrate valid methods of evaluation – model informal evaluation techniques useful in daily instruction and write various types of test items to evaluate student achievement.
5. Candidates will evaluate and critically examine a lesson simulation or videotaped lesson for teaching strategies.
6. Candidates will identify theories embedded within the strategies and discuss their rationale within the context of given learning outcome goals.

Required/Recommended Readings:

Examples include:


K-12 Content Standards for the State of California

Common Core Standards, U.S. Department of Education