University of Portland
Department of Mathematics
Fall 2008

MTH 201A Calculus 1
MF 9:15 am - 10:10 am BC 209
TTh 9:45 am - 10:40 am BC 209

INSTRUCTOR INFORMATION

Name: Aaron Wootton Office: BC278
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Official Office Hrs (BC278):

MF	11:00-12:00
TTh	4:00-5:00
W	9:15-10:10
or by request	

Unofficial Office Hrs (BC278):

MF	12:00-1:00
TTh	11:00-1:00

Course Webpage: `http://faculty.up.edu/wootton/Calc1/Calc1A.html`

TEXT AND READINGS

"Single Variable Calculus Early Transcendentals", 6th Edition, by Stewart, Brooks/Cole, 2007.

TECHNOLOGY

The course requires the use of a graphing calculator. Students will be allowed to use graphing calculators (including calculators with computer algebra systems such as DERIVE) on one Midterm and the Final Exam. Calculators will not be allowed on one of the Midterms and for some quizzes.

COURSE/BULLETIN DESCRIPTION

- The study of differential and integral calculus with emphasis on applications in the natural and physical sciences.
- Prerequisite: MTH 112 or equivalent.
- The University core question addressed is: How does the world work? How could the world work better?
- The University core outcomes to be achieved are: to develop the foundational knowledge and skills necessary for informed inquiry, decision making, and communication; and to learn to use and value the lenses of different disciplines, and seek the connections among them.

COURSE PERFORMANCE OBJECTIVES

Almost all the mathematics learned in high school comes to bear in elementary calculus. Students finally see what it is good for and learn to appreciate the power of continuous mathematical models.

In MTH 201 Calculus I students:

- Are exposed to the notion of limit as it pertains to functions, derivatives, and integrals.
- Are exposed to the pervasive use of calculus in other disciplines, with emphasis on applications in the physical sciences.
- Are introduced to problem solving using continuous functions to model phenomena.
- Develop skills in using computer software or calculators to solve problems in differential and integral calculus.

Upon completion of the course we expect students to be conversant in the rudiments of elementary calculus. They should be able to:

- Analyze functions defined graphically, numerically, or by formula
- Articulate the fundamental properties of the trigonometric, exponential, and logarithmic functions
- Articulate the fundamental properties of continuous functions, such as the intermediate and extreme value theorems
- Articulate the notions of limit, continuity, derivative, antiderivative and graphically interpret them
- Evaluate limits, derivatives, and antiderivatives
- Apply the derivative in optimization problems, linear approximation, and evaluation of indeterminate forms
- Articulate the relationship between the integral and area
- Articulate the Fundamental Theorem of Calculus

This course also addresses two University Core Embedded Elements: Analytical and Logical Reasoning, and Technology Literacy.

Students in Analytical and Logical Reasoning enhanced courses will develop the ability to:

- recognize and follow logical argument and presentations
- construct valid arguments
- use specific disciplinary frameworks to solve problems

Students in Technology Literacy enhanced courses will develop the ability to:

- understand the use of technological tools in a disciplinary field
- identify and select the appropriate technological tools to facilitate learning, computing, and creating
- use technological tools effectively and responsibly.

COURSE OUTLINE

Ch. 1	Functions and Models	(1.1-1.6)
Ch. 2	Limits and Derivatives	(2.1-2.8)
Ch. 3	Differentiation Rules	(3.1-3.10)
Ch. 4	Applications of Differentiation	(4.1-4.7 & 4.9)
Ch. 5	Integrals	(5.1-5.5)

METHODS OF ASSESSMENT

Course performance objectives are assessed by traditional means: graded homework assignments, examinations, and other graded work that may include written and oral presentations. The development of analytical and logical reasoning skills are inherent in the nature of mathematics and assessed in conjunction with the course performance objectives. Computational technology use is required for successful completion of assignments and examinations.

Higher order reasoning skills are learned by doing; you must become an active participant in the learning process. I will facilitate your path to meeting the course objectives with:

(1) **Lectures to introduce new concepts.**
My lecture style is very informal. In order to generate some class discussion I will often throw out non-rhetorical questions. And you are encouraged to interrupt me with questions.

(2) **Homework assignments.**

- **MINIMAL PASSING HOMEWORK SCORE**: Doing homework regularly and on time is crucial to your success in this class. For this reason, to encourage homework participation, you are are **REQUIRED** to obtain a cumulative score of **AT LEAST 60%** on homework to pass the class - you will fail the class **REGARDLESS** of your grade on all other graded material if you do not achieve the minimal passing homework score.
- **Paper Work and Webwork**: There are two types of homework assignment you will be required to complete. The first, called Webwork (WW), is an online homework provider which can be accessed through any internet connection - you have an instruction sheet on how to work with WW attached to the Syllabus. You will find the login page linked to my webpage. For each section, there are a list of homework problems on WW which need to be completed.
  The second type of homework is traditional pen and paper homework (PP) assigned from the text. You are encouraged to work in groups, but you are on your honor not to turn in work you don't understand. Also, professional courtesy dictates that one acknowledges significant contributions of others. Your PP homework questions are listed on the Webwork page.
- **DUE DATES**: Paper homework is due in class the **day after** the section has been completed in class.
  Webwork homework will always close at 11:59pm on the **day after** the section has been completed in class.
- **Other Assignments** As well as assigned PP and WW homework, from time to time you will be required to complete additional assignments in the form of additional WW sets and other types of PP homework. Such assignments will either count toward your homework grade or will sometimes be counted as extra credit. Additional sets will be assigned sporadically throughout the semester and will be announced in class.

  BE WARNED: The collected homework (both PP and WW) is for my benefit so I can monitor your progress and assign grades - it is NOT the only homework you should complete. As a general case,

when studying, you should complete as many problems as necessary until you feel comfortable with the material you are working on.

- **LATE HOMEWORK**: Late paper homework will be accepted PROVIDED it is either given to me or is in my mailbox by 5pm THE DAY IT IS DUE. Any later paper homework will not be accepted except under extreme circumstances. A request for extension on a Webwork homework must be made **before** 5pm the day it closes.

(3) **Quizzes and Examinations.**

There will be three tests and one final examination. The midterms are (tentatively) scheduled to cover the following material:

Test 1: Chapters 1 & 2
Test 2: Chapter 3
Test 3 : Chapter 4 & Chapter 5

The exact dates of the midterms will depend upon the speed the relevant material is covered and will be announced in class. The final exam is cumulative and is scheduled at 10:30-12:30 on Monday 8th December.

Quizzes will be given frequently and generally unannounced. Quizzes will take one of the following formats:

- **Group take home quizzes**: At the end of every chapter, you will be given a quiz to work on in groups of 3-5 people. As a group, you are expected to meet to discuss the problems and hand on a single set of solutions which the whole group has contributed to.
- **In class quizzes**: At certain critical points of the semester, you will be given quizzes in class which you will have to complete on your own.

Missed quizzes cannot be made up unless prior permission has been given.

GRADING STANDARDS

Final grades will be based on assignments and examinations.

- Homework: WW: 100 points
  PP: 100 points
- Quizzes: 100 points
- Tests (3): 150 points each
- Final Exam: 250 points

The total number of points available is 1000. Final grades will be determined at the end of the semester, though will be no lower than those set forth in the following table PROVIDED the minimal passing homework score has been achieved.

Points	Percent	Grade	Points	Percent	Grade
$925-1000$	$92.5-100\%$	A	$900-924$	$90-92.4\%$	A-
$875-899$	$87.5-89.9\%$	B+	$825-874$	$82.5-87.4\%$	B
$800-824$	$80-82.4\%$	B-	$775-799$	$77.5-79.9\%$	C+
$725-774$	$72.5-77.4\%$	C	$700-724$	$70-72.4\%$	C-
$675-699$	$67.5-69.9\%$	D+	$625-674$	$62.5-67.4\%$	D
$600-624$	$60-62.4\%$	D-	$0-599$	$0-59.9\%$	F

CODE OF ACADEMIC INTEGRITY

Academic integrity is openness and honesty in all scholarly endeavors. The University of Portland is a scholarly community dedicated to the discovery, investigation, and dissemination of truth, and to the development of the whole person. Membership in this community is a privilege, requiring each person to practice academic integrity at its highest level, while expecting and promoting the same in others. Breaches of academic integrity will not be tolerated and will be addressed by the community with all due gravity (taken from the University of Portland's Code of Academic Integrity).

The complete Code may be found in the 2007-08 University of Portland Student Handbook and as well the Guidelines for Implementation. It is each student's responsibility to inform himself or herself of the Code and Guidelines

ACCOMODATION FOR DISABILITY

If you have a disability and require an accommodation to fully participate in this class, contact the Office for Students with Disabilities (OSWD), located in the University Health Center (503-943-7134), as soon as possible.

MAKE UP EXAMS

I do not give make up exams with only two exceptions: absence due to extreme hardship or a University sponsored event. In either case, I must be informed in a timely manner and I reserve the right to deny make-up work and penalize absences which are not verified.

WITHDRAWAL PROCEDURES

It is the students responsibility to drop the course if he/she is no longer planning on attending the course. If a student does not properly withdraw from a course, he/she may receive and F for the course.

INCOMPLETES

An incomplete (I) may be given when the quality of a students work is satisfactory (C or better), but for some essential reason they are not able to complete the course. An (I) is reserved for emergency situations only and acceptance of a request for an (I) is at my discretion.

Webwork Student Manual

Getting Started

- Logging in
  (1) Go to the Calc 1 webpage given on the syllabus and click on the link to the login page for webwork
  (2) Type in your login and your password. Both your login and your password are your last name (all lower case) and the section (lower case). So for example, if I were in Section A, my login and password would be woottona
- Changing Your Password/ Setting Your E-mail
  (1) Click on the Password/E-mail link on the left hand panel.
  (2) Follow the instructions. Make sure you set the e-mail account you check the most - I will send you e-mails regarding Webwork through this.
- Doing Problem Sets
  (1) Click on "Homework Sets" in the left hand panel.
  (2) Click on the set you want to do.
  (3) Click on the problem you want to do.
  (4) Type your answers to the questions in the relevant blank boxes.
  (5) If you hit "enter" or click on the "preview answer" button, Webwork will preview your answer(s) for you. This is helpful in tracking down errors. You can do this as many times as you like until you are happy with the answers.
  (6) When you are ready, click the "submit" button. BE WARNED - some questions you will only have a couple of chances to answer, so make sure the answer you have previewed is the answer you want to submit BEFORE you submit it.
  (7) After you submit your answers, Webwork will let you know whether you got the question right. If not, you can usually try again (until the due date) except for a small number of questions for which you will have a limited number of attempts.
  (8) You can exit Webwork at any time using the logout button on the left hand panel.
- Printing Problem Sets
  (1) You can download a hard copy of any problem set. You will need Adobe Acrobat Reader (which is free on the Web and on all university computers).
  (2) To get a hard copy, click on the homework set you want a copy of. On the screen where the different questions are listed, there will be a link which reads "Download a Hard Copy of this Homework Set". Click this to get your hard copy.
  (3) Answers will only be available AFTER the due date.
- Help with Webwork and other Features
  (1) If the problem includes a picture that is hard to see, click the picture to get an enlarged version.

(2) Webwork understands many functions such as "$\sin(x)$" and "$\ln(x)$". There is also special syntax used to answer questions (like how to express exponents). Most of the syntax and functions are fairly obvious, especially to those of you who are already familiar with computers. However, to be safe, I recommend printing the webpage http://webwork.math.rochester.edu/docs/docs/pglanguage/availableFunctions.html which has a list of all the functions webwork accepts.
(3) Some questions will have functions/syntax specifically tailored for that question, and it may differ from earlier similar questions. Make sure you always read the question in full to check you are using the right syntax.
(4) If you are stuck or convinced a problem is defective, you should stop by during office hours to discuss it with me. If this is not possible, use the e-mail instructor button at the bottom of the page to send me an e-mail outlining your problem. BE WARNED - the "e-mail instructor" button is for use when you are really stuck and absolutely cannot see me. Generally you should look at the questions way in advance of the due date and speak to me about any problems long beforehand. If you e-mail me five minutes before the due time, I will not be able to help you!!
(5) After the due date, the problem set closes and you will not be able to submit any answers for credit. A short time after the due date, the answers will become available so you can check your work.
(6) You can check your score on Webwork by clicking the "Grades" button on the left hand panel. It will show all scores on all sets assigned to this course.

Though at first it may be difficult to get the hang of, after time, I think you will really start to appreciate the different things Webwork has to offer that traditional pencil and paper homework does not. Also, remember, my office door is always open if you need help getting started. Good luck!