Math 132 Syllabus Summer 2022

Text: Essential Calculus Second Edition by Stewart
Homework Management System: WebAssign
Calculator: TI-83 or TI-84

This course satisfies the Mathematical and Quantitative Reasoning (MQR) requirement of the Pathways General Education Required Core. Below is the Learning Outcomes that all MQR courses satisfy:

MQR 1: Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
MQR 2: Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
MQR 3: Represent quantitative problems expressed in natural language in a suitable mathematical format.
MQR 4: Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
MQR 5: Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
MQR 6: Apply mathematical methods to problems in other fields of study.

Math 132 is a transitional course, intended to prepare student who have taken Math 131 (Calculus for economics and social science) to continue in the regular calculus sequence. Special attention must be devoted to trigonometry, trig limits and derivatives, and continuity, and other topics of Math 141 not covered in Math 131. Further topics include integration, transcendental functions, and applications of integration, as in Math 142. Math 132 prepares students to take Math 143.

The chapter sections below are in Essential Calculus, Second Edition. Hours given are based on a course with 42 lecture hours. 6 lecture hours are reserved for tests & review. All sections of Math 132 should include some instruction in the use of TI-84 graphics calculator and in the homework management system, WebAssign.

Transition from Math 131 8 hours

Appendix A	review of trig
1.4	Review limits of rational functions and limit laws; Squeeze Theorem and trig limits, especially pages 41-43
1.5	Continuity and the IVT
2.3	Derivatives, Trig derivatives and chain rule
3.2	MVT

Integration 12 hours

3.7	Antiderivatives
	Appendix C Sigma Notation
4.1	Areas and Distances
4.2	The Definite Integral
4.3	Evaluating Definite Integrals
4.4	FTC
4.5	The substitution rule

Chapter 5 Inverse Functions 8 hours

5.1	Inverse Functions
5.2	The Natural Logarithmic Function
5.3	The Natural Exponential function
5.4	General Logarithmic and Exp functions
5.5	Exponential growth & decay
5.6	Inverse Trig Functions

Section 5.8 L'Hospital's Rule is covered in Math 143.

Chapter 7 Applications of Integration 8 hours

7.1	Area between Curves
7.2	Volumes
7.3	Volumes by Cylindrical Shells
7.7	Differential Equations

(We skip #7.4, arc length)

Chapter 6 Methods of Integration to Math 143, so in Chapter 7 instructors should avoid homework problems which require that material

Textbook

The physical bookstore at Queens College has closed and been replaced with an on-line service here: http://qc.textbookx.com/institutional/index.php This site sells textbooks without the WebAssign HMS.

The publisher of our textbook (Cengage) offers sales direct to students here https://www.cengage.com/c/essential-calculus-2e-stewart/9781133112297PF/ (reportedly more affordable.)

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 self-enroll in WebAssign.

If you are using WebAssign for on-line homework you will need to create a Course in your account for your section. Once you create this section the system will give you a class key, which your students will use to enroll in your section. Later you can find this code in Class View by clicking on "class key settings" in the Class Tools menu.

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.

Calculator Guidelines TI84:

On departmental finals students are not permitted to use calculators which do symbolic differentiation and integration (for example, the TI-89 or TI-92). In addition to the routines covered in Math 141, all sections of Math 142 should cover the following calculator operations

I. Finding numerical values of definite integrals on the CALC menu or the MATH menu. E.g. examples from volume integrals and arc length in chapter 7

II. Numerical Evaluation of Riemann Sums, using LIST menus or SEQUENCE mode
LIST menu Routines:
    1. Entering a sequence using the LIST OPPS menu
    2. Storing and retrieving sequences
    3. Applying arithmetic operations or functions from the Y= menu to sequences
    4. Finding the sum of a stored sequence using the LIST MATH menu

These list menu routines can be taught in the course of one lecture and only require about 10 minutes of actual presentation. They are useful for evaluation of Riemann sums, and will also be useful for series in 143.

Instructors should take care to also demonstrate examples where numerical estimates can be misleading. Final exams in Math 142 should include some problems that require use of the graphics calculator.