# CHIPOLA COLLEGE

## COURSE SYLLABUS

Chipola's website: www.chipola.edu

**COURSE TITLE:** Learning Mathematics with Technology

**COURSE NUMBER:** MAE 3651

**COURSE DESCRIPTION (with prerequisites):**

This course is designed for pre-service and practicing middle and high school math teachers. It includes the use of innovative computer software and graphing calculators for students to experience learning mathematics with technology at the middle and secondary school levels. The use and integration of dynamic geometry software, computer algebra, electronic spreadsheets, data analysis, and instructional software will be studied from a problem solving perspective. Students will also create programs on a graphing calculator. This course addresses specific state-adopted standards, subject matter competencies, pedagogy pertinent to the discipline and required for certification. A programmable graphing calculator will be required for this course. Prerequisite: EME 2040. 2 semester hours credit.

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**NAME(S) OF INSTRUCTORS:**

Dr. Rose Cavin

**EFFECTIVE ACADEMIC YEAR:**

2015-2016

**REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:**

No text is required. Technology articles from current Mathematics publications will be assigned via Canvas. Students must have a flash drive (USB storage device) and a graphing calculator.

**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 college's learning management system is **Canvas**. Classes become available on Canvas on the first day of the semester. It is the student's responsibility to log onto the Canvas system the first day of class to establish the first day of attendance and to check announcements. All official class communication must be through Canvas. For further information, contact your instructor or the Director of eLearning. The Canvas

support hotline is available online in live chat and on the phone, toll-free, at 855-308-2812 for any issues in accessing or utilizing Canvas. 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.

## FREE TUTORING RESOURCES:

The Academic Center for Excellence (**ACE)** Lab, located in Building L, offers free tutoring from 8 a.m. to 5 p.m. and is equipped with computer workstations. ACE lab hours are posted each semester at the room entrance and on the website. Additionally, Chipola College has contracted **Smarthinking**, a Pearson Company, for online tutoring services, accessible especially from 5 p.m. to 8 a.m. and weekends. Smarthinking can be accessed through Canvas.

## ELECTRONIC DEVICE USAGE STATEMENT:

Classrooms should be free of all unnecessary distractions from the task of learning. Therefore, as a general rule, students should silence and avoid use of all electronic devices (laptops, phones, tablets, etc.) not being used for coursework. Consult first-day handouts for any specific policies related to the use of electronic devices in the classroom, as they may vary depending upon the nature of the course or the guidelines of the instructor. Faculty reserve the right to regulate the use of electronic devices and their accessories in class.

## 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 core content.

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.

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

| STUDENT LEARNING OUTCOMES FOR MAE 3651<br>The student will: | NCTM and State Adopted Standards | FEAPs (Discipline Outcomes) | FL Competencies and Skills: | | Assessment Activities |
|---|---|---|---|---|---|
| | | | Mathematics 6 - 12 | Professional Education | |
| 1. Solve mathematics problems | Specific | E-1, E-3, E- | Specific | 1.1, 1.2, 1.5, | LMT1 |

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|---|---|---|---|---|---|
| using application software. | standards based upon topic | 4 | standards based upon topic, 10.2 | 2.7, 3.7 | LMT2<br>LMT3 |
| 2. Engage in mathematical investigations using technology. | Specific standards based upon topic | E-3, E-4 | Specific standards based upon topic, 10.2 | 3.5, 3.7 | LMT2<br>LMT3 |
| 3. Use a variety of technologies to prepare instructional materials. | | E-1, E-3, E-4 | 10.5. 10.8 | 1.1, 1.2, 1.5, 2.7, 3.7 | LMT1<br>LMT3 |
| 4. Include student use of technology in prepared instructional materials. | Specific standards based upon topic | E-1, E-3 | Specific standards based upon topic , 10.1, 10.8 | 4.2, 4.3, 4.4 | LMT1<br>LMT2 |
| 5. Use technology as a tool in organizing and analyzing student performance. | | E-4 | 10.8 | 4.6, 6.4, 6.5 | LMT1, LMT4 |

| ****Assessment Codes** | | | |
|---|---|---|---|
| **T** = Tests<br>**Pre/Post** = Pre- and Post-Tests<br>**OT** = Objective Tests<br>**UT** = Unit Tests<br>**Q** = Quizzes<br>**F** = Final Examination<br>**CF** = Cumulative Final<br>**EX** = Departmental Exam<br>**SE** = Nat'l or State Standardized Exam | **RPT =** Report/Presentation<br>**SP** = Skills Performance<br>**SD** = Skills Demonstration<br>**W** = Writing Assignments<br>**E** = Essays<br>**DE** = Documented Essays<br>**RP** = Research papers<br>**J** = Jury<br>**R** = Recital | **Proj**. = Projects<br>**Exp.** = Experiments<br>**Cap. Proj.** = Capstone Project<br>**Cap. Course** = Capstone Course<br>**Prac.** = Practicum<br>**Intern**. = Internship<br>**H** = Homework<br>**PS** = Problem Solving<br>**DB** = Discussion Board | **BO =** Behavioral Observation<br>**Clin.** = Clinicals<br>**CS =** Case Study<br>**CP =** Case Plan<br>**Port.** = Portfolio<br>**Obs.** = Teacher Observation<br>**Sk. Check** = Skills Check-off Curriculum Frameworks<br>**JP** = Judged Performance/Exhibition |

## 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 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

**Major Assignments for Learning Mathematics with Technology – MAE 3651**:

**LMT1 – Teach a lesson using technology** – Students prepare a 15 minute mathematics lesson appropriate for 6-12 mathematics that incorporates at least one aspect of technology and includes formative assessment. Students teach the lesson to their classmates.

FEAP 1.1 – Aligns instruction with state-adopted standards at the appropriate level of rigor

FEAP 1.6 – Develops learning experiences that require students to demonstrate a variety of applicable skills and competencies

FEAP 3.7 – Apply varied instructional strategies and resources, including appropriate technology, to provide comprehensible instruction, and to teach for student understanding.

**LMT2 – Digital Cameras and Geometry** – Students take digital pictures of geometric shapes around the campus and import these photos into Geometer's Sketchpad. The pictures are then examined looking for examples of geometric properties such as parallel, perpendicular, similarity, congruence, etc.

FEAP 3.7 – Apply varied instructional strategies and resources, including appropriate technology, to provide comprehensible instruction, and to teach for student understanding.

**LMT3 – Programming** –

A. The graphing calculator - Students will program the graphing calculators for:
   a) Classroom management techniques (scoring tests, averaging grades, etc), and
   b) Mathematical applications (evaluating standard mathematical formulas such as the quadratic formula, Cramer's Rule, etc.)

B. LOGO – Students will use logo to generate a variety of geometric shapes which will include the use of subroutines

FEAP 4.6 – Applies technology to organize and integrate assessment information.

**LMT4 – The student will develop an electronic grade book that can be used to organize and evaluate student performance and provide feedback on student progress**. The grade book will include formulas for calculating the final grade and an analysis of overall class progress. A form letter will be developed that contains integrated fields from the grade book to provide student feedback.

FEAP 4.6 – Applies technology to organize and integrate assessment information.

**Course Evaluation Criteria**:

- Tasks and Major Assignments (60% )
- Exams and Other Assignments (30%)
- Participation (10%)

***ALL tasks must meet the criteria for "demonstrated" as determined by the scoring rubric before credit can be earned for this course. Tasks will not be accepted toward the grade past the due date.***

***A task judged as "partially demonstrated" or "not demonstrated" may be resubmitted for the purpose of demonstrating the accomplished practice indicator(s). The original grade will be used when calculating the course average. Points will not be deducted or added for resubmission.***

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