

Georgia Institute of Technology
Math 2605 - Calculus III for Computer Science – Spring 2010

	<u>Room</u>	<u>Days/Time</u>
Lecture (C1,C2)	Skiles 202	MWF 10:05am – 10:55am
Lecture (M1,M2)	Skiles 202	MWF 15:05am – 15:55am
Recitation (C1)	Skiles 256	TR 10:05am – 10:55am
Recitation (C2)	Skiles 249	TR 10:05am – 10:55am
Recitation (M1)	Skiles 202	TR 15:05am – 15:55am
Recitation (M2)	Skiles 154	TR 15:05am – 15:55am

Instructor: Anton Leykin, see webpage for office hours

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Teaching Assistants:

Sections C1 and M1: Alan Diaz adiaz@math.gatech.edu

Section C2: Kangkang Wang kwang63@math.gatech.edu

Section M2: Yi Huang yhuang@math.gatech.edu

Texts: Salas, Hille, and Etgen, *Calculus: One & Several Variables*, 10th edition (required);

Notes by Eric Carlen (see webpage);

Olver and Shakiban, *Applied Linear Algebra* (recommended);

Additional notes on linear algebra (see webpage).

Prerequisite and Description: Math 2605 is an introduction to multivariable calculus and linear algebra. Topics covered include: Topics in linear algebra and multivariate calculus and their applications in optimization and numerical methods.

Prerequisites for the course are Math 1502 or Math 1512 or (Math 15X2 + Math 1522).

Attendance and make-up exams: Attendance is required for all lectures. The student who misses a class meeting is responsible for any assignments and/or announcements made. *In the event of an absence due to travel representing Georgia Tech, such as an intercollegiate sports competition, you must notify the professor at least two weeks in advance to arrange an early test or other alternative.* Otherwise, such absences will be treated as personal.

Homework: This course will have daily homework assignments, which should be done before the next class. Homework will not be collected, however, being able to solve homework problems will be crucial for successful performance on quizzes and exams.

Quizzes: There will be quizzes every Thursday except the weeks of mid-term exams and the last week of classes.

Exams: This course will have 3 mid-term exams, and a comprehensive final exam. The exams for the course will take place on:

Exam 1	February 18
Exam 2	March 18
Exam 3	April 22
Final Exam	TBA

Projects: There will be required computer projects throughout the course. A list of potential projects will be posted on the course web-page. You will be required to turn in *two* computer projects through out the semester. Exact details will be posted on the webpage later.

Calculators: Be default calculators are not allowed. Exceptions will be made for the quizzes and exams that involve routine floating point calculations. *Calculators that can do calculus symbolically shall not be used:* no credit will be given on tests for a correct answer without the intermediate steps.

Learning Disabilities: It is the right of any student with a certified learning disability to request necessary accommodation. Such requests must be made well in advance of the time that the accommodation is required and a letter of documentation from the **ADAPTS** office must be presented at the time of any request.

Academic Honesty: It is expected that all students are aware of their individual responsibilities under the **Georgia Tech Academic Honor Code**, which will be strictly adhered to in this class.

Additional Resources: In addition to the textbook, lectures, and office hours there are other resources available that might be of use for you during the course. All Georgia Tech students are eligible for 1-on-1 tutoring, see the website associated with the **Office of Success Programs**. There is also the **Math Lab** in the School of Mathematics where tutoring services are provided. Links to more resources are posted on the webpage.

Grades: The usual ten-point scale will be used (A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: 0-59%), however, if necessary, adjustments will be made to arrive at a standard grade distribution. Grades will be based upon quizzes (Q), the mid-term exams (E1, E2, E3), projects (P), and the final exam (F) and the total scores will be computed using the following formula: $E1 + E2 + E3 + Q + P + 2F$, where maximal values of all symbols are equal.

Topics Covered During the Semester:

<u>Topic</u>	<u>Lectures</u>
Lines and planes. Scalar and vector product	3
Review of elementary linear algebra	3
Vectorspaces, maps and their matrices, change of basis	6
Review of Gram-Schmidt, QR and least squares	3
Diagonalization, spectral theorem, SVD	3
Introduction to numerical methods	1
Partial pivoting, LU factorization	2
Householder and Givens methods for QR	2
Fixed point method	1
Iterative methods for $Ax=b$ and eigenvalues/vectors	3
Vector calculus, curves	3
Functions in several variables, partial derivative	3
Linearization of functions; gradient, Jacobian, Newton iteration	3
Min-max problems	3
Double integral	3

Important Dates for Spring 2010:

January 11	First day of classes
January 15	Last day to register
January 18	No Class
March 5	Last day to drop individual courses with a grade of "W" by 11:59 pm ET
March 19	Last day to withdraw from school with "W" grades in all courses
March 22-26	No Class
April 30	Last day of classes