

**THE UNIVERSITY OF TEXAS AT EL PASO**  
**COLLEGE OF SCIENCE**  
DEPARTMENT OF Mathematical Sciences

Course #: Math 2313  
Course Title: Calculus III  
Credit Hrs: 3.0  
Term: Spring 2015  
Course Meetings & Location: TR 1:30-2:50pm  
Prerequisite Courses: C or better in Math 1312  
Course Fee: (if applicable) N/A  
Instructor: Dr. Maria Pia Beccar Varela  
Office Location: Bell Hall 216  
Contact Info: Phone # 915-797-8038  
E-mail address: mpvarela@utep.edu  
Fax # 915-747-6502 (Math Department)  
Emergency Contact: 915-747-5761 (Math Department)  
Office Hrs: Monday 3:00-4:30pm - Thursday 4:00-5:30pm., but stop by anytime you need.  
Textbook(s), Required: **Calculus, UTEP/EPCC last edition**, by Larson, Hostetler, Edwards.  
Materials: Strongly recommended: TI-83 or TI-84 Calculator

Course Objectives (Learning Outcomes): **Contents:**

Learn how to use vectors and their operations (dot product, cross product, etc) in 2 and 3 dimensions to model equations of planes, parametrizations of straight lines, and area and volume of various geometric objects.

Learn how to visualize and parametrize a curve in space and find geometric information from its parametrizations (arc length, tangent vectors, etc).

Learn the concept of differentiable function of several variables and its main applications, including linear approximations, tangent planes to graphs of functions, the chain rule, and computation of directional derivatives.

Learn the basic optimization techniques for functions of several variables, including the method of Lagrange multipliers, over general regions with and without boundary.

Learn the theory (Riemann sums) and computational strategies for multiple integrals, including the general change of variables formula and the special cases of polar, cylindrical and spherical coordinates.

Learn how to use multiple integrals to compute area, volume, and other common quantities commonly found in applications.

If time permits: Learn the use and theory of Green's theorem.

Course Activities/Assignments: I will assign homework, and quizzes (in class) that will be based in the textbook homework problems.

Assessment of Course Objectives: **Exams:** Two exams will be given. There are no make-ups.  
**Quizzes and hw:** One quiz and one hw will be given each week. There are no make-ups.  
**Final Exam:** : The comprehensive final exam will be given on Thursday, May 14, 1:00pm -3:45 pm  
[http://academics.utep.edu/Portals/382/Scheduling/201520/SPRING%202015%20\(2\).pdf](http://academics.utep.edu/Portals/382/Scheduling/201520/SPRING%202015%20(2).pdf)

Course Schedule: Chapters 11--14 in the text will be covered in detail, as well as topics from Chapter 15 as time permits.  
Specific

### **Tentative schedule**

1/20 - 1/23 Section 11.1: Vectors in the plane.  
Section 11.2: space coordinates. Section 11.3 The dot product.

1/26 - 1/30 Section 11.4: The cross product  
Section 11.5: Lines and planes in space.

2/2 - 2/6 Section 11.6: Surfaces in space.  
Section 11.7: cylindrical and spherical coordinates  
Section 12.1: Vector valued functions

2/9 - 2/13 Review. **Exam #1 -- Thursday**

2/16 - 2/20 Section 12.2: Differentiation and  
integration of vector valued functions  
Section 12.3: Velocity and acceleration

2/23 - 2/27 Section 12.4: Tangent vectors and normal  
vectors  
Section 12.5: Arc lengths and curvatures

3/2 - 3/6 Section 13.1: Functions of several  
variables. Section 13.2: Limits and continuity

### **3/9 - 3/13 Spring Break**

3/16 - 3/20 Section 13.3: Partial derivatives. Section  
13.4: Differentials  
Section 13.5: Chain rule for functions of several  
variables  
Section 13.6: Directional derivatives and gradients

3/23 - 3/27 Section 9.1: Review. **Exam #2 -- Thursday**

3/30 - 4/3 Section 13.7: Tangent planes and normal  
lines  
Section 13.8: Extrema of functions of two variables  
Section 13.9: Applications

### **Drop Deadline - Monday, April 6**

4/6 - 4/10 Section 14.1: Iterated integrals and area  
Section 14.2: Double integrals and volume  
Section 14.3: Change of variables and polar  
coordinates

4/13 - 4/17 Section 14.5: Surface area  
Section 14.6: Triple integrals and applications

4/20 - 4/24 Section 14.7 Triple integrals in  
cylindrical and spherical coordinates. Section 4.8  
change of variables and jacobians.

4/27 - 5/1 Chapter 15

5/4-5/8 Review



Grading Policy: **Quizzes, homework and class participation 25%**  
**Two in class exams 20% each**  
**Final exam: 35%**

The usual standard grading scale will be used (90-100% = A, 80-89% = B, 70-79% = C, etc. ).

Make-up Policy: Make-up exams and quizzes will be given only in extraordinary circumstances, which must be documented as early as possible. No late homework accepted. **There is no makeup final exam.**

Attendance Policy: It is the student's responsibility to attend every class, if you miss a class, you will miss a lot of information. If you try to go from one class to another without studying, you will most likely be completely lost during the next class. Students are expected to arrive for class on time and to remain for the class entire period. It is essential to pay attention in class and take legible notes. It is essential to read the textbook and work through the example problems given in the book and class. Failure to accomplish the above, as a minimum almost invariably ensures a less than satisfactory grade for this course.

Academic Integrity Policy: The University policy is that all suspected cases or acts of alleged scholastic dishonesty must be referred to the Dean of Students for investigation and appropriate disposition. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Each student is responsible for notice of and compliance with the provisions of the Regents' [Rules and Regulations](#), which are available for inspection electronically at <http://www.utsystem.edu/bor/rules/homepage.htm>.

All students are expected and required to obey the law, to comply with the Regents' [Rules and Regulations](#), with System and University rules, with directives issued by an administrative official in the course of his or her authorized duties, and to observe standards of conduct appropriate for the University. A student who enrolls at the University is charged with the obligation to conduct himself/herself in a manner compatible with the University's function as an educational institution.

Any student who engages in conduct that is prohibited by Regents' [Rules and Regulations](#), U. T. System or University rules, specific instructions issued by an administrative official or by federal, state, or local laws is subject to discipline, whether such conduct takes place on or off campus or whether civil or criminal penalties are also imposed for such conduct.

Civility Statement: Calculators may not be shared during quizzes and exams. Please do not use cell phones, pagers, iPods, MP3 players, blue tooth devices, etc. during class. Cell phones and pagers should be set to silent or vibrate, and any calls should be taken outside of class. Please do not wear headsets or blue tooth devices during class. Please don't talk in class. Cell phone calculators may not be used on quizzes or exams. Active participation in class is expected, teamwork in class will be implemented.

Disability Statement: **If you have a disability and need classroom accommodations, please contact: The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass).**

The student is responsible for presenting to the instructor any DSS accommodation letters and instructions.

Military Statement: If you are a military student with the potential of being called to military service and/or training during the semester, please contact me by the end of the first week of class