

MATH 120: Calculus for Functions of Several Variables (Spring 2013)

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>

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:** 5 % (WeBWorK)
- **Short Exams:** 3x 7% = 21 % (Wednesday evenings – date to be announced)
- **Midterm Exams:** 2x 22% = 44 % (dates to be announced)
- **Final Exam:** 30 %
- **Bonus:** 6 % (1 % recitation and 5 % section)



Homework: There will be 6 online homeworks assigned and graded using the WeBWorK system.

Short Exams: Short exams will be given on Wednesday evenings (dates to be announced). Problems in the short exams will be chosen from the previous WeBWorK assignments.

Bonus: Up to 6 bonus points will be added to the final course score of students after combining all other grades. One of these bonus points will come from recitation and the other five from section. The method of determining bonus points will be decided by individual instructors and announced in class.

NA Grade Policy: Students who miss (without excuse) or receive a grade of 0 on more than 2 of the course exams (midterms and short exams combined) automatically receive a grade of NA for the course.

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.**

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.**

Suggested Problems: For each lecture, the assistants will announce additional suggested problems from the textbook. These problems will not be graded. The list of problems is available on the course website.

Cheating Policy: Cheating on any midterm or short exam will result in an immediate score of 0 on that exam. Furthermore the student will be forced to take the make-up final at the end of exams period in lieu of the regularly scheduled final exam. Cheating on the final exam will result in an immediate grade of FF in the course.

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 short exams.

<u>INSTRUCTOR</u>	<u>SECTION</u>	<u>OFFICE</u>	<u>PHONE</u>	<u>E-MAIL</u>
Ahmet Beyaz	2, 4	RZ-41	2908	abeyaz
Anar Dosi	3	SZ-33	2943	dosiev
Benjamin Walter	1	S-132	2960	benjamin

<u>LECTURES</u>		
Section 1	Tue 8:40-10:30 Fri 10:40-12:30	TAZ-11
Section 2	Mon 15:40-17:30 Thu 10:40-12:30	TAZ-10
Section 3	Mon 8:40-10:30 Wed 8:40-10:30	TAZ-10
Section 4	Tue 15:40-17:30 Thu 15:40-17:30	TAZ-11

<u>Week 1:</u> Feb.18-22	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.25- Mar.1	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.4-8	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.11-15	7	§14.5: The Chain Rule.
	8	§14.6: Directional Derivatives and the Gradient Vector.
<u>Week 5:</u> Mar.18-22	9	§14.7: Maximum and Minimum Values.
	10	§14.8: Lagrange Multipliers.
<u>Week 6:</u> Mar.25-Mar.29	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> Apr.1-5	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.8-13	15	§15.7: Triple Integrals.
	16	§15.10: <i>Change of Variables in Multiple Integrals (cont).</i> §15.8: <i>Triple Integrals in Cylindrical Coordinates (reading assignment).</i> §15.9: <i>Triple Integrals in Spherical Coordinates (reading assignment).</i>
<u>Week 9:</u> Apr.15-19	17	Chapter 16. Vector Calculus §16.1: Vector Fields.
	18	§16.2: Line Integrals.
<u>Week 10:</u> Apr.22-26	19	§16.3: The Fundamental Theorem for Line Integrals.
	Holiday April 23	
<u>Week 11:</u> Apr.29- May 3	20	§16.4: Green's Theorem.
	21	Chapter 11. Infinite Sequences and Series §11.1: Sequences.
<u>Week 12:</u> May 6-10	Holiday May 1	
	22	§11.2: Series.
<u>Week 13:</u> May 13-17	23	§11.3: The Integral Test (Up to Estimating the Sum of a Series). §11.4: The Comparison Tests (Up to Estimating Sums).
	24	§11.5: Alternating Series. §11.6: Absolute Convergence and the Ratio and Root Tests.
<u>Week 14:</u> May 20-24	25	§11.7: Strategy for Testing Series. §11.8: Power Series.
	26	§11.9: Representations of Functions as Power Series.
<u>Week 14:</u> May 20-24	27	§11.10: Taylor and Maclaurin Series.
	28	§11.11: Applications of Taylor Polynomials.
FINAL EXAM		