Mathematics 211
Multivariable Calculus
Fall 1992

Textbook. Zill, Calculus, 2nd edition (Chapters 14-18)

Instructor: William P. McKibben
Office: Seney 303
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Office Hours: Regular (generally in office - no appointments):
Mondays - 2:30 to 4:30 p.m.
Wednesdays - 2:00 to 3:00 p.m.
Tuesdays & Thursdays - 2:00 to 3:30 p.m.

Other Possible Hours (by appointment):
Mondays & Wednesdays: 10:00 to 11:00 a.m.
Tuesdays: 8:30 to 9:15 a.m. & 3:30 to 4:30 p.m.
Thurdsays: 8:30 to 9:15 a.m. &12:30 to 2:00 p.m.
Fridays: 10:00 to 11:00 a.m. & 2:30 to 4:00 p.m.

Course Content. Mathematics 211 is the third semester of calculus and extends the concepts discussed in Mathematics 111,112 to higher dimensions. Topics include vectors and analytic geometry in three-dimensional space; vector-valued functions and motion in space; real-valued functions of several variables, differentiation, optimization and other applications; double integrals in rectangular and polar coordinates with applications; line integrals and work; Green's Theorem; surface integrals, flux and surface area; Stokes' Theorem; triple integrals in rectangular, cylindrical and spherical coordinates with applications; Divergence Theorem.

Problem Sets. Four problem sets will be given, as follows:

PS-1 Assigned: Thurs., 10 Sept.
Due: Thurs., 17 Sept.

PS-2 Assigned: Tues., 6 Oct.
Due: Thurs. 15 Oct

PS-3 Assigned: Tues. 3 Nov.
Due: Tues. 10 Nov.

PS-4 Assigned: Tues., 24 Nov.
Due: Thurs. 3 Dec.

Each problems set will have both an open-book and a closed-book portion.

Projects. The student will be asked to complete two projects. One of these projects will involve using the computer laboratory, and at least one of them will involve writing a short paper.

Final Examination. There will be a cumulative, open-book final examination, given in class.

Grading. The final course grade will be determined as follows:

Problem Sets (4 @ 125 points)	600 points
Projects	250 points
Final Exam	150 points
	1000 points

In general, letter grades will be determined as follows:

A	930 or more points
A-	900 to 929 points
B+	870 to 899 points
B	830 to 869 points
B-	800 to 829 points
C+	770 to 799 points
C	730 to 769 points
C-	700 to 729 points
D+	670 to 699 points
D	600 to 669 points
F	fewer than 600 points

Honor Code: The Honor Code of Oxford College applies to all work submitted for credit in this course, and all such work will be pledged to be that and only that of the individual student submitting the work.

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Calendar of Topics
Fall 1992

Tues., Aug. 25 - Vectors and Their Properties [14.1, 14.2]; Dot Product [14.3]

Thur., Aug. 27 - Cross Product [14.4]; Lines [14.5]

Tues., Sept. 1 - Planes [14.6]

Thur., Sept. 3 - Surfaces and Their Equations [14.7, 14.8]

Tues., Sept. 8 - Vector-Valued Functions of One Variable [15.1]; Motion in Space [15.2]

Thur., Sept. 10 - Vector-Valued Functions & Applications (continued)

Tues., Sept. 15 - Multivariable Real-Valued Functions, Limits and Continuity [16.1, 16.2]

Thur., Sept. 17 - Partial Derivatives [16.3]

Tues., Sept. 22 - Chain Rules [16.6]

Thur., Sept. 24 - Directional Derivative [16.7]; Tangent Plane [16.8]

Tues., Sept. 29 - Extrema: Testing Critical Points [16.9]

Thur., Oct. 1 - Extrema: Lagrange Multipliers [16.10]

Tues., Oct. 6 - Review

Thur., Oct. 8 - Double Integrals; Iterated Form [17.1, 17.2]

Tues., Oct. 13 - Fall Break (no class)

Thur., Oct. 15 - Set-up and Evaluation of Double Integrals in Rectangular Coordinates [17.3]

Tues., Oct. 20 - Applications of Double Integrals [17.4+]

Thur., Oct. 22 - Double Integral in Polar Coordinates [17.5]

Tues., Oct. 27 - Review Double Integrals; Introduction to Line Integrals [18.1]

Thur., Oct. 29 - Line Integrals [18.2]

Tues., Nov. 3 - Green's Theorem [18.5]

Thur., Nov. 5 - Surface Integrals [18.3]; Surface Area [17.6]

Tues., Nov. 10 - Introduction to Triple Integrals [17.7]

Thur., Nov. 12 - Triple Integrals (continued); Set-up in Rectangular Coordinates; Applications

Tues., Nov. 17 - Cylindrical and Spherical Coordinates [17.8]

Thur., Nov. 19 - Triple Integrals in Cylindrical and Spherical Coordinates [17.8]

Tues., Nov. 24 - Triple Integrals and Applications (continued); Divergence and Curl [18.4]

Thur., Nov. 26 - Thanksgiving Day (no class)

Tues., Dec. 1 - Stokes' Theorem and Divergence Theorem [18.6]

Thur., Dec. 3 - Review. Last class day

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Tuesday, December 8 - FinalExamination at 2:00 p.m.