Math 42041-620 | Summer 2011

Advanced Calculus
Course Information Sheet

- **Professor:** Dr. Bathi Kasturiarachi **Office:** Fine Arts 150J **Phone:** (330)-244 5172
- **email:** akasturi@kent.edu **web:** Vista site for Math 42041 Section 620
- **Office Hours:**

Monday	**11:45-12:15pm**, **2:30-3:00pm**
Tuesday	**11:45-12:15pm**, **2:30-3:00pm**
Wednesday	**11:45-12:15pm**, **2:30-3:00pm**
Thursday	**11:45-12:15pm**, **2:30-3:00pm**

- **Meetings:** MTWR: 12:30-2:25pm in Fine Arts 135.

No appointments are necessary to meet me during office hours. Of course, if these times are not convenient for you, call me or talk to me after class to make an appointment.

- **Text:** Advanced Calculus (Fifth Edition) *by Wilfred Kaplan.*

Prerequisites: Successful completion (C or better) of Math 21001 (Linear Algebra) and 22005 (Calculus III).

Course Objectives:

To provide the students a comprehensive introduction to vector calculus and functions of several variables. Topics will include introduction to matrices, partial derivatives, directional derivatives, Jacobians, gradients, multiple integrals, maxima and minima, line and surface integrals, Green's Theorem, Stokes's Theorem, and Fourier Series. Applications will also be considered in the fields of electricity and magnetism and fluid flow. My goal is to prepare the students to understand the theory and everyday applications of advanced calculus. You will learn the *concepts* and *computational techniques* of advanced calculus. You will be encouraged to interact with others while developing your own mathematical skills. Handouts will be given even though you are responsible for taking good notes. The class format will include traditional lecture methods as well as different innovative learning techniques. The class will be highly interactive, so you are expected to do the reading and HW and come prepared to class. Some video lectures, PDF lecture notes and HW solutions will be placed on our Vista site.

Other Requirements:

A familiarity with computational software will be needed to complete some exercises, but is not a requirement. I will help you acquire the necessary skills. You will have a task to complete for every class session and daily attendance is very important. Reading and problems will be assigned on a daily basis (see syllabus). Questions on homework will be taken up at the beginning of class and during office hours. Homework will be collected regularly for a grade and there will be student-led discussion sessions that will count towards your grade.

PLEASE NOTE THAT I WILL NOT PICKUP LATE WORK NOR WILL I GIVE MAKEUP EXAMS, unless you have a very major documented reason.

SYLLABUS

The aim of this course is to develop the theory of higher order calculus of real variables using linear algebra as a starting point. We will also look at applications of advanced calculus.

Text:

Wilfred Kaplan - *Advanced Calculus, 5th Ed., Addison-Wesley, 2003*

Chapter	**Order of Topics**	**# of Lectures**
1	Vectors & Matrices (1.1-1.9, 1.14, 1.16)	1
2	Differential Calculus in Several Variables (2.1-2.10, 2.12-2.19)	4
3	Vector Differential Calculus (3.1-3.6)	1
4	Integral Calculus in Several Variables (4.1-4.7)	4
5	Vector Integral Calculus (5.1-5.13)	4
6	Infinite Series (6.1-6.6)	1
7	Fourier Series (7.1-7.2)	1
Testing	Midterms and Final	4
TOTAL		20

Suggestions: In order to help you to receive the maximum benefit from this course I have taken the liberty to suggest a top-ten-list:

(10). Come to class. (9). Ask questions. (8). Come for office hours. (7). Do the HW! (6). Learn to write good mathematical proofs! (5). Collaborate, talk to each other. (4). Read the text. It is well written. (3). Write well and organize your work. (2). Enjoy! (1). Come to class prepared to Think!

Grade Distribution: Your grade in the course will be weighted in the following manner. I will be using the scale $A, A^-, B^+, B, B^-, C^+, C, C^-, D^+, D, F$ for your grades. Typically, 90.0-91.9 is an A^-, 88.0-89.9 is a B^+, 82.0-87.9 is a B, 80.0-81.9 is a B^- etc. But these values can change slightly depending on the class. The following is a general outline that may be helpful.

	%	points
Exam 1	20%	100
Exam 2	20%	100
Exam 3	20%	100
Homework	20%	100
Final	20%	100
Total	100%	500

Points	Grade
450-500	A
400-449	B
350-399	C
300-349	D
000-299	F

Important Dates: Last date to *drop the class* is June 27th. The final exam is on Thursday 07/07/2011 at 12:30pm.

Academic Honesty:

Use of the intellectual property of others without attributing it to them is considered a serious academic offense. Cheating or plagiarism will result in a failing grade for the work or for the entire course. Repeat offenses result in dismissal from the University. University guidelines require that all infractions be reported to the Student Conduct Officer on our campus.

Students with Disabilities:

Kent State University recognizes its responsibility for creating an institution atmosphere in which students with disabilities can succeed. In accordance with University Policy Subpart E. . . 104.44, if you have a documented disability, you may request accommodations to obtain equal access in this class. Please contact the disability coordinator on campus in Student Accessibility Services, located in the Student Success Center, lower level of the Campus Center, phone (330) 244-5047. After your eligibility for accommodations is determined, you will be given a letter which, when presented to instructors, will help us know best how to assist you.

Classes Canceled - Campus Closings:

Classes Canceled – Campus Closings:

Announcements of class cancellations and/or campus closings will be made on the campus home page. In the case of an emergency, weather-related or otherwise, please check the web page at stark.kent.edu for information on the buildings and times of the closing. While information may be broadcast by radio and television, this should be confirmed by the web page, which is the official announcement of the campus and which will be the information used to determine issues related to student attendance, rescheduling of tests, and other concerns.