Math 151 Syllabus Fall 2016
Text: Essential Calculus Second Edition by Stewart
Homework Management System: WebAssign  Calculator: TI-84

The chapter sections given below are in Essential Calculus, Second Edition. The suggested lecture hours represent 50 minute units, equivalent to 4 lecture hours/week for 14 weeks=56 lecture hours. 6 lecture hours are reserved for tests & review. All sections of Math 151 should include instruction in the use of the TI-84 graphics calculator.

Some students in Math 151 are unaware that a calculus requirement in their intended major can be satisfied by the Math 141-142-143 sequence. Instructors should announce this option in the first week of the semester, while students can still make program adjustments.

Math 151 is using a homework management system, WebAssign. The QC bookstore carries a loose-leaf version of the text, packaged with an access code card for WebAssign. (image below Please tell your students NOT to throw away this card.) Students can also use an e-book version of the text at the WebAssign site. Use of on-line homework is optional for instructors, but all students will need to use the website to access the e-book version of the textbook. see HMS Guidelines below

Chapter 1 Functions & limits 9 hours
1.1 Functions
1.2 A Catalog of functions
   (At most 1.5 hours should be devoted to 1.1 and 1.2. Students who have any difficulty with this material should be strongly directed to either Math 141 or Math 122.)
1.3 Limit of a function (epsilon/delta definitions page 31-32 are optional)
1.4 Calculating Limits
1.5 Continuity
1.6 Limits involving infinity

Chapter 2 Derivatives 15 hours
2.1 Derivatives and Rates of Change
2.2 The Derivative as a function
2.3 Basic Differentiation formulas (2.3, 2.4 and 2.5 each require several hours)
2.4 The product & quotient rules
2.5 The chain rule
2.6 Implicit Diff.
2.7 Related Rates
2.8 Linear Approximation

Chapter 3 Applications of Differentiation 13 hours
3.1 Max & Min Values
3.2 MVT
3.3 Derivatives & the Shapes of Graphs
3.4 Curve Sketching
3.5 Optimization (Word Problems)
   (3.6 Newton’s method. Optional)
3.7 Antiderivatives

Chapter 4 Integrals 13 hours
4.1 Areas & distance
4.2 The Definite Integral
4.3 Evaluating Definite Integrals
4.4 FTC
4.5 The substitution rule (reserve enough time to cover u-substitution thoroughly)

Role of Theory in Math 151:
All students are expected to know the definition of the derivative at a point, and of continuity at a point. They should be able to state these definitions and use them to solve a problem. They should be able to compute the derivative of simple functions from the definition, and integrals by limits of Riemann sums. They should also understand, and be able to state correctly and use the Intermediate Value Theorem, the Extreme Value Theorem, the Mean Value Theorem, and the Fundamental Theorem of Calculus. However students are not required to prove any theorems on departmental finals.
HMS Guidelines
Website:  http://webassign.net/  Instructors can get logins here:  http://webassign.net/

In addition to online homework, the web site offers an e-book version of our text, a personal study guide for students, and videos of lectures linked to each section of the book. All students will self-enroll in WebAssign. Students whose instructors are NOT using WebAssign at all should register at the Math 151 Master Section to access these resources. To do this they enter the following section code when they register:

Math 151 Master Section  Fall 2016  Class Key  qc 9972 6983

If you are using WebAssign you will have to create a course in your account for your section. When you do this the system will give you a class key, which your students will use to enroll in your section. (i.e. students need two items to use the system, their access code, which they buy with the text, and your class Key, if you are using the HMS in your section). Later you can find this code in Class View by clicking on “class key settings” in the Class Tools menu on the left.

To create your section: Choose “Create” in the top left menu below “Home”, then “Course”, and select the textbook. Click “enable personal study plan” and the textbook certification. Once you set the start date of the course, students have a 2 week grace period after that date during which they can log in without having paid for access. After you save the course settings, set “How will students be placed on your roster” to self enrollment.

Students who buy the textbook in the QC Bookstore will receive a printed Access Card, with a code which enables them to enroll in Web Assign. (similar to image below). Instructors should tell students NOT to throw this Access Card away with the packaging.

Calculator Guidelines TI-84:

On departmental finals students are not permitted to use calculators which do symbolic differentiation and integration (for example, the TI-89 or TI 92).

All sections of Math 151 should cover the following calculator operations:

Graphing: Y= menu, WINDOW, TRACE, GRAPH, ZOOM menu
Use of the FORMAT and MODE menus
Table Menu:  TBLSET, Using TABLE to approximate limits, and finding more digits than the table displays
CALC menu:  VALUE, ZERO, MIN, MAX
VARS menu: using Y-VARS to patch in functions from y= menu
Finding roots numerically Using CALC → ZERO within graph window
Finding numerical values of definite integrals on the CALC menu or the MATH menu
Evaluating Riemann sums using the LIST menu or SEQUENCE MODE
LIST menu Routines:
1. Entering a sequence using the LIST OPPS menu
2. Storing and retrieving sequences
3. Finding the sum of a sequence using the LIST MATH menu

Instructors should also demonstrate examples where numerical estimates can be misleading. Final exams in Math 151 should include problems that require use of the graphics calculator. The committee recommends that in class exams should also include some problems that require the calculator.