



**MATH 1106: ELEMENTARY APPLIED
CALCULUS
Fall 2009**

Instructor --Bruce Thomas

| CRN | Days | Time | Course Num/Sec | Location |
|------------|-------------|----------------|-----------------------|------------------|
| 82669 | M W | 12:30PM-1:45PM | MATH 1106/04 | Willingham - 122 |
| 82500 | M W | 3:30PM-4:45PM | MATH 1106/07 | Burruss - 109 |
| 82501 | M W | 5:00PM-6:15PM | MATH 1106/08 | Burruss - 109 |

A Course in the General Education Program

Program Description: The General Education Program at KSU offers a common academic experience for all its students. In a series of interrelated courses in the liberal arts and sciences, it provides the opportunity for them to acquire the intellectual skills and knowledge characteristic of educated persons in a diverse, global community. Thus, it lays the foundation for success in their academic, professional, and personal arenas. Whereas the major program contributes depth to a college education in a designated specialization, the General Education Program provides breadth of understanding by providing an

introduction, connection, and integration to a variety of disciplines needed by educated persons.

Program Goals: The General Education Program at KSU has four goals. During the course of the program, students should achieve the following:

- Demonstrate knowledge and understanding of general education disciplines.
- Demonstrate proficiency in communication.
- Demonstrate skills in inquiry, critical thinking, analysis, and problem solving through scholarly and/or creative activity across the general education disciplines.
- Demonstrate an understanding of ethics, diversity, and a global perspective.

Course Description: Math 1106 uses techniques of college algebra and elementary calculus to analyze and model real world phenomena. The emphasis will be on applications using an intuitive approach to the mathematics rather than formal development. Topics include graphs, derivatives, and integrals of functions. The course incorporates collaborative learning, oral and written reports, and technology.

Instructor: Bruce Thomas
Phone: 678-797-2390 (voicemail-equipped, leave a message)
Office: Willingham Hall (Building #23), Room 114
Office hours: 11:00 a.m. until 12:00 p.m. Monday thru Thursday
2:00 p.m. until 3:00 p.m. Monday thru Thursday
Email: bthomas@kennesaw.edu
(email is the best way to get a message to me)
Website: science.kennesaw.edu/~bthomas

| CRN | Days | Time | Course Num/Sec | Location |
|-------|------|----------------|----------------|------------------|
| 82669 | M W | 12:30PM-1:45PM | MATH 1106/04 | Willingham - 122 |
| 82500 | M W | 3:30PM-4:45PM | MATH 1106/07 | Burruss - 109 |
| 82501 | M W | 5:00PM-6:15PM | MATH 1106/08 | Burruss - 109 |

Attendance: Regular class attendance is essential and expected of every student enrolled in this class. In the event of any absence, students are responsible for all material, assignments, and announcements given in class. Homework will be assigned by the instructor via MathXL, a required subscription companion website of the course's textbook.

Students are expected to spend **2.5 hours of quality study time** between class sessions devoted to this course's material. This time should be divided among 4 activities:

1. studying the section(s) of the book that were discussed the previous classroom session;
2. working the assigned homework;
3. reading the section of the textbook scheduled to be lectured on during the next class session, and developing questions to ask in class;
4. preparing for tests.

The schedule of lectures and tests appears in this syllabus. There will be **no make-up tests** given, and **everyone** must take the final exam (see grading policy below).

Grading Policies: There will be three tests, homework assignments in MathXL, and a comprehensive final exam.

The students will accumulate points during these testing activities as follows:

| | |
|-----------------------------------|-------------------|
| Three tests worth 100 points each | 300 points |
| Completion of homework in MathXL | 100 points |
| Comprehensive final exam | <u>150 points</u> |
| Total | 550 points |

No make-up tests or exams will be given. However, the final exam grade (scaled appropriately) will be substituted for the lowest test grade if this improves the student's point count. Homework that is not submitted by the due date will **not** be accepted. Course grades will be assigned as follows:

| | |
|------------------|---|
| 495 - 550 points | A |
| 440 - 494 points | B |
| 385 - 439 points | C |
| 330 - 384 points | D |
| Below 330 points | F |

Technology Statement: Technology in the form of a TI-83 graphing calculator (or its equivalent) will be used throughout the course to enhance mathematical thinking and problem solving and to judge the reasonableness of results.

Course Objectives: During this course, students will:

1. Apply the techniques of calculus to real-life situations.
2. Use the language of calculus to describe and analyze change as well as to investigate area and accumulated change.
3. Examine problems from graphical, numerical, symbolic, and verbal perspectives.
4. Communicate mathematics orally and in writing.
5. Use mathematics for decision making.
6. Gain an appreciation for the importance of mathematics in society.
7. Work cooperatively in small groups.

Important Dates, Fall Semester 2009:

Labor Day Holiday, no class – Monday, September 7

Test I – Wednesday, September 16

Last day to withdraw without academic penalty – Monday, October 12

Test II – Monday, October 19

Test III – Monday, November 16

Thanksgiving Holiday, no class – Wednesday/Thursday, November 25-26

Last regular meeting day for this class – Wednesday, December 2

Final exam –

Section 04: Monday, December 7, at 12:30 p.m.

Section 07: Monday, December 7, at 3:30 p.m.

Section 08: Wednesday, December 9, at 5:00 p.m.

Expected Learning Outcomes:

| | |
|----|---|
| 1 | The student will demonstrate an understanding of the relationship between slope, average rate of change, instantaneous rate of change, and the derivative. |
| 2 | The student will demonstrate an understanding of the numeric, graphical and algebraic determination of limits. |
| 3 | The student will be able to find the derivative of a function using the appropriate technique from the following: power rule, product rule, quotient rule, chain rule. |
| 4 | The student will be able to find relative minimums and/or maximums, absolute minimums and/or maximums and the inflection point using differentiation. |
| 5 | The student will be able to find the derivative of exponential and logarithmic functions. |
| 6 | The student will be able to solve application problems involving optimization, elasticity of demand, exponential growth, and exponential decay using the concepts of differentiation. |
| 7 | The student will demonstrate an understanding of the relationship between the derivative and the definite integral of a function. |
| 8 | The student will be able to use the Fundamental Theorem of Calculus to determine the definite integral of a function. |
| 9 | The student will be able to calculate the area between two curves using the definite integral. |
| 10 | The student will be able to solve application problems involving average value, present value, future value, consumers' surplus and producers' surplus using the definite integral. |
| 11 | The student will be able to use the TI-83 graphing calculator to graph functions, solve equations, determine the slope of a function, calculate definite integrals, and as a tool to validate the correctness of answers. |

Textbook: *Calculus and Its Applications, Ninth Edition*, by Marvin L. Bittinger and David Ellenbogen. New books should come bundled with a subscription to MathXL. Anyone just wanting to purchase the subscription to MathXL (without purchasing the textbook) can present their plastic online at the MathXL website to subscribe.

Calculator: TI-83, TI-83+

Required Online Resource: MathXL

Student completion of homework assignments in MathXL will count toward the course grade. MathXL is a subscription website that the textbook publisher makes available to supplement the information in the textbook.

Students are expected to subscribe to MathXL and enroll in the MathXL course designated for their class section, as shown in the following table:

| CRN | Days | Time | Course/Section | MathXL Course ID |
|-------|------|----------------|----------------|----------------------------|
| 82669 | M W | 12:30PM-1:45PM | MATH 1106/04 | XL0D-E1FS-001Y-57M2 |
| 82500 | M W | 3:30PM-4:45PM | MATH 1106/07 | XL0D-E1FV-001Y-87M2 |
| 82501 | M W | 5:00PM-6:15PM | MATH 1106/08 | XL0D-E1FX-101Y-07M2 |

Students must assure that the new textbook they purchase is bundled with a MathXL course registration as part of the book's price. Students who purchase used textbooks without a MathXL registration code will have to purchase the MathXL subscription separately online, using a credit card. This may be a more expensive alternative -- a new textbook bundled with a MathXL subscription may be cheaper! *Caveat emptor!*

Register at the website <http://www.mathxl.com/>, using the registration code bundled with the textbook.

Or, if you choose, you may instead register online with a credit card, with or without having purchased the book; portions of the text of the book is available in MathXL to read online there while working on specific homework exercises!

IMPORTANT: If you choose to not purchase a new book, and instead only register for MathXL, you should note carefully that the bookstore may offer to sell you a separate MathXL registration code. In general, this option is more expensive than simply presenting your credit card online in MathXL and registering that way. Why? Well, the bookstore has to make a profit you know

... that's one reason. And the other reason is this: the bookstore is selling a registration code that will enable you to access this course in MathXL for a full 24 months after you register. But if you pay online with your credit card, MathXL will allow you to purchase online access that's good for only a 12-month period, at a cheaper price. Now come on: who's planning to fail this course and need the more expensive 24-month registration, I ask you!

Note: Any computer difficulties you experience are your responsibility and not grounds for extensions of homework due dates. If you are having trouble with your computer, you can use one of the public computers on campus to complete your homework.

There are 25 homework assignments during the semester that you complete in MathXL. Each assignment is worth 4 points of the 100 total points for homework.

You will have unlimited attempts, until the due date, to earn credit for each question ("Exercise") in the assignment. After three incorrect attempts, a solution to the question will be shown to you and you will have to try a "Similar Exercise" to get credit. MathXL shows you which ones you have answered correctly (look for the green check-mark) and which ones you've left incorrectly answered (look for the red "x").

Math 1106, Sections 04, 07 & 08 Mondays/Wednesdays Tentative Daily Schedule

| Meeting Number | Date | Classroom Topic |
|----------------|--------------|--|
| 1 | Mon, Aug 17 | Chapter R |
| 2 | Wed, Aug 19 | Section 1.1 |
| 3 | Mon, Aug 24 | Section 1.2 |
| 4 | Wed, Aug 26 | Section 1.3 |
| 5 | Mon, Aug 31 | Section 1.4 |
| 6 | Wed, Sept 2 | Section 1.5 & 1.6 |
| 7 | Wed, Sept 9 | Section 1.6 |
| 8 | Mon, Sept 14 | Review for Test #1 |
| 9 | Wed, Sept 16 | Test #1 (Chap R & Sections 1.1-1.6) |
| 10 | Mon, Sept 21 | Section 1.7 |
| 11 | Wed, Sept 23 | Section 1.7, 1.8 |
| 12 | Mon, Sept 28 | Sections 2.1 |
| 13 | Wed, Sept 30 | Sections 2.2, 2.3 |
| 14 | Mon, Oct 5 | Section 2.4 & 2.5 |
| 15 | Wed, Oct 7 | Section 2.5 |
| 16 | Mon, Oct 12 | Section 2.6 |
| 17 | Wed, Oct 14 | Review for Test #2 |
| 18 | Mon, Oct 19 | Test #2 (Sections 1.7-2.6) |
| 19 | Wed, Oct 21 | Sections 3.1, 3.2 |
| 20 | Mon, Oct 26 | Sections 3.3, 3.4 |
| 21 | Wed, Oct 28 | Section 3.6 |
| 22 | Mon, Nov 2 | Section 4.1 |
| 23 | Wed, Nov 4 | Section 4.2 |
| 24 | Mon, Nov 9 | Section 4.3 |
| 25 | Wed, Nov 11 | Review for Test #3 |
| 26 | Mon, Nov 16 | Test #3 (Sections 3.1-4.3) |
| 27 | Wed, Nov 18 | Sections 4.4, 4.5, 4.6, 4.7 |
| 28 | Mon, Nov 23 | Section 5.1 |
| 29 | Mon, Nov 30 | Section 5.2 |
| 30 | Wed, Dec 2 | Review for Final Examination |
| Finals | Mon, Dec 7 | Final Examination (2 hours) for Class Section 04 (12:30 pm) for Class Section 07 (3:30 pm) |
| Finals | Wed, Dec 9 | Final Examination (2 hours) for Class Section 08 (5:00 pm) |

Important notes:

Students are expected to read and study the indicated topics before the lecture, so as to be prepared to fully participate in classroom discussion.

The lecture schedule is tentative. Any changes will be announced in class.

The instructor will post supplemental information after each lecture on his website (<http://science.kennesaw.edu/~bthomas/>).

Student homework is assigned in MathXL as a supplement to each lecture. Your grade on the homework counts toward your course grade.

The first three groups of homework assignments will remain available for completion online **only** until midnight of the night before the in-class test that covers the assigned material.

The fourth and final group of homework assignments, covering topics discussed after the third test, will be due **no later** than 11:59 p.m. **the night before the last regular class meeting.**

Other Very Important things you should know:

- MathXL is accessible from lab computers on the KSU campus. Or, you may also access MathXL from your own personal computer in your room.
- Any computer difficulties you experience are your responsibility and not grounds for extensions of homework due dates. The best way to avoid computer problems is to complete assignments ahead of time and not at the last minute before the due date/time. Procrastination is the downfall for many students. In the words of Larry the Cable Guy, “Git-r-done!”
- This course does **NOT** involve the use of VISTA/Web-CT
- Supplemental Instruction (SI) is available for this class at no cost to you. For more information about this program, you can visit the website at:
http://www.kennesaw.edu/university_studies/si
- Free tutoring is available at the KSU Math Lab. For more information, you can visit the website at:
http://www.kennesaw.edu/university_studies/mathlab

WITHDRAWAL FROM THE UNIVERSITY OR FROM INDIVIDUAL COURSES AND ACADEMIC INTEGRITY

Fall Term, 2009

Withdrawal

Students who find that they cannot continue in college for the entire semester after being enrolled, because of illness or any other reason, need to complete an online form. To completely or partially withdraw from classes at KSU, a student must withdraw online at www.kennesaw.edu, under Owl Express, Student Services.

The date the withdrawal is submitted online will be considered the official KSU withdrawal date which will be used in the calculation of any tuition refund or refund to Federal student aid and/or HOPE scholarship programs. It is advisable to print the final page of the withdrawal for your records. Withdrawals submitted online prior to midnight on the last day to withdraw without academic penalty will receive a "W" grade. Withdrawals after midnight will receive a "WF". Failure to complete the online withdrawal process will produce no withdrawal from classes. Call the Registrar's Office at 770-423-6200 during business hours if assistance is needed.

Students may, by means of the same online withdrawal and with the approval of the university Dean, withdraw from individual courses while retaining other courses on their schedules. This option may be exercised up until **October 12, 2009**.

This is the date to withdraw without academic penalty for Fall Term, 2008 classes. Failure to withdraw by the date above will mean that the student has elected to receive the final grade(s) earned in the course(s). The only exception to those withdrawal regulations will be for those instances that involve unusual and fully documented circumstances.

Academic Integrity

Every KSU student is responsible for upholding the provisions of the Statement of Student Rights and Responsibilities, as published in the Undergraduate and Graduate Catalogs. Section II of the Statement of Student Rights and Responsibilities addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimal one semester suspension requirement.