MATH 124
syllabus
Spring, 2016

Professor:	Matthew Neal (`nealm@denison.edu`)
Office and phone:	Olin 225A (6288)
Office Hours:	MTWF 1:30-3:30 or by appointment
Web site:	`http://personal.denison.edu/~nealm/`

Course

This is a second course in calculus. Unlike Single Variable Calculus (Math 123), Math 124 considers the theory and applications of multivariable functions. We will study infinite series and sequences, vectors, linear algebra, partial derivatives, integration techniques, double integrals, and differential equations. These topics are foundational to any math, science or economics major, or any student interested in a serious study of statistics (such as Math 242).

Audience

This course is intended for students who have successfully completed Math 123, received a 4 on their Mathematics AB exam, or a 3 on the BC exam..

Book

Calculus: Early transcendentals 7th Edition by Stewart

homework url

You need to go to https://www.webassign.net and log in with your class key to do the regular homework. This key is **denison 9584 8440** . After registering, you will enter the access code you purchased at the bookstore (or online) to get access to the assignments, in class problems, and the ebook verso of the text

Grades and Expectations

The grade will be calculated with the following weights:

- 20 % for each of three tests
- 15 % homework
- 25 % Final exam

Grade Scale: 90-100 A 78-89 B 66-77 C 50-65 D 0-49 F

Final

The final takes place in our classroom on Monday, May 9th at 9 AM.

Tests

Tests occur roughly every four weeks as per the schedule below. You are responsible to understand everything said in class or written in the text for the sections covered as well as every problem assigned. Note that "understand" does not mean "memorize" and problems on the test will not be identical to homework problems. Tests are Thursday evenings from 6 - 9.

Homework

There are three types of homework. Unlike tests, you may work together on homework.

1. Reading homework: On many days, I will assign two basic/introductory questions that can be answered by reading in advance the section that will be covered on the subsequent class period. Some of these are short answer questions. They are checked at the start of the next class as you begin to discuss them in pairs. Full credit is given for honestly attempting these problems, not for accuracy. Each check adds a point of extra credit to your next test. This will develop your reading skills and prepare you for class.
2. Weekly regular homework will be assigned and completed online using Webassign. This work makes up 70 % of the homework grade
3. Challenge homework: Several harder problems are assigned each week. These problems are completed on paper. This is worth 30 % of the homework grade.

Late Work

Late tests will receive a 20 % point penalty per day late unless there is a written note (such as a note from Whistler) that verifies a VERY strong excuse (such as illness or important sports team events). Late quizzes and homework are not accepted at all without a serious excuse as described above.

Office Hours

Please come to office hours so I can get to know you better!

Disabilities

Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately as soon as possible to discuss his or her specific needs. I rely on the Academic Support and Enrichment Center in 104 Doane to verify the need for reasonable accommodations based on documentation on file in their office.

Academic Integrity

The students and faculty of Denison University and the Department of Mathematics and Computer Science are committed to academic integrity and will not tolerate any violation of this principle. Academic honesty, the cornerstone of teaching and learning, lays the foundation for lifelong integrity.

Academic dishonesty is, in most cases, intellectual theft. It includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for evaluation. This standard applies to all work ranging from daily homework assignments to major exams. Students must clearly cite any sources consulted, not only for quoted phrases but also for ideas and information that are not common knowledge. Neither ignorance nor carelessness is an acceptable defense in cases of plagiarism. It is the students' responsibility to follow the appropriate format for citations.

Proposed and developed by Denison students, passed unanimously by DCGA and Denisons faculty, the Code of Academic Integrity requires that instructors notify the Associate Provost of cases of academic dishonesty, and it requires that cases be heard by the Academic Integrity Board. Further, the code makes students responsible for promoting a culture of integrity on campus and acting in instances in which integrity is violated.

For further information about the Code of Academic Integrity see http://www.denison.edu/about/integrity.html

Topics and Schedule

Week 1: 11.2, 11.3, 11.4 Vectors, dot product, cross product
Week 2 11.5, 11.6 Cross Product, Lines, planes
Week 3: S1.1, S1.2, S1.3, S1.4 Linear systems, Gaussian Reduction, matrix operations
Week 4: S1.5, S1.6, S1.7, S2.1 Matrix arithmetic, inverses, **Test#1**, Theory of linear systems and inverses
Week 5: S 2.1, S2.2, S 2.3 Determinants, Adjoints, Cramer's rule, applications
Week 6: More Linear Algebra, 13.1, 13.3 Functions of several variables, Partial Derivatives

Week 7: 13.4, 13.5 Partial derivatives, differentiability, linear approximation, chain rule
Week 8: 13.6, 13.7 directional derivatives, gradient, **Test#2**, tangent planes, normal vectors
Week 9: 13.8, 13.9 Maxima/Minima of functions, Lagrange Multipliers
Week 10: Ch 7 selections, 8.1, 8.2 Integration techniques, Differential Equations,Separation of variables, slope fields
Week 11: 8.3, 8.4 Euler's method, First order differential equations and applications, Predator Prey Models
Week 12: 9.1, 9.2 Sequences and series bf Test #3
Week 13: 9.3, 9.10, series, power series
Week 14: 10.2, 14.3, 14.8 Double integrals and polar coordinates, center of mass