COURSE TITLE: Calculus and Analytic Geometry III
COURSE NUMBER: MAC 2313

COURSE DESCRIPTION (with prerequisites):
This course includes the study of lines, planes and surfaces in space; functions of several variables; partial derivatives of functions of several variables; extrema of functions of two variables; iterated integrals using rectangular, polar, cylindrical, and spherical coordinates; differentiation, integration, and applications of vector-valued functions; vector fields and calculations of line integrals and flux integrals, the use of Green’s Theorem, Divergence Theorem, and Stoke’s Theorem. Prerequisite: A “C” grade or higher in MAC 2312. 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:
2014-15

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


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 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.

TUTORING RESOURCES:
Chipola College has contracted Smarthinking, a Pearson Company, for online tutoring services, accessible especially from 5 p.m. to 8 a.m. It can be accessed through Canvas. Additionally, 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. Lab hours are posted each semester at the room entrance.

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, geometric, and higher-order thinking skills to modeling and solving real-world situations.

M-2 Represent and evaluate basic mathematical information verbally, numerically, graphically, or symbolically.

M-3 Use appropriate technology to solve mathematical problems.

M-4 Interpret mathematical models such as formulas, graphs, tables and schematics.

M-5 Use mathematical processes in other disciplines.
## LINKING COURSE-LEVEL STUDENT LEARNING OUTCOMES WITH DISCIPLINE-SPECIFIC COMPETENCIES, ASSESSMENT METHODS, AND ARTIFACTS

<table>
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<tr>
<th>COURSE-LEVEL STUDENT LEARNING OUTCOMES FOR MAC 2313</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>
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<tbody>
<tr>
<td>• Identify and discuss properties of lines and common surfaces in space such as planes, quadratic surfaces, and cylindrical surfaces by using rectangular, cylindrical, and spherical coordinates.</td>
<td>M-2, M-3, M-4</td>
<td>UT, CF, H, PS</td>
<td>Students will find a vector-valued function that describes a projectile’s trajectory assuming no air resistance. They will use this function to calculate the projectile’s range, maximum height, and time of impact.</td>
</tr>
<tr>
<td>• Determine vector-valued functions, their derivatives and integrals, and study their applications.</td>
<td>M-1, M-2, M-3, M-4, M-5</td>
<td>UT, CF, H, PS</td>
<td></td>
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<tr>
<td>• Discuss properties of functions of several variables, their limits and continuity, calculate their derivatives and gradients, find their extreme values, and use the chain rule to solve application problems.</td>
<td>M-1, M-2, M-3, M-4, M-5</td>
<td>UT, CF, H, PS</td>
<td></td>
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<td>• Evaluate iterated integrals and use them to find areas and volumes of regions on the plane or in space by using rectangular, polar, cylindrical, and spherical coordinates and by using a change of variables.</td>
<td>M-1, M-2, M-3, M-4</td>
<td>UT, CF, H, PS</td>
<td></td>
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<td>• Discuss the properties of vector fields and will evaluate line integrals and flux integrals.</td>
<td>M-1, M-2, M-3, M-4, M-5</td>
<td>UT, CF, H, PS</td>
<td></td>
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**Assessment Codes**

- T = Tests
- Pre/Post = Pre- and Post-Tests
- OT = Objective Tests
- UT = Unit Tests
- Q = Quizzes
- F = Final Examination
- CF = Cumulative Final Exam
- 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 2313 – CORRELATION FOR TEACHER EDUCATION PROGRAM:

<table>
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<tr>
<th>STUDENT LEARNING OUTCOMES FOR MAC 2313</th>
<th>NCTM Standards Secondary Mathematics</th>
<th>Florida Competencies and Skills: Mathematics 6-12</th>
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<tr>
<td>Identify and discuss properties of lines and common surfaces in space such as planes, quadratic surfaces, and cylindrical surfaces by using rectangular, cylindrical, and spherical coordinates.</td>
<td>Standard 1a: A.5.4</td>
<td>4.3</td>
<td>UT, H, F, PS</td>
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<td>Determine vector-valued functions, their derivatives and integrals, and study their applications.</td>
<td>Standard 1a: A.5.2</td>
<td>8.7</td>
<td>UT, H, F, PS</td>
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<td>Discuss properties of functions of several variables, their limits and continuity, calculate their derivatives and gradients, find their extreme values, and use the chain rule to solve application problems.</td>
<td>Standard 1a: A.5.1, A.5.4, A.5.5</td>
<td>8.8</td>
<td>UT, H, F, PS</td>
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<td>Evaluate iterated integrals and use them to find areas and volumes of regions on the plane or in space by using rectangular, polar, cylindrical, and spherical coordinates and by using a change of variables.</td>
<td>Standard 1a: A.5.1, A.5.5</td>
<td>8.10</td>
<td>UT, H, F, PS</td>
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Discuss the properties of vector fields and will evaluate line integrals and flux integrals.

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