COURSE TITLE: Calculus and Analytic Geometry II
COURSE NUMBER: MAC 2312

COURSE DESCRIPTION (with prerequisites):
This is a course which includes techniques of integration; applications of the integral; polar coordinates; sequences and series; Taylor series; conic sections; and vectors. Prerequisite: A “C” grade or higher in MAC 1311. A “C” grade or higher must be earned to advance to a higher level mathematics course or to satisfy part of the general education requirement in mathematics.
4 semester hours credit.

NAME(S) OF INSTRUCTORS:
Dr. Lou Cleveland, Dr. Irma Cruz-White. (Instructors vary from semester to semester.)

EFFECTIVE ACADEMIC YEAR:
2011-12

REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:
ISBN 10: 0-547-16702-4
AND WebAssign Code – Life of the Edition
ISBN 10: 0-538-73811-1

OR Bundle: Text + Enhanced WebAssign Homework and eBook Printed Access Card
for Multi Term Math and Science.

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](http://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:
Demonstrate Basic Mathematical Skills and Knowledge

M-1  Apply arithmetic, algebraic, or geometric skills to solve mathematical problems.
M-2  Represent basic mathematical information verbally, numerically, graphically, or symbolically.
M-3  Use technology to solve mathematical problems.
M-4  Interpret mathematical models such as formulas, graphs, tables and schematics.
M-5  Use mathematical processes in solving real world applications.
### Linking Course-Level Student Learning Outcomes with Discipline-Specific Competencies, Assessment Methods, and Artifacts

**Course-Level Student Learning Outcomes for MAC 2312**

- Evaluate definite, indefinite, and improper integrals by using basic integration rules, integration by parts, trigonometric integrals, trigonometric substitution, partial fractions, and integration tables.
- Calculate arc length, areas of surfaces of revolution, work, and moments and centers of mass by using integration techniques.
- Approximate functions by using Taylor and Maclaurin polynomials and identify the form of Power Series, their radius of convergence, and the Taylor and Maclaurin series of some basic functions.
- Determine the convergence and divergence of sequences and series.
- Identify conics by their equations and/or properties, use polar coordinates and polar graphs, and write parametric equations for plane curves.
- Identify points in space, calculate the distance between points, find the equation, center, and radius of a sphere, and perform basic operations of vectors in the plane and in space.

<table>
<thead>
<tr>
<th>Course-Level Student Learning Outcomes</th>
<th>Discipline-Specific General Education Competencies</th>
<th>Assessment Methods for Course Level Student Learning Outcomes</th>
<th>Artifacts for AA Program Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate definite, indefinite, and</td>
<td>M-1, M-2, M-3, M-4</td>
<td>UT, CF, H,PS</td>
<td>No artifact will be submitted for</td>
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<tr>
<td>improper integrals by using basic</td>
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<td>program assessment as enrollment</td>
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<tr>
<td>integration rules, integration by</td>
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<td>of students with more than 45</td>
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<tr>
<td>parts, trigonometric integrals,</td>
<td></td>
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<td>credit hours in this course is</td>
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<tr>
<td>trigonometric substitution, partial</td>
<td></td>
<td></td>
<td>minimal.</td>
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<td>fractions, and integration tables.</td>
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<tr>
<td>Calculate arc length, areas of</td>
<td>M-1, M-2, M-3, M-4</td>
<td>UT, CF, H,PS</td>
<td></td>
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<tr>
<td>surfaces of revolution, work, and</td>
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<td>moments and centers of mass by using</td>
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<td>integration techniques.</td>
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<tr>
<td>Approximate functions by using</td>
<td>M-1, M-2, M-3, M-4</td>
<td>UT, CF, H,PS</td>
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<tr>
<td>Taylor and Maclaurin polynomials and</td>
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<td>identify the form of Power Series,</td>
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<td>their radius of convergence, and the</td>
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<tr>
<td>Taylor and Maclaurin series of some</td>
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<td>basic functions.</td>
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<tr>
<td>Determine the convergence and</td>
<td>M-1, M-2, M-3, M-4</td>
<td>UT, CF, H,PS</td>
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<tr>
<td>divergence of sequences and series.</td>
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<tr>
<td>Identify conics by their equations</td>
<td>M-2, M-3, M-4</td>
<td>UT, CF, H,PS</td>
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<tr>
<td>and/or properties, use polar</td>
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<td>coordinates and polar graphs, and</td>
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<tr>
<td>write parametric equations for plane</td>
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<td>curves.</td>
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<tr>
<td>Identify points in space, calculate</td>
<td>M-1, M-2, M-3, M-4</td>
<td>UT, CF, H,PS</td>
<td></td>
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<tr>
<td>the distance between points, find the</td>
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<td>equation, center, and radius of a</td>
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<td>sphere, and perform basic operations</td>
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<td>of vectors in the plane and in space.</td>
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</tbody>
</table>

**Assessment Codes**

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

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MEANS OF ACCOMPLISHING STUDENT LEARNING OUTCOMES:

- Teacher facilitated: The teacher will be leading class discussions on the material contained in the text during each class period.
- Student-centered: The students will take notes and practice solving problems during class period.
- Office Hours: The instructor will be available during office hours for individual assistance.
- ACE tutors: Student tutors are available in the ACE to provide individualized help.

ASSIGNMENT AND/OR COURSE OUTLINE

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

MAC 2312 – CORRELATION FOR TEACHER EDUCATION PROGRAM:

<table>
<thead>
<tr>
<th>STUDENT LEARNING OUTCOMES FOR MAC 2312</th>
<th>NCTM Standards Secondary Mathematics</th>
<th>Florida Competencies and Skills: Mathematics 6-12</th>
<th>Assignments</th>
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</thead>
<tbody>
<tr>
<td>Evaluate definite, indefinite, and improper integrals by using basic integration rules, integration by parts, trigonometric integrals, trigonometric substitution, partial fractions, and integration tables.</td>
<td>12.1, 12.2</td>
<td>9.1, 9.13, 9.15</td>
<td>UT, H, F, PS</td>
</tr>
<tr>
<td>Calculate arc length, areas of surfaces of revolution, work, and moments and centers of mass by using integration techniques.</td>
<td>12.1, 12.3</td>
<td>9.14, 9.15</td>
<td>UT, H, F, PS</td>
</tr>
<tr>
<td>Approximate functions by using Taylor and Maclaurin polynomials and identify the form of Power Series, their radius of convergence, and the Taylor and Maclaurin series of some basic functions.</td>
<td>12.1</td>
<td>9.2, 9.3</td>
<td>UT, H, F, PS</td>
</tr>
<tr>
<td>Determine the convergence and divergence of sequences and series.</td>
<td>12.1</td>
<td>8.1, 8.2, 8.3</td>
<td>UT, H, F, PS</td>
</tr>
</tbody>
</table>
Identify conics by their equations and/or properties, use polar coordinates and polar graphs, and write parametric equations for plane curves.

| 12.1, 12.4 | 4.2, 4.3, 4.4 | UT, H, F, PS |

Identify points in space, calculate the distance between points, find the equation, center, and radius of a sphere, and perform basic operations of vectors in the plane and in space.

| 11.5 | 1.23 | UT, H, F, PS |

**Assessment Codes**