MATH 2350: Calculus III – Spring 2011 – Section 002

Class Information

Time: MWF 9.00 am - 9.50 am **Room:** HOLDEN 111

Instructor Information

Name: Mervyn Parakrama B. Ekanayake **Office:** MATH 006 **Phone:** (806) 742-2566 (Math office)
Email: mpb.ekanayake@ttu.edu **Office Hours:** MWF 10.50 – 11.50 am / Appointment

Course Coordinator Information

Name: Dr. Eugenio Aulisa **Office:** MATH 222 **Phone:** (806) 742-2580 - ext. 270
Email: eugenio.aulisa@ttu.edu **Office Hours:** MWF 2.00 – 3.00 pm / Appointment

Course Information

Prerequisites: C in MATH 1352: Calculus II

Textbook: *CALCULUS*, 5th Ed., by Strauss, Bradley, and Smith; published by Pearson.

Calculators and Electronic Devices: Use of calculators in the Final exam is NOT permitted. Electronic devices which can store formulas, including cell phones, should be turned off and stored during the final exam.

Website: http://netra.math.ttu.edu/staff_pages/mpb_ekanayake/courses/2011_spring/MATH2350/index.html
or go to http://netra.math.ttu.edu/ and click "Personnel" then click "CBCIS Staff Pages" and select my link.
All the class related material, announcements, homework, etc. will be posted on this website. ***Check it regularly!***

Course Description and Purpose

This is calculus of several variables. The concepts are extensions of the concepts from Calculus I. It is necessary to remind the students of those basic concepts, as the course progresses. Multivariable Calculus is an important tool in Science and Engineering. The instructor should emphasize the importance of all relevant concepts, including: curves and surfaces in Euclidean 3-space, length and curvature, area and volume; surfaces, partial derivatives, total differential, tangent planes to surfaces; gradient; vector-valued functions; path integral; Stokes' theorem, which should be stated, with an emphasis on its important particular cases, Green's Theorem and Divergence Theorem - followed by a few simple examples.

Expected Learning Outcomes

MATH 2350 satisfies the university core curriculum requirement in Mathematics: *"Students graduating from Texas Tech University should be able to demonstrate the ability to apply quantitative and logical skills to solve problems."* It meets the TTU general education student learning outcomes for mathematics that students will:

- Apply arithmetic, algebraic, geometric, statistical and logical reasoning to solve problems.
- Represent and evaluate basic mathematical and/or logical information numerically, graphically, and symbolically.
- Interpret mathematical and/or logical models such as formulas, graphs, tables and schematics, and draw inference from them.

Students develop skills in differentiation and integration needed to solve problems in 3-dimensional space. In particular the students will master the concepts of:

- tangent and normal vectors, and their geometric and physical interpretations
- partial derivatives, tangent planes, directional derivatives, and gradients, and how to compute them
- three-dimensional integration, and how to compute such integrals
- vector fields, divergence, and curl, and how to calculate them

Methods of Assessment of Expected Learning Outcomes

Assessment of learning outcomes will be achieved through many activities. Graded homework, quizzes, in class exams, class projects and reports will serve as an important component to this effect, in addition to their contribution towards the final grade. Class discussion, board work, non-graded quizzes, non-graded homework, visits during the office hours and other optional activities deemed important by the instructor will used as methods of assessment of expected learning outcomes. It is important to note that these assessment schemes are for your learning benefit only, and will not affect your final grade. Students are encouraged and expected to ask questions during the class, and to seek the instructor's help during office hours when needed.

Calculators and Formula Sheets

NO CALCULATORS OR FORMULA SHEETS for the final exam as well as for the in class exams.

Course Outline

Chapter 09: Vectors in the Plane and Space *[4 days]*,
Chapter 10: Vector-valued Functions *[5 days]*,
Chapter 11: Partial Differentiation *[9 days]*,
Chapter 12: Multiple Integration *[9 days]*,
Chapter 13: Vector Analysis *[8 days]*.

Grading Policy

This course has a comprehensive departmental final exam. Therefore, the final exam is mandatory and will constitute a significant portion of the final grade. There will be THREE in class exams. In addition, quizzes and homework will also contribute towards the final grade. Homework will be assigned regularly, and will be collected on a due date prescribed when the homework is assigned. A few randomly selected problems *may be* graded and *may be* counted towards the quiz score. There will be frequent quizzes, based on previously assigned homework up to the day before the quiz. Exams and quizzes will NOT be rescheduled unless for a university approved trip or a religious holy day, as required by the university. The lowest scoring tests will be replaced by the final exam score, given the final exam score is better. The contribution of each component towards the final as well as the *tentative* policy for assigning the final grade letters are given the following tables:

Final Grade Composition	
Method	Weight
Final Exam	29%
In class Exam 1	19%
In class Exam 2	19%
In class Exam 3	19%
Quizzes & Homework	14%

Points for Final Grade	
Grade Letter	Score
A	90% – 100%
B	80% – 89%
C	70% – 79%
D	60% – 69%
F	0% – 59%

Important Dates

- Martin Luther King Jr. Day, University holiday: January 17, Monday
- Last day to add a course: January 18, Tuesday
- Last day for student-initiated drop on MyTech without penalty (drop does not count against drop limit): January 28, Friday
- **In class Exam 1**: February 09, Wednesday
- **In class Exam 2**: March 09, Wednesday
- Mid-semester grades due via Raiderlink: March 09, Wednesday
- Spring vacation: March 12, Saturday – March 12, 20, Sunday
- Last day for student-initiated drop on MyTech with penalty (counts against drop limit): March 23, Wednesday
- **In class Exam 3**: April 20, Wednesday
- No classes: April 25, Monday
- Period of no examinations except for makeup exams or scheduled lab exams: April 27, Wednesday – May 3, Tuesday
- Last day to withdraw from the university: April 28, Thursday
- Last day of class: May 3, Tuesday
- **Departmental Final**: Friday May 06, 10.30 am – 1.00 pm
- Final grades due for graduating students via Raiderlink: May 11, Wednesday
- Final grades due via Raiderlink: May 16, Monday

The students are expected be aware of the important dates and deadlines of the university. The complete official academic calendar is available at `http://www.depts.ttu.edu/officialpublications/calendar/10-11calendar/10-11detailed.php` .

Common Courtesy Guidelines

As a measure of respect and common courtesy towards your fellow students and the instructor you are expected to behave in a civil and acceptable manner. Please:

- Come to lass on time and do not leave early. If you absolutely need to go out of the class, please do so without disturbing others
- Turn off or at least mute your mobile phones during class
- Do not use portable media player (iPod etc.), mobile phone (for texting, games etc) and other such devices during class

For more information see `www.studentaffairs.ttu.edu/vpsa/publications/civility.htm` .

Texas Tech Operating Policies and Procedures

The following three items are brief excerpts. The complete policies are available at `http://www.depts.ttu.edu/opmanual` .

Academic Honesty (OP 34.12) It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. "Scholastic dishonesty" includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misinterpreting facts, and any act designed to give unfair advantage to the students or the attempt to commit such an act.

ADA Accommodation (OP 34.22) Any student who because of a disability may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary accommodations. Student should present appropriate verification from AccessTECH. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

Absence for Observance of Religious Holy Day (OP 34.19) "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code Section 11.20. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

Class Attendance Policy

Students are expected to have good class attendance..Attendance records will be collected daily. In addition, there may be random quizzes. Absences due to observance of religious hoy days, officially approved trips and illness or death of close family will be handled in accordance with the Texas Tech University Operating Policies (OP codes) and the Texas Tech University Catalog.

Absence due to officially approved trips

The Texas Tech University Catalog states that the department chairpersons, directors, or others responsible for a student representing the university on officially approved trips should notify the students instructors of the departure and return schedules in advance of the trip. The instructor so notified must not penalize the student, although the student is responsible for material missed. Students absent because of university business must be given the same privileges as other students (The Texas Tech University Catalog page 50).

Illness and Death Notification

The Center for Campus Life is responsible for notifying the campus community of student illnesses, immediate family deaths and/or student death. Generally, in cases of student illness or immediate family deaths, the notification to the appropriate campus community members occur when a student is absent from class for four (4) consecutive days with appropriate verification. It is always the students responsibility for missed class assignments and/or course work during their absence. The student is encouraged to contact the faculty member immediately regarding the absences and to provide verification afterwards. The notification from the Center for Campus Life does not excuse a student from class, assignments, and/or any other course requirements. The notification is provided as a courtesy. The service is explained as follows and can be found on the Center for Campus Life web site at: `http://www.campuslife.ttu.edu/crisis/` .

Tutoring and Study Center and Tutoring Resources

The "Tutoring and Study Center" (TSC) is a free tutoring center operated by the Department of Mathematics and Statistics. It meets in MATH 106. Students are encouraged to visit TSC if they have any problems regarding any of the homework or course material offered by the department of mathematics. In addition, the mathematics department office maintains a tutor list, if you ever happen to feel the need of a personal (paid) tutor for a course offered by the mathematics department.

Disclaimer

This syllabus outlines the general procedures of operation and guidelines specific to MATH 2350: Calculus III, spring 2011, section 002. The instructor reserves the right to make amendments to the syllabus for the benefit of the students in accordance with the rules and regulations of the Texas Tech University and the Department of Mathematics and Statistics.