Course Number: MTH 230 – Section 501 (CRN 5100) – 4 Credit Hours

Course Title: Calculus and analytic geometry II

Textbooks: Calculus (early transcendentals) by Rogawski, ISBN: 978142926009 or 1429260092

Calculator: A Scientific calculator is required. TI-83 is graphing calculator is recommended. But graphing calculators may not be allowed on some tests.

Prerequisites: MTH 229 – Calculus and Analytic Geometry I (grade of C or higher)

Class Meeting Times: MTWRF: 10:00 AM – 12:20 PM

Classroom: Smith 511

Instructor: Dr. Ari Aluthge (A-luth-gay)
Office: ML 109 (Morrow Library – First Floor) Phone: 696 3050 Email: aluthge@marshall.edu
Office Hours: MTWR: 12:30 PM – 1:30 PM or by appointment.

Course Objectives: The objectives of this course are:

- to present a comprehensive study of application of the integral, techniques of integration, infinite sequences and series, and parametric equations, polar coordinates, and conic sections.
- to prepare students for math courses such as MTH 231 and MTH 300 in mathematics.
- to prepare students for study in other areas such as physics, engineering, biology, chemistry, pharmacy, geology, business, and medicine.

Course Contents: Chapters 6, 7, 8, 10, and 11 (minus Sections 7.4, 7.7, 7.8)

- Area between two curves
- Setting up (and evaluating) integrals to find volume of solids including solids of revolution. ● Using integrals to calculate work and energy.
- Techniques of integration including integration by parts, trigonometric integrals and trigonometric substitution, and partial fractions. ● Improper integrals.
- Using integrals to calculate arc length and surface area. ● Using integrals to calculate fluid pressure and force and center of mass. ● Taylor polynomials.
- Parametric equations and polar coordinates. ● Arc length and area involving polar coordinates. ● Conic Sections.

Learner Outcomes: Upon completion of this course, students will

- evaluate integrals using various exact techniques including integration by parts, trigonometric substitution, and partial fractions, along with numerical techniques and computer algebra systems.
- set up integrals to calculate quantities such as the arc length of a curve, the area of a region bounded by curves, the area of a surface, and to calculate the volume of a solid using various methods and also use integrals to calculate quantities such as the work done by a variable force, the force on a surface due to fluid pressure, and the center of mass of a lamina.
- determine the convergence of a sequence and find the limit of a converging sequence. Determine the convergence of a series and find the limit of a converging series.
- explain the meaning of limits, derivatives, integrals, and series in their own words, both in general terms and in the context of specific problems.
• construct appropriate functions, equations, or integrals to model an applied situation, based on a verbal description.
• apply techniques of calculus to solve applied problems from fields such as engineering and applied sciences.
• interpret symbolic and numerical results in real-world terms, and analyze the validity of their results in a real-world setting.
• explain the definition of the integral and its motivation. Explain why integration is the appropriate method to solve a particular problem.

Your Grade: Three tests (100 points each), regular homework assignments or quizzes (100 points total), and a final exam (like a forth test) will be given. I will count 1.5 times the best test score and the 0.5 times the lowest test score. Each HW or quiz will be worth 10 points and the best ten will be counted. Maximum possible total points = 500

A = [450, 500], B = [400, 450), C = [350, 400), D = [300, 350)
F = [0, 300) or missing the final exam.

Make-up Exams and Missing Assignments: Make-up tests will be given for excused absences only. Students must verify their absences with the associate dean of college or by the dean of students. No late homework will be accepted or no make-up quizzes will be given.

Important Days: Test 1: Monday, June 11
Test 2: Tuesday, June 19
Test 3: Wednesday, June 27
Final Exam (Test 4): Friday, July 6
(Semester has only 24 days and there will be a test on every sixth day)
Tests 1 through 3 will be about 75 minutes long and Test 4 will be two hours long.
I plan to cover about 1.5 sections each day.

Class Attendance and Excused Absences: Students are required to attend the class every day. They must come to class on time and stay in the class for the entire period. Students are responsible for the material discussed in the class on each day even if they miss the class on that day. Please refer to section of the Undergraduate Catalog (http://www.marshall.edu/ucomm/catalog/interim.htm) for details regarding the university excused absence policy. Any excused absence must be verified by the assistant/associate dean of the appropriate college or the dean of students. Student must also notify the instructor of any absence at the earliest convenience time. Daily attendance will be taken.

Academic Honesty: I expect my students to be honest and hard working individuals. Students should not attempt to cheat on exams or on assignments. It is not difficult to catch cheating and cheaters will be dealt seriously. Please read the appropriate section of the undergraduate catalog for more details. Students are allowed and encouraged to study and do homework with other students in the class. But students should do their assignments by themselves.

“Policy for Students with Disabilities: Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.”

Please visit http://www.marshall.edu/academic-affairs/?page_id=802 for more details.