COURSE TITLE: Teaching Methods in Secondary School Mathematics  
COURSE NUMBER: MAE 4330

COURSE DESCRIPTION (with prerequisites): This course is designed for students who are majoring in secondary mathematics education and is offered concurrently with the practicum in teaching secondary mathematics. This course addresses the required instructional methods, techniques, strategies, resources, and assessment considerations for effective teaching of secondary mathematics including the pedagogy of early algebra, geometry, trigonometry and calculus using problems solving, cooperative learning and appropriate technology. This course addresses specific Sunshine State Standards, subject matter competencies and pedagogy pertinent to the discipline and required for certification. (3 semester hours credit)

10 Hours of Teaching are required. Co-requisite: MAE 4941

NAME(S) OF INSTRUCTORS:

EFFECTIVE ACADEMIC YEAR: 2011-12

REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:
Secondary and Middle School Mathematics, Daniel J. Brahier, 3rd Edition, Allyn and Bacon, 2009 (0205569196)

GRADING POLICY: The standing of a student in each course is expressed by one of the following letters and corresponding grading system:
A – 90 – 100
B – 80 – 89
C – 70 – 79
D – 60 – 69
F – 59 or less
The Chipola Catalog provides policies and procedures regarding the grading system. A student’s Grade Point Average is derived from the grading system/quality point scale.

ATTENDANCE AND WITHDRAWAL POLICIES: Chipola College expects regular attendance of all students. Students who are absent from classes for any reason other than official college activities must satisfy the instructor concerned that the absence was due to illness or other clearly unavoidable reasons. Otherwise, the student may suffer grade loss at the discretion of the
instructor. Chipola policy allows each instructor to specify in the Instructor First Day Handout whether or not an absence is excusable and what affect the absence or tardy may have on the grade.

A student is allowed to repeat a course a maximum of three (3) times. **On the third attempt a student (1) must bear the full cost of instruction (unless waived by Student Services), (2) cannot withdraw, and (3) must receive a grade.**

**MAKE-UP POLICY:**
Chipola allows each instructor to specify in the Instructor First Day Handout the makeup policy.

**ACADEMIC HONOR CODE POLICY:**
Students are expected to uphold the Academic Honor Code. Chipola College’s Honor Code is based on the premise that each student has the responsibility to (1) uphold the highest standards of academic honesty in his/her own work; (2) refuse to tolerate academic dishonesty in the college community; and (3) foster a high sense of honor and social responsibility on the part of students. Further information regarding the Academic Honor Code may be found in the Chipola Catalog, Student Governance section.

**STUDENTS WITH DISABILITIES POLICY:**
Chipola College is committed to making all programs and facilities accessible to anyone with a disability. Chipola’s goal is for students to obtain maximum benefit from their educational experience and to effectively transition into the college environment. Students with disabilities are requested to voluntarily contact the Office of Students with Disabilities to complete the intake process and determine their eligibility for reasonable accommodations.

**LIBRARY AND ON-LINE REFERENCE MATERIALS:**
The library is a comprehensive learning resource center providing information in print, electronic, and multimedia format to support the educational objectives of the College. On-line catalogs, e-books and electronic databases can be accessed by using the LINCCWeb icon on the Chipola Library website at www.chipola.edu/library. If you have questions about database usage consult the “How to Use the Chipola Databases” on the Library website or call the Library at 850/718-2274 during regular hours. Library hours are posted each semester at the building entrance and on the Library website. See your Instructor First Day Handout for individual instructor recommendations and resources.

**TECHNOLOGY RESOURCES:**
The Information Technology Center, located in the library, is equipped with computer workstations. Lab hours are posted each semester at the building entrance and on the Library website. The ACE Lab, located in Building L, is available for tutoring and is equipped with computer workstations. Lab hours are posted each semester at the room entrance. The college’s learning management system is Desire 2 Learn (d2l). Classes become available on d2l on the first day of the semester. It is the student’s
responsibility to log onto the d2l system the first day of class to establish the first day of attendance and to check announcements. For further information, contact your instructor or the Director of Online Learning.

**ELECTRONIC DEVICE USAGE:**
All electronic devices such as cell phones, beepers, pagers, and related devices are to be silenced prior to entering classrooms and/or laboratories to avoid disruption. Should it become necessary for a student to leave his/her “device” on to send or receive an emergency call and/or text message, the student must inform the instructor prior to class. If the student finds it necessary to send and/or receive an emergency call and/or text message during class/lab time, he/she is instructed to take all books and belongings and step outside the classroom to deal with the situation. To minimize classroom disruption and the distraction to classmates, the student will not be permitted to reenter the classroom during that class period. Any time a test is being administered, all such devices must be turned off and put away. If a device is seen or heard during an exam, a score of zero will be given for that exam. Initial and repeated infractions may result in disciplinary action.

**DISCIPLINE SPECIFIC COMPETENCIES / LEARNING OUTCOMES:**

E – 1 Demonstrate understanding of instructional design and lesson planning by applying concepts from human development and learning theories.

E – 2 Demonstrate ability to maintain a student-centered learning environment that is safe, organized, equitable, flexible, inclusive and collaborative.

E – 3 Demonstrate effective instructional delivery and facilitation by utilizing deep and comprehensive knowledge of mathematics.

E – 4 Demonstrate understanding of assessment by analyzing and applying data from multiple assessments to diagnose learning needs and inform instruction.

E – 5 Demonstrate continuous improvement by designing purposeful goals to strengthen instructional effectiveness and impact student learning.

E – 6 Demonstrates professional responsibility and ethical conduct and fulfills expected obligations to students, the public, and the education profession.

1. **Task CC3B (FEAP 5.4, 5.5):** Each student must show evidence of professional growth during this course. This evidence may be acquired by (1) attending a mathematics seminar, like FCTM Conference in Orlando Florida, or (2) reading articles from a professional journal in mathematics education. Each student will submit a minimum of six presentation or article summaries, handouts or worksheets included, and a reflection. The reflection should include your opinion regarding (1) the feasibility of implementation (if appropriate), (2) its effectiveness, (3) whether you plan to use it in the future, and (4) any modifications you might want to make.

2. **Task 2.2.1 (2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.6, 3.7, 3.9, 3.10, 5.1) -** The teacher candidate has three 15-30-minute lessons videotaped or observed by an
instructor, evaluates his/her performance, and obtains an external evaluation from a peer or the mentor on each lesson. The product is the set of three self-assessments (one of which must be typed), three peer/mentor assessments and the teacher candidate’s summary of what he/she has learned.

3. Task 5.4.2 (2.3, 2.4, 2.5, 2.6, 2.8, 2.9, 3.8) - The teacher plans a lesson for a class containing diverse students. The teacher is observed to determine effectiveness of instruction with a diverse student population. This observation targets sensitivity, equitable treatment, and planning for students from different backgrounds, cultures, and skill levels.

4. Task CC10A (FEAP 1.6, 5.4): The file of ten lesson plans appropriate for secondary classrooms that come from journals, websites, publishers, etc. that supplement textbook based instruction.

5. Task CC8M (FEAP 5.4): The candidate completes a series of performance tasks that require specific content knowledge in the areas of algebra, geometry, measurement, data analysis and spatial reasoning. If the student has passed the subject area exam for his/her major, then this task has been demonstrated. For this exemption, the passing score must be recorded in the electronic database by end of the first week of classes.

### LINKING COURSE-LEVEL STUDENT LEARNING OUTCOMES WITH DISCIPLINE-SPECIFIC COMPETENCIES, ASSESSMENT METHODS, AND ARTIFACTS

<table>
<thead>
<tr>
<th>STUDENT LEARNING OUTCOMES FOR MAE 4330</th>
<th>NGSSS/ NCTM Standards</th>
<th>FEAPs (Discipline Outcomes)</th>
<th>FL Competencies and Skills:</th>
<th>Assessment Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student will:</td>
<td></td>
<td></td>
<td>Mathematics 6 - 12</td>
<td>Professional Education</td>
</tr>
<tr>
<td>Understand the history and use of the NCTM Content and Process Standards and Next Generation Sunshine State Standards.</td>
<td>E-1</td>
<td>11, 12, 13</td>
<td>13.1, 13.2</td>
<td>Test</td>
</tr>
<tr>
<td>Create long range and short range plans for instruction at a high school</td>
<td>E - 1</td>
<td>9.1, 9.2, 9.3, 9.4</td>
<td>Test</td>
<td></td>
</tr>
<tr>
<td>Build a repertoire of effective teaching strategies, which address learning styles and developmental levels of the high school student.</td>
<td>E-1, E-5 1.6, 5.4</td>
<td>14.2</td>
<td>7.1, 7.2, 7.3, 7.4, 7.5, 14.2</td>
<td>Task 10A - RU</td>
</tr>
<tr>
<td>Review mathematic skills contained in the NGSSS</td>
<td>All benchmarks</td>
<td>E-5, 5.4</td>
<td>All (1 – 10)</td>
<td>Task CC8M-RU</td>
</tr>
<tr>
<td>Plan and critique grade/age appropriate mathematics lessons in at least one of the content areas: number and quantity, algebra, functions, modeling, geometry, and statistics and probability</td>
<td>Selected benchmarks dependent on student lesson topic</td>
<td>E-1</td>
<td>Selected competencies 1 – 10 Based upon lesson topic selected</td>
<td>5.1, 5.2, 10.1, 10.2, 10.3, 14.3</td>
</tr>
<tr>
<td>Participate in professional growth opportunities.</td>
<td>(E–5), 5.4, 5.5</td>
<td>All (1 – 10)</td>
<td>3.1</td>
<td>Task CC3B - RU</td>
</tr>
<tr>
<td>Teach with effective use of</td>
<td>Selected</td>
<td>(E – 2, E-3, 15</td>
<td>1.2, 1.3, 1.4,</td>
<td>Task 2.2.1</td>
</tr>
</tbody>
</table>
### MEANS OF ACCOMPLISHING STUDENT LEARNING OUTCOMES:

1. Attend and participate in class regularly.
2. Read all assigned material before class.
3. Study in-class notes and on-line (d2l) materials.
4. Complete assigned projects in a timely manner to enable reflections and revisions on the final product.
5. Seek opportunities to practice teaching skills through tutoring and substituting in K – 12 schools.
6. Collaborate with peers and other professionals.

### ASSIGNMENT AND/OR COURSE OUTLINE

See your Instructor First Day Handout for individual instructor assignment schedule.