Math 112 Syllabus

Course Information

Course number	MATH 112
Course title	Calculus B
Textbook	Arnold Ostebee and Paul Zorn,
	Calculus from Graphical, Numerical, and Symbolic Points of View,
	2nd edition, Volume 2
Course web page	http://www2.kenyon.edu/Depts/Math/Paquin/math112.html

Contact Information

Professor	Dana Paquin
Office	RBH 309-A
Office phone	740-427-5267
Email	paquind@kenyon.edu
Web page	http://www2.kenyon.edu/Depts/Math/Paquin/

Office Hours

Monday	1:00-2:30
Tuesday	1:00-2:00
Wednesday	4:00-5:00
Friday	1:00-2:30

Additional times by appointment!

If you are unable to meet with me during the times listed above, please feel free to **set up additional times by appointment**. I encourage you to attend office hours as much as possible, even if you are not having trouble with the mathematical material. Office hours serve as an opportunity for me to get to know you, for you to get to know me, for you to ask me questions, and for you to work with me and other students on problem sets. Seeing and understanding multiple solutions and/or approaches to the same problem is an important mathematical skill, and one that can be developed through interactions during office hours.

Homework

The best way to learn mathematics is by doing mathematics; thus, homework will be assigned daily. Homework to be graded will be collected once per week, typically on Mondays. It serves as your opportunity to make sure that you can not only solve the problems, but also explain your solutions carefully, as this is the only way to be sure that you understand the underlying concepts. It is your job to explain your solution to the reader, not the reader's job to search for a right idea buried in what you have

written. Although you are encouraged to work with other students on homework problems, you must write up your final solutions on your own, as the homework is intended to be preparation for the quizzes and exams. Homework may involve computer exercises as well as hand-written and computer explanation. Homework should be legible with explanations written in complete sentences. Illegible homework will not be read or graded.

Homework must be turned in by the **beginning of class** on the given due date. No late homework will be accepted. If you know that you will be missing class, you must turn in your homework before you leave. Extensions may be granted for extenuating circumstances, but these must be discussed with me as early as possible.

In addition to the weekly homework that will be graded and collected, I will also post daily practice problems for you to work on. Although these problems will not be graded or collected, I strongly encourage you to solve the practice problems. You should work on the practice problems after each lecture (on the same day as the lecture). Problems on quizzes will be taken verbatim from the suggested daily homework problems. Note that you should also be reading the textbook sections as you do the daily homework–the examples are a great help.

Homework assignments and additional information about the homework are on the Homework page.

Homework assignments will be posted online on the Math 112 Homework page (accessible through the Math 112 homepage). It is your responsibility to check the Math 112 Homework page for updated homework assignments and information. Homework solutions will also be posted on the Math 112 Homework page.

Software

There will be some work done (both in class and outside of class) with the computer algebra system Maple. I will not assume that you know any Maple functions or syntax, so you will learn what you need to know as we go along. Calculators will not be used in a systematic way. We will have a great time using Maple to visualize concepts and to simplify computations! Check the course homepage for some online Maple references.

Quizzes

On most Wednesdays, there will be a short quiz consisting of a few problems taken verbatim from the suggested daily practice problems. Quizzes and their solutions will be posted on the Math 112 Quizzes page (accessible through the Math 112 homepage).

Exams

There will be two in-class exams and a comprehensive final exam in this course. The

exam dates are as follows:

Exam 1	Wednesday, February 20, 2008
Exam 2	Wednesday, April 16, 2008
Final Exam	Section 1 (10:10-11:00 section): May 8, 8:30-11:30 am
	Section 2 (3:10-4:00 section): May 5, 1:30-4:30 pm

Note that the final exam will be **three hours** in length. More information about the exams (including practice problems and review material) can be found on the Math 112 Exam Information page (accessible through the Math 112 homepage).

Writing Project

The ability to express your thoughts coherently and concisely in writing is an important mathematical tool (and, indeed, an important part of the liberal arts education experience at Kenyon). During the semester, you will be asked to write a 3-5 page laboratory report. More information about this project will be presented in class.

The Gateway Exam

The Gateway Exam will consist of five problems (substitution in an indefinite integral, integration by parts, partial fractions, substitution in a definite integral, and one integral involving combinations of these topics) that will test your ability to apply integration rules correctly without the aid of technology. To pass the Gateway Exam, you must present flawless solutions to all five problems on the exam. By "flawless", I mean that a solution must be 100% correct in terms of computation AND presentation. A misplaced equal sign or an omitted parenthesis would make a problem incorrect. The Gateway Exam is worth 10% of the final course grade. Since perfect solutions are required, a reasonable number of retakes of the Gateway Exam are permitted according to the following guidelines:

1. You may take the Gateway Exam starting on January 23, 2008.

2. Retakes will be of similar format to the first Gateway Exam, but will consist of different problems.

3. You may take no more than 3 retakes per week, and at most 1 retake in any given day. You may not retake the Gateway Exam after 5PM on February 29, 2008 (the last day before spring break).

4. A student who scores perfectly on the Gateway Exam on his/her first attempt will receive 12 points out of 10 (or an extra 2% for the total course grade) for this portion of the course.

5. A student who passes a retake on or before February 29, 2008 will receive 10 points (i.e., full credit) for this portion of the course.

6. A student who fails to pass the Gateway Exam on all attempts will receive 0 points out of 10 (i.e., no credit) for this portion of the course.

Assessment

Your grade in this course will be based on the following components:

Homework	10%
Quizzes	5%
Writing Project	10%
Exam 1	20%
Exam 2	20%
Final Exam	25%
Gateway Exam	10%

Learning Disabilities

If you have a disability which requires an accommodation in this class, please discuss your concerns with me, but you should also consult Ms. Erin Salva, (Coordinator of Disability Services; Office of the Dean for Academic Advising, PBX 5453) as soon as possible. Ms. Salva (in consultation with the L.E.A.R.N. committee) has the authority and the expertise to decide on the accommodations that are proper for your disability. Though I am happy to help you in any way I can, I cannot make any accommodations for learning (or other) disabilities without proper authorization from Ms. Salva.

Academic Honesty

In general, the rules set forth in the 2007-2008 Course of Study apply. Presenting the work of others as your own is strictly prohibited. In the case of homework, you may collaborate with others in discussing how a problem may be solved, but the work you turn in must be your own. If you submit work that contains the ideas or words of someone else, then you must provide proper citation. Assistance can not be given or received on any quiz or exam associated with this course, unless explicitly stated otherwise. Audio or video recording of class sessions is not permitted.

Course Schedule

This schedule may be adjusted as necessary. Be sure to check the Math 112 Course Schedule page for updated schedule information.

Class	Date	Topic
1	14 Jan	4.2: l'Hopital's Rule
		Note: photocopies of section 4.2 will be distributed in class
2	16 Jan	Review of 5.1-5.4: Integration
		Integration by Substitution practice
3	18 Jan	8.1: Integration by Parts
4	21 Jan	8.2: Partial Fractions
5	23 Jan	Integration practice
		Gateway Exam begins
6	25 Jan	8.3: Trigonometric Substitutions
7	28 Jan	5.6: Riemann Sums
8	30 Jan	Working with Sums
9	1 Feb	6.1: Numerical Approximation
10	4 Feb	Using Maple for numerical approximation
11	6 Feb	6.2: Error bounds
		In-class Numerical Approximation Lab
12	8 Feb	7.1: Arc Length
13	11 Feb	7.2: Volumes
14	13 Feb	Using Maple to compute volumes
15	15 Feb	7.3: Work
16	18 Feb	Review
17	20 Feb	Exam 1
18	22 Feb	2.5: Introduction to Differential Equations
		Note: photocopies of section 2.5 will be distributed in class
19	25 Feb	7.4: Separable Differential Equations
20	27 Feb	Differential Equations Lab
21	29 Feb	More with Differential Equations
22	17 March	10.1: Improper Integrals
23	19 March	10.2: Convergence of Improper Integrals
		Practice with Improper Integrals
24	21 March	10.3: Probability
25	24 March	9.1: Taylor Polynomials
26	26 March	Practice with Taylor Polynomials
27	28 March	9.2: Error Bounds
28	31 March	11.1: Sequences
29	2 April	11.1: The Squeeze Theorem
		Practice with Sequences
30	4 April	11.2: Introduction to Series

Class	Date	Topic
31	7 April	11.2: Geometric Series
		11.3: Convergence Tests for Series
32	9 April	Practice with Series
33	11 April	11.4: Alternating Series Test
34	14 April	Review
35	16 April	Exam 2
36	18 April	11.5: Power Series
37	21 April	11.5: Power Series
38	23 April	Practice with Power Series
39	25 April	11.6: Power Series as Functions
40	28 April	11.7: Taylor Series
41	30 April	Practice with Taylor Series
42	2 May	Review