MA 163 CALCULUS II

MEETING DAYS: M W R F
MEETING TIMES: 3:00 pm – 3:50 pm
ROOM: Jamrich 3102

PROFESSOR: Dr. Bao Q. Truong OFFICE: Jamrich 2216 PHONE: 227-1610 EMAIL: btruong@nmu.edu

OFFICE HOURS: 10:00 – 10:50, 2:00 – 2:50 and 4:00 – 4:50 M W R F or by appointment.

PREREQUISITES: MA 161 with a grade of C- or better.


COURSE CONTENT: The course will continue the study of calculus began in MA 161. It will cover most of chapters 5, 6, 7, 8, 10 and 11. The first half of Calculus II concentrates on the definite integral and its applications, Chapters 5 – 8. The second half of Calculus II pertains to two major topics. The first of these, Chapter 10, studies the calculus in the setting of parametric equations and in the setting of polar coordinates. The second topic, Chapter 11, concerns infinite sequences and series. Representing functions by means of infinite series is of fundamental importance in applied mathematics.

COURSE OBJECTIVES: Course Objectives: The main objective of Calculus II is for students to continue learning the basics of the calculus of functions of one variable. They will study both the concepts and techniques of integration, parametric equations, and infinite sequences and series, culminating with Taylor series. They will also apply these ideas to a wide range of problems that include area between curves, volume, work, arc length and surface area. They will study approximate integration, a topic that will involve an introduction to Mathematica. The students should be able to interpret the concepts of Calculus algebraically, graphically and verbally. More generally, the students will improve their ability to think critically, to analyze a problem and solve it using a wide array of tools. These skills will be invaluable to them in whatever path they choose to follow, be it as a mathematics major or in pursuit of a career in one of the other sciences. Upon successful completion of the course, students should be able to
- evaluate definite, indefinite and improper integrals exactly using basic integration techniques such as substitution, integration by parts and partial fractions; (Integration skills)
- setup integrals to compute areas, volumes, and evaluate average of a function over a closed interval; (Applications)
- use parametric equations to compute geometric quantities such as arclength of a parametric curve and area enclosed by a loop of a parametric curve given in polar coordinates; (Parametric equations)
- carry out numerical integration using Simpson’s rule; (Approximate integration)
- determine the limit of a given sequence of real numbers; (Finding limits)
- determine whether a series is summable as well as justify using standard tests such as the ratio test; (Convergent series)
- compute Taylor polynomial of a given degree as well as determine the radius and interval of convergence of a given power series; (Power series)

HOMEWORK: Students should check the course webpage at https://educat.nmu.edu/ for homework and reading assignments. Handouts and other useful information can also be found there. Students are expected to complete all homework and reading assignments in a timely fashion. LATE HOMEWORK WILL NOT BE ACCEPTED.

TESTS: There are four tests and a comprehensive final exam that will take place at the times given below.
Test 1: Friday, February 6
Test 2: Friday, February 27
Test 3: Friday, March 27
Test 4: Friday, April 17
Final Exam: Thursday, April 30, 2015, 2 p.m.-3:50 p.m.
Tests can be made up only for a good reason and you must provide documented proof (i.e. note from
doctor, subpoena, funeral announcement, etc.) before you can take a makeup. If possible, please notify me
before the test if you are not going to be there. Except for university related functions, I will solely
determine whether or not the reason that you have for missing a test is valid. All makeup tests will be
taken in the Mathematics Department office.
Quizzes will be given once or twice a month, unannounced, and cannot be made up under any
circumstances. Quizzes will include any in class projects. If you miss only one or two quizzes, it will not
significantly affect your grade. However, missing most of them will.

GRADES: Weighted percentage:

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<tr>
<th>Percentage</th>
<th>Description</th>
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<tbody>
<tr>
<td>50%</td>
<td>Tests</td>
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<tr>
<td>10%</td>
<td>Quizzes</td>
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<td>10%</td>
<td>Graded HW/Projects</td>
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<tr>
<td>30%</td>
<td>Final</td>
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AA- (> 90%) B-BB+ (80% – 89%) C-CC+ (70% – 79%) D-DD+ (60% – 69%) F (< 60%)

ATTENDANCE: You should come to class. If at any point you feel that you would rather not come to
class because, in some lecture I give, everything seems to be something you already know, then you are
mistaken: there is a great deal of depth behind every single idea we will cover in this course (some of
which I will at least describe a little bit of, over the course of the semester), and if you think you
understand the most obvious features of what we cover in class, then it is time to dig deeper and try to
solve more difficult problems.

TUTORING: If you need extra help in the class, you are welcome to come to my office hours, or email
me to make an appointment to meet with me outside of my office hours. You are also welcome to go to
the Mathematics Tutor Lab, West Science 3810. Mathematics Tutor Lab is open M-R 9:00 am.- 4:00 pm
and F 9:00 am.- 3:00 pm.

LAPTOP: The use of laptop and other electronic devices, except for hand held calculators, will not be
permitted during exams. Calculators are allowed on exams in this course; however, you are not
permitted to use powerful calculators to perform symbolic differentiation on exams. In general almost
all work in this course will be work that a calculator will not help you with, so I think you will find that
you only rarely, if ever, need to reach for your calculator.

ADA STATEMENT: If you have a need for disability-related accommodations or services, please inform
the Coordinator of Disability Services in the Dean of Students Office at 2001 C. B. Hedgcock Building
(227-1700). Reasonable and effective accommodations and services will be provided to students if
requests are made in a timely manner, with appropriate documentation, in accordance with federal, state,
and University guidelines.