MTH 141 Calculus I (Summer 2012)

Text: Hughes-Hallet et. al., *Calculus: Single Variable*

fifth edition, John Wiley and Sons.

Calculators/Technology: A graphing calculator is recommended. Calculators will be allowed for homework, some classwork and parts of some exams, and prohibited on others. Access to a copy of *Mathematica* is required. *Mathematica* is a world class computer algebra system (CAS). It is available free to all URI students. To obtain *Mathematica*, go to the URI Mathematics home page or follow the link on SAKAI.

General Information

GOALS OF THIS COURSE: MTH 141 is the first of several semesters of calculus required for students of chemistry, computer science, engineering, mathematics, physics, and others. It is also the only semester of calculus required for a few majors. Calculus will deepen and make precise your understanding of fundamental concepts such as ***change, limit,*** and ***rate***. You will apply *derivative calculus* to problems in the physical and biological sciences like ***optimization, motion,*** and ***growth.*** You will also receive an introduction to *integral calculus* which will be further developed in subsequent courses. A technical goal is to strengthen your computational abilities in algebra, trigonometry, differentiation and integration. The language of science is mathematics, and calculus is an indispensable part of everyday calculations used in many technical fields. The prerequisite for this class is MTH111 or an equivalent class in precalculus from another institution or high school.

EXPECTATIONS: Summer classes move very quickly and MTH141 is a four credit class. It is expected that you will give this course 15-20 hours a week of your undivided attention, in addition to classroom time. This is an approximate figure of course, but don't assume that you can spend less time than this and still get a grade you'll like. We also expect that you will attend every class. There will be daily quizzes, and make-up quizzes will not be given for any reason.

ADVICE: The key to success in this course is the problem material. It is very important that you try all the assigned problems. The problems assigned for each topic indicate what is most important about that topic and which ideas and skills you should focus on.

Calculus also has a body of mathematical facts that you will have to learn. Be prepared to memorize some formulas and theorems as you learn about their meaning and uses.

Some of you may have to sharpen your algebra and pre-calculus skills. Any review of these skills beyond the first two days of class will have to be done outside of the classroom at home or with the tutors or during instructor office hours.

Exams and Grading

There will be three semester exams given in class: on Wednesday, May 30, Thursday, June 7 and Monday, June 18. In addition there will be a comprehensive final exam given on Thursday June 21. Quizzes will be given each day except exam days. Homework will be due before each exam. Two *Mathematica* assignments will be given.

Three midterm exams	39 percent
Final exam	26 percent
Homework	15 percent
Quizzes / Participation	10 percent
Mathematica	10 percent
Total	100 percent

Final grade calculation: Your final grade will be based on a traditional scale out of 100: Grades 90-100 will correspond to A- or A, 80-89 to B-/B/B+, etc. A grade of 60 will be required to pass with a D, but understand that D is short for Don't take the sequel.

WileyPlus:

WileyPlus will be used for some of your homework assignments. If you took MTH 141 at URI last semester your Wiley-plus registration should continue this semester. If not, you will need to register with Wiley-plus using the license key that came with your textbook.

If you ARE already registered for WileyPlus from MTH141 last term then you should go to http://edugen.wiley.com/ and log in with the same user name and password.

If you are NOT registered from last semester then you can either buy a new textbook which comes with an access code for WileyPlus and follow the instruction that come with the textbook OR you can go to www.wileyplus.com/buy and purchase a WileyPlus registration which comes with an online texbook.

If you need help registering go to http://www.wiley.com/college/twomin/stu/register.html

WileyPlus assignments will be given every week. Due dates for WileyPlus assignments are firm, however students may submit late WileyPlus homework at a 50% penalty.

Classwork:

Classwork/quizzes will be assigned at each class meeting. Students missing class or coming to class more than 15 minutes late will probably miss the quiz and get a zero. Some days the quiz may start a bit earlier of a bit later. There are no make-ups for missed quizzes.

Students with disability (documented through Disability Services for Students, 330 Memorial Union) should see their instructor as soon as possible to work out reasonable accommodations.

Daily Schedule for MTH141

Summer Term 1, 2012

Date	Topics	Read	Suggested Exercises
5/21	Functions & Change, Exponential Functions, Function Composition	1.1, 1.2 1.3	pg07 #1-31odd, pg15 #1-15odd pg22 #1-35odd
5/22	Log Functions, Trig Functions Polynomial & Rational Functions	1.4, 1.5 1.6	pg28 #1-31odd, pg36 #1-31odd pg44 #1-11odd
5/23	Continuity & Limits	1.7, 1.8	pg49 #1-15 odd, pg57 #1-15 odd
5/24	Measuring Speed The Derivative at a Point	2.1 2.2	pg74 #1-9 odd pg82 #1-11 odd
5/28	**No class Monday holiday.**		**Make-up class on Friday 6/01**
5/29	The Derivative Function Interpretations of the Derivative	2.3 2.4	pg90 #1-21 odd pg95 #1-11 odd
5/30	 The Second Derivative	**Exam 1** 2.5	**Exam 1** in class. pg102 #1-13 odd
5/31	Derivatives of Polynomials Derivatives of Exponential Functions	3.1 3.2	pg121 #1-47 odd pg126 #1-35 odd ***Mathematica* #1** due on SAKAI 5/31, 11pm
6/01 Friday	Product & Quotient Rules The Chain Rule	3.3 3.4	pg130 #1-29 odd pg137 #1-49 odd
6/04	Derivatives of Trig Functions Chain Rule and Inverse Functions	3.5 3.6	pg143 #1-39 odd pg149 #1-33 odd
6/05	Implicit Functions Hyperbolic Functions	3.7 3.8	pg153 #1-27 odd pg156 #1-15 odd
6/06	Linear Approximations Some Theorems about Derivatives	3.9 3.10	pg162 #1-9 odd pg167 #1-9 odd
6/07	 Using 1st and 2nd Derivatives	**Exam 2** 4.1	**Exam 2** in class. pg182 #1-21 odd
6/11	Optimization More Optimization & Geometry	4.2 4.4	pg190 #1-15 odd pg207 #1-15 odd
6/12	Related Rates L'Hopital's Rule, Growth, Dominance	4.6 4.7	pg223 #1-17 odd pg233 #1-11 odd
6/13	Parametric Equations Left and Right Sums	4.8 5.1	pg242 #1-33 odd pg262 #1-13 odd
6/14	Definite Integrals, General Riemann Sums The Fundamental Theorem of Calculus	5.2 5.3	pg268 #1-21 odd pg277 #1-15 odd **Mathematica #2** due on SAKAI 6/14 at 11pm
6/18	 Some Theorems about Definite Integrals	**Exam 3** 5.4	**Exam 3** in class. pg288 #1-17 odd
5/19	Antiderivatives: Graphically & Numerically Antiderivatives: Analytically	6.1 6.2	pg303 #1-7 odd pg310 #1-63 odd
6/20	Differential Equations The Second Fundamental Theorem	6.3 6.4	pg315 #1-9 odd pg320 #1-17 odd
6/21	Cumulative Final Exam	**Final Exam**	**Final Exam** in class.