

Math 2730 (Multivariable Calculus)

Spring 2014, UNT

Lecture: BLB 255, MWF 11:00-11:50am

Instructor: Professor Olav Richter

- **Office:** GAB 418 B
- **Office hours:** MW 1:00-3:00pm, and by appointment
- **Phone:** 565-4352
- **email:** richter@unt.edu

Course Description: In Math 2730, we will cover vectors and analytic geometry in 3-space, multivariable functions and their derivatives, extreme values, double and triple integrals, and applications.

Prerequisites for Math 2730: Math 1720.

Textbook:

- **Title:** Calculus
- **Authors:** Briggs and Cochran
- **Publisher:** Pearson

Exams & Grading Policy: Your final grade will be based on homework, three midterms, and a comprehensive final. The midterms will be on Feb 10th, Mar 7th, and on Apr 11th. The final exam will be on May 5th. Please make sure that you are available at those dates, since there will be **NO** make up exams! The grade is comprised of

- **Homework (15%),**
- **3 Midterms (45%),**
- **Comprehensive Final (40%).**

You are encouraged to study together and help each other throughout the semester. If everyone does well, everyone will receive a good grade.

Math Lab: You may want to check out the UNT Math Lab (in GAB 440) to get extra help with the homework. Hours (Jan 21-May 2): Mo-Th 7am-8pm; Fr 7am-4pm; Sa 12pm-4pm (closed Sundays and Holidays).

Homework: I will announce homework assignments in class. The assignments are *usually* due on Fridays at the beginning of each class period. Late homework will **NOT** be accepted for any reason. Your lowest homework score will be dropped. Do all the assigned problems, but turn in only the **even-numbered** problems.

Section	HW Problems
12.1 (Vectors in the plane)	17, 20 a)-e), 21, 29, 30, 32, 34, 39, 40, 55
12.2 (Vectors in three dimensions)	7, 21, 22, 23, 24, 25, 28, 29, 32, 39, 40
12.3 (Dot products)	9, 12, 19, 22, 23, 28, 37, 40, 53, 54
12.4 (Cross products)	7, 8, 19, 22, 29, 30, 48, 49, 62, 63
12.5 (Lines and curves in space)	6, 9, 15, 16, 38, 39, 42, 47, 49, 50
12.6 (Calculus of vector-valued functions)	11, 12, 13, 17, 20, 41, 44, 45, 46, 53, 68
12.7 (Motion in space)	9, 14, 19, 20
13.1 (Planes and surfaces)	11, 12, 15, 18, 19, 23, 24, 25, 28, 29, 30, 61--70
13.2 (Graphs and level curves)	11, 12, 14, 15, 16, 18, 27, 28, 32, 34, 44, 45, 46, 49, 64
13.3 (Limits and continuity)	15, 18, 19, 22, 24, 25, 28, 30, 35, 36, 67
13.4 (Partial derivatives)	7, 12, 13, 16, 19, 20, 39, 43, 46, 47, 48, 64
13.5 (The chain rule)	7, 12, 15, 17, 22, 27, 28, 30, 35, 36, 49, 50
13.6 (Directional derivatives and gradient)	9, 10, 15, 20, 23, 26, 37, 42, 49, 54, 59, 60
13.7 (Tangent planes and linear approx.)	9, 12, 15, 16, 18, 21, 24, 41, 42, 44, 46, 47
13.8 (Maximum/minimum problems)	17, 18, 22, 24, 33, 34, 37, 39, 40, 42, 47, 48
13.9 (Lagrange multipliers)	7, 10, 15, 16, 18, 20, 22, 49
14.1 (Double integrals of rectangular regions)	5, 10, 11, 14, 19, 20, 23, 38, 39, 40
14.2 (Double integrals over general regions)	7, 8, 9, 12, 20, 23, 29, 36, 41, 43, 46, 49, 54, 63, 64
11.2 (Polar coordinates)	15, 16, 20, 31, 34, 36, 57
14.3 (Double integrals in polar coordinates)	21, 22, 24, 27, 35, 38, 47, 48, 50, 60
14.4 (Triple integrals)	7, 8, 11, 12, 15, 16, 17, 20, 22, 25, 26, 30, 35, 36, 45
14.5 (Triple integrals in cylindrical & spherical coordinates)	11, 12, 17, 18, 31, 32, 35, 36, 39, 40, 47, 48
14.6 (Integrals for mass calculations)	15, 16, 21, 26, 27, 30, 33, 34

Expectations: A fair amount of work is involved in learning calculus. You are expected to come to lecture on time. Plan ahead so you are not late. You should come to every lecture, and come prepared. It is your responsibility to obtain notes from another student if you miss class. You are expected to read the assigned sections and work on the homework problems immediately after they are assigned. You should be prepared to ask questions, take notes, and look alive in class. Please bring your text book to class and leave the cell phone at home. Repeat: **NO CELL PHONES OR PAGERS!!!** In addition to attending lecture, you should spend at least 6 hours per week on my course.

Disabilities: It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office.

Cheating: No cheating will be tolerated. Anyone caught cheating will receive an F in the course. Furthermore, a letter will be sent to the appropriate dean.

Lecture schedule: The following *Tentative Lecture Schedule* gives you an idea what material I *intend* to cover in this class, but note that the schedule *might change* often. You are responsible for all announcements/assignments made in class!

Tentative Lecture Schedule

Mo Jan 13 12.1	We Jan 15 12.2	Fr Jan 17 12.3	We Jan 22 12.3+12.4	Fr Jan 24 12.4+HW	Mo Jan 27 12.5	We Jan 29 12.6	Fr Jan 31 12.7+HW
Mo Feb 3 13.1	We Feb 5 13.1	Fr Feb 7 Review	Mo Feb 10 Midterm	We Feb 12 13.2	Fr Feb 14 13.2+HW	Mo Feb 17 13.3	We Feb 19 13.3+13.4
Fr Feb 21 13.4+HW	Mo Feb 24 13.5	We Feb 26 13.6	Fr Feb 28 13.6+HW	Mo Mar 3 13.7	We Mar 5 Review	Fr Mar 7 Midterm	Mo Mar 17 13.8
We Mar 19 13.8+13.9	Fr Mar 21 13.9+HW	Mo Mar 24 14.1	We Mar 26 14.2	Fr Mar 28 14.2+HW	Mo Mar 31 14.2+11.2	We Apr 2 14.3	Fr Apr 4 14.4+HW
Mo Apr 7 14.4	We Apr 9 Review	Fr Apr 11 Midterm	Mo Apr 14 14.5	We Apr 16 14.5	Fr Apr 18 14.6+HW	Mo Apr 21 14.6	We Apr 23 14.7
Fr Apr 25 14.7+HW	Mo Apr 28 Review	We Apr 30 Review					Mo May 5 FINAL 10:30-12:30pm