MATH 020.A – Fundamentals of Calculus II / Spring 2023

Textbook:	Calculus for Business, Economics, Life Sciences & Social Sciences by R. Bartnett, M. Ziegler, K. Byleen, C. Stocker, 14th Ed.
Class Meets:	MWF: 8:30 – 9:20 (Aiken 110)
Instructor:	Dr. Taras I. Lakoba, Innovation Hall, Room E436 (802) 656-2610, tlakoba@uvm.edu, **https://tlakoba.w3.uvm.edu**
Office Hours:	M: 2:30–3:30; W: 1:30–2:30; F: 10:15 - 11:15; and by appointment. See **https://tlakoba.w3.uvm.edu/teaching_23S.html** for more information.
Important deadlines:	Add/Drop & Pass/no Pass: Jan. 30 (M); Last day to withdraw: Apr. 3 (M); Last class: May 5 (F); Recesses: Feb. 20 (M), Mar. 13–17 (M–F).

Course webpage:

Blackboard or any other LMS will **not** be used. All course materials and information are/will be posted on **https://tlakoba.w3.uvm.edu/23_spring/math_020/index.html**.

Course contents:

Verbal description: Applications of integration; Integration by parts; Basic differential equations; Probability and Calculus; Multivariable calculus. By Chapter: Chap. 6; Chap. 9; Chap. 11; Chap. 7 See also the 'Learning objectives' rubric on next page.

Homework:

Homework is posted on the course webpage listed above. Most of it **must be done through MyMathLab**; see directions posted on the course webpage. However, a significant part of the homework will contain problems that are not available on MyMathLab. You must do them by hand and put them in some organized place (such as a notebook).

MyMathLab homework for any given section will be made available on the day that we have covered some non-trivial part of that section in class. A due date assigned for each homework will allow for sufficient time to complete the work. You are encouraged to begin working on the homework even before we complete the section if you see that you can do some of the assigned problems (remember, you need to do both MyMathLab and non-MyMathLab ones). If we have not finished covering a section in class, stop working on the assigned problems when you see that we have not yet covered examples that match the assigned problems.

Assignments can be completed after the due date, but there will be a 20% late penalty per day on any work (on MyMathLab) completed after the due date.

The MyMathLab part of homework will be graded (by MyMathLab); the rest will not be. **However**, both quizzes and tests will be substantially based on **all** (MyMathLab and non-MyMathLab) of the homework problems; therefore, you should do **all** of the assigned problems.

The purpose of the homework is to help you master the techniques covered in class. As such, **homework problems will be substantially based on examples and material presented in class. Therefore, you should study your notes before you attempt the homework, and mimic your solutions on the examples in the notes** and (occasionally) on the indicated examples from the book. See the instructor for help **as soon as** you find out that you are having difficulty with the homework.

Tests and Quizzes:

(a) Quizzes, sometimes unannounced (see below), will be given in class *approximately* once a week. They will be based on the homework problems that have been due (in MyMathLab) at least one calendar day ago. You are encouraged to ask which section's homework will be covered on the next quiz. I will announce when the next quiz will be and what it will be on only after someone asks me about that *in class*.

The main purpose of quizzes is to help you monitor your understanding of the material. If you receive a low grade on a quiz, it is a flag that you need to review the corresponding material. A **structured, 3-step process of such a review** is posted on the course website. If you receive a couple of low quiz grades in a row, see the instructor for help as soon as possible.

Tests and Quizzes (continued):

(b) There will be 3 (three) <u>midterm tests</u> during the semester. Their dates will be announced in class at least a week before each test. In terms of material covered, midterms 1, 2, and 3 will be given after we cover Chapters 6, 9, and 10, respectively.

Make-up exams will be given to those students who have documented excused absence.

(c) The <u>final exam</u> will be on Monday, May 8, from 07:30 am to 10:15 am in Aiken 110.

Academic integrity:

When working on any quizzes and tests, you are **not allowed to use outside help in any form**.

Violations of academic integrity on *any assignment* will be dealt with as described in the link **'Sanctions for academic integrity violations'**, found below this Syllabus on the course webpage.

In regards to potential posting of any course materials (which is prohibited) on any of the online platforms (such as Chegg, etc.), see the rubric 'Prohibition of sharing course materials' in the Generic Syllabus (posted next to this one).

Grading policy:

Each <u>midterm test</u> = 15%;   <u>final exam</u> = 22%;   <u>MyMathLab homework</u> = 15%;   all <u>quizzes</u> combined = 18%.   <u>Extra credit</u> may be earned as explained below.

Note: I do **NOT** drop your lowest grade. Thus, **ALL** the grades that you earn during the semester will contribute to your final grade, as detailed above.

Grading scheme:

I do not curve exams and quizzes. Instead, when issuing final grades, I slightly adjust the grading brackets. This will work as follows. The threshold between **A−** and **A** will be set at X, where $92.00 \leq X < 93.00$ will be adjusted based on my subjective criteria. The freedom of choosing this X *within the above range* is my equivalent of other instructors' curving exam grades.

Once a value of X is selected, letter grades will be put in correspondence with the following brackets for the numeric grade, which is computed as described in rubric Grading policy:

D− $[X - 30 - 3.33, X - 30)$;   D $[X - 30, X - 30 + 3.34)$;   D+ $[X - 30 + 3.34, X - 20 - 3.33)$;
C− $[X - 20 - 3.33, X - 20)$;   C $[X - 20, X - 20 + 3.34)$;   C+ $[X - 20 + 3.34, X - 10 - 3.33)$;
B− $[X - 10 - 3.33, X - 10)$;   B $[X - 10, X - 10 + 3.34)$;   B+ $[X - 10 + 3.34, X - 3.33)$;
A− $[X - 3.33, X)$;   A $[X, X + 5.00)$;   A+ $\geq X + 5.00$.

Note that these brackets are *strict*. This means that if your grade doesn't make the next bracket even by 0.01, that is it — it doesn't make it. This is what brackets, and thresholds in general, are for.

Extra credit: (**No penalty** will be given if you choose not to do any of the extra credit assignments.)

•   Extra credit problems may be occasionally posted on the Homework page (see rubric 'Homework' on the first page of this syllabus). They will be graded (on a coarse scale). Before you do a particular extra credit assignment, please review more detailed instructions found on the course website.

• I reserve the right, at my sole discretion, to increase the final grade of any student by one level (e.g., from B- to B) for a demonstrated achievement, some examples of which are: excelling on the final exam, active and constructive class participation, regular and active attendance of office hours, being the "most improved" student in terms of performance or attitude, etc. This provision, however, has been used *only in very rare and truly exceptional cases.*

Learning objectives:

Upon successful completion of this course, the students will be able to recognize and independently work with the following concepts: Concept of area under a curve and its applications; Method of integration by parts; Concept of differential equations and their basic methods of solution; Homogeneous and non-homogeneous linear differential equations; Applications to interest accumulation on a payment; Probability density versus discrete probability; Expected (mean) value, median, and standard deviation (variance); The normal probability density; Functions of several variables; Partial derivatives; Maxima, minima, and saddle points of multivariable functions; Double integrals in Cartesian coordinates.