

MATH 120: Calculus for Functions of Several Variables (Spring 2014)

Frequency: Fall/Spring Terms

Credit: (4-2) 5

Course Coordinator: Benjamin Walter

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Course Website: <http://math.ncc.metu.edu.tr/math120>

Contains the full course information. Check it!

Course grades and announcements will be posted on the course website.

Textbook: *Calculus*. James Stewart, 7th international metric ed., 2012.

Exams and Grading: Course grades are determined by (online) homework, short exams (organized by the teaching assistants), two (non-cumulative) midterm exams, and a cumulative final exam.

- **Homework:** 2 % (WeBWorK)
- **Short Exams:** 2x 10% = 20 % (dates to be announced)
- **Midterm Exams:** 2x 22% = 44 % (dates to be announced)
- **Final Exam:** 34 %
- **Bonus:** 5 % (2 % recitation and 3 % section)



Homework: Online homeworks will be assigned and graded using the WeBWorK system.

Short Exams: Two out-of-class short exams will be organized and administered by the recitation teaching assistants. These exams will consist of **problems taken from webwork**. Their timing will be announced by teaching assistants during recitation.

Exams: Dates for all exams are set by the university administration. We will announce the dates as soon as they are known. Students are assigned random seating for each exam – sit according to the posted seating charts. **Calculators and cell phones are not allowed during exams** – all cell phones should be left on the desk at the front of the exam room during the exam time.

Bonus: Recitation bonus will be determined by the teaching assistants. Course section bonus will be determined by completion of bonus MatLab assignments which will be posted on WebWork, printed by students, completed, and turned in by hand.

Math Help Room: The mathematics help room in T-103 is a room staffed by mathematics faculty and teaching assistants where students may gather to ask questions, work on homework, and view exams. **Students are also encouraged to seek out instructors in their offices.**

Make-up Policy: In order to be eligible to enter the make-up examination, a student should have a documented or verifiable and officially acceptable excuse. **It is not possible to make up multiple missed exams.** The make-up examination will be after the final exam, **and will include all topics.**

Cheating Policy: Cheating on any midterm or short exam will result in any of the following: (1) immediate score of ZERO on that exam, (2) immediate grade of FF in the course, (3) forwarding the case to the university disciplinary committee.

Missed Short Exam Policy: At most one short exam may be missed with a valid, acceptable excuse. This short exam's grade will be replaced by the average grade of the other exams.

Lectures		
S1 - B. Walter	Mon 8:40-10:30 Wed 8:40-10:30	TZ-20
S2 - B. Okutmuşur	Mon 13:40-15:30 Thu 8:40-10:30	SZ-24
S3 - B. Okutmuşur	Mon 8:40-10:30 Wed 8:40-10:30	SZ-22
S4 - B. Walter	Mon 13:40-15:30 Thu 8:40-10:30	TZ-20

Recitations		
R1 - Arda Buğra Özer	Wed 15:40-17:30	SZ-25
R2 - Arda Buğra Özer	Fri 15:40-17:30	SZ-24
R3 - Arda Buğra Özer	Thu 10:40-12:30	SZ-25
R4 - Arda Buğra Özer	Tue 15:40-17:30	SZ-25

<u>Week 1:</u> Feb.17-21	1	Chapter 12. Vectors and the Geometry of Space §12.1: Three-Dimensional Coordinate Systems. §12.2: Vectors. §12.3: The Dot Product.
	2	§12.4: The Cross Product. §12.5: Equations of Lines and Planes.
<u>Week 2:</u> Feb.24-28	3	§12.5: <i>Equations of Lines and Planes (cont)</i> . §12.6: Cylinders and Quadric Surfaces
	4	Chapter 13. Vector Functions §13.1: Vector Functions and Space Curves. §13.2: Derivatives and Integrals of Vector Functions
<u>Week 3:</u> Mar.3-7	5	Chapter 14. Partial Derivatives §14.1: Functions of Several Variables §14.2: Limits and Continuity.
	6	§14.3: Partial Derivatives. §14.4: Tangent Planes and Linear Approximations.
<u>Week 4:</u> Mar.10-14	7	§14.5: The Chain Rule.
	8	§14.6: Directional Derivatives and the Gradient Vector.
<u>Week 5:</u> Mar.17-22	9	§14.7: Maximum and Minimum Values.
	10	§14.8: Lagrange Multipliers.
<u>Week 6:</u> Mar.24-28	11	Chapter 15. Multiple Integrals §15.1: Double Integrals over Rectangles. §15.2: Iterated Integrals.
	12	§15.3: Double Integrals over General Regions. §15.5: Applications of Double Integrals.
<u>Week 7:</u> Mar.31- Apr.4	13	§10.3: Polar Coordinates. §15.4: Double Integrals in Polar Coordinates.
	14	§15.10: Change of Variables in Multiple Integrals.
<u>Week 8:</u> Apr.7-11	15	§15.7: Triple Integrals (<i>Simple regions. Omit moments & center of mass.</i>).
	16	Chapter 16. Vector Calculus §16.1: Vector Fields.
<u>Week 9:</u> Apr.14-18	17	§16.2: Line Integrals.
	18	§16.3: The Fundamental Theorem for Line Integrals.
<u>Week 10:</u> Apr.21-25	19	§16.4: Green's Theorem.
	Holiday Wed., 23 April	
	20	Chapter 11. Infinite Sequences and Series §11.1: Sequences.
<u>Week 11:</u> Apr.28- May 2	21	§11.1: <i>Sequences (cont)</i> (Including Monotonic Sequence Thm). §11.2: Series.
	22	§11.2: <i>Series (cont)</i> . §11.3: The Integral Test (Not including 'Estimating the Sum of a Series').
Holiday Thu., 1 May		
<u>Week 12:</u> May 5-9	23	§11.4: The Comparison Tests (Including 'Estimating Sums').
	24	§11.5: Alternating Series (Including 'Estimating Sums'). §11.6.1: Absolute Convergence.
<u>Week 13:</u> May 12-16	25	§11.6.2: The Ratio and Root Tests. §11.7: <i>Strategy for Testing Series (Reading/Recitation Assignment)</i> .
	26	§11.8: Power Series. §11.9: Representations of Functions as Power Series.
<u>Week 14:</u> May 20-23	Holiday Mon., 19 May	
	27	§11.9: <i>Representations of Functions as Power Series (cont)</i> . §11.10: Taylor and Maclaurin Series. (Including Binomial Series)
FINAL EXAMS: May 26 – June 7		