

Syllabus for Math 1100-003

Business Calculus

Fall 2018

General Course Information:

Course: Business Calculus (Math 1100).

Instructor: Keyvan Yaghmayi.

Office: JWB 121.

Phone: 801-581-6208.

Email: yaghmayi@math.utah.edu.

Class Location: LCB 215.

Class Time: Tuesdays and Thursdays 6:00pm - 7:30pm.

Office Hours: Mondays and Fridays 9:40am - 10:30am, Thursdays 5:00pm - 5:50pm, or by appointment.

Course Website: I will use the Canvas: <https://gate.acs.utah.edu/>. To log in, use the same student ID and password that you use for Campus Information System.

Textbook: Mathematical Applications for the Management, Life and Social Sciences, by Harshbarger and Reynolds, 8th Edition. ISBN 13: 978-0-618-65421-5 and ISBN 10: 0-618-65421-6. Please note that this is an older edition of the book, so it's not for sale at the campus store. You should be able to find it online for a cheap price or on sale from another student locally who took this class in the last year. Please read "Textbook Information" file on Canvas or visit <http://www.math.utah.edu/schedule/bookInfo/> for further information.

Important Dates: Classes begin Monday, August 20. The last day to add, drop (delete), elect CR/NC, or audit the class is Friday, August 31. The last day to withdraw is Friday, October 19. *Final Exam* is on Tuesday December 11, 6:00pm - 8:00pm, in our classroom LCB 215.

Essential Course Information:

Prerequisites: At least a "C" grade in Math 1090 (Business Algebra) OR Math 1050 (College Algebra) OR in Math 1080 (Precalculus) OR Math 1210 (Calculus I) OR an Accuplacer score of 80 on the College Level Math (CLM) test OR at least an ACT Math score of 28 OR at least SAT Math score of 630.

Course Information: Math 1100, Business Calculus, is a 3-credit semester course.

Course Description: Introduction to limits. Differentiation and integration of polynomial, rational, logarithmic and exponential function. Optimization of functions, including business applications such as marginal analysis. Business applications of the derivative and integral. Brief exposure to partial derivatives and functions of several variables. (Not for students who have completed more than one semester of calculus).

Expected Learning Outcomes: Upon successful completion of this course, a student should be able to:

1. Have a basic conceptual understanding of limits.
2. Know how to differentiate and integrate polynomial, rational, logarithmic, and exponential functions.
3. Use derivatives to gather information about the shape of the curve and use that information to graph the curve $y = f(x)$, for polynomial, logarithmic, exponential and simple rational functions.
4. Understand how to use differentiation to optimize functions for business applications, such as maximizing profit examples.
5. Use integration to find area under curves and for business examples such as average value.
6. Take partial derivatives of basic functions of two variables.

We will cover the following Chapters/Sections of the textbook:

- **Chapter 9 (Sections 9.1-9.9):** Limits, Continuous Functions, Average and Instantaneous Rates of Change: The Derivative, Derivative Formulas, Product and Quotient Rules, Chain Rule, Power Rule, Higher-Order Derivatives, Applications of Derivatives in Business and Economics.
- **Chapter 10 (Sections 10.1-10.5):** Relative Maxima and Minima, Curve Sketching, Concavity, Points of Inflection, Second-Derivative Test, Optimization in Business and Economics: Maximizing Revenue, Minimizing Average Cost, Maximizing Profit, Applications of Maxima and Minima, Rational Functions and Asymptotes.
- **Chapter 11 (Sections 11.1-11.5):** Derivatives of Logarithmic and Exponential Functions, Implicit Differentiation, Related Rates, Applications in Business and Economics: Elasticity of Demand, Taxation in a Competitive Market.
- **Chapter 12 (Sections 12.1-12.4):** The Indefinite Integral, The Power Rule, Integrals Involving Exponential and Logarithmic Functions, Applications of the Indefinite Integral in Business and Economics: Total Cost and Profit, National Consumption and Savings.
- **Chapter 13: Sections 13.1-13.4 & 13.7** Area Under a Curve, The Definite Integral, The Fundamental Theorem of Calculus, Area Between Two Curves, Applications of Definite Integrals in Business and Economics: Continuous Income Streams, Con-

sumer's Surplus, Producer's Surplus, Improper Integrals and Their Applications.

- **Chapter 14: Sections 14.1 & 14.2** Functions of Two or More Variables, Partial Differentiation.

Homework:

You will be assigned homework problems from the book. Homework problems and due dates will be posted on Canvas regularly. I encourage you to discuss your homework problems with one another, ask help from instructors in the tutoring center, or stop by at office hours. Be sure that the final copy you hand in is written entirely with your words as you understand the solution.

Late assignments will not be accepted and if you will be absent the day that an assignment is due you must turn it in to me before the class in which it is due. Your lowest homework score will be dropped and will not count toward your overall grade. Homework assignments will be graded and returned to you.

Quizzes:

We will have (group) quizzes on the material that already has been taught and covered by homework assignments. It should take approximately 15 minutes to complete the quiz. I will upload the solutions and grades on canvas. Quizzes will not be excused due to absences or lateness so please be prompt and present. At the end of the semester, your lowest quiz score will be dropped and will not count toward your overall grade.

You are encouraged to work together on quizzes by making groups of 3 or 4 with friends and neighbors in class and discussing problems and your possible solutions within the group. You should write your answer based on your own understanding and in your own words. It is fine if someone likes to work individually.

Tests:

There will be three midterms along with a "comprehensive" final exam. All of them are in the scheduled classroom (LCB 215) and at the class time.

Midterm One: Thursday September 20

Midterm Two: Tuesday October 23

Midterm Three: Thursday November 15

Final Exam: Tuesday December 11, 6:00pm - 8:00pm

It is essential that you show all your work. Credit will not be given without the proper work and partial credit will be awarded if you show correct steps even if you do not obtain the final correct number.

Grading:

The grades will be calculated as follows:

Homework 10%
Quizzes 15%
Midterm 20%
Midterm 20%
Midterm 10%
Final Exam 25%

Note: There will be 3 midterms. Your lowest midterm score will count for 10% of your grade and your top two midterm scores will each count for 20% of your final grade.

The grade scale will be the usual: A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), E (0-59). If I do need to curve the grades, I will simply shift your overall percentage up by a few points (whatever is necessary).

Some Policies/Comments:

- Please staple your homework. Otherwise, I am not responsible for lost papers.
- You are allowed to use “scientific calculators” in quizzes and exams. Any other type of electronic devices (including graphing/programmable calculators, cell phones, and music players) are not allowed during the exam. I will make tests and quizzes to evaluate your mathematical skills and not your calculator skills. It is recommended that you complete your homework without calculator and then check your answer by calculator or other preferred technology.
- Cheating will not be tolerated at any time during this course. Any student found cheating will receive a zero for the assignment or test on which the cheating occurred.
- If there is something that I want to inform you, I will reach you by your email. That is usually your default UMail address (uNID@utah.edu) that you have in the CIS. If you are using other emails more frequently than your UMail, then you can set your UMail to forward to your preferred email address. Also the fastest way to reach me is my email: yaghamayi@math.utah.edu.
- If your preferred name is different than your legal first name (the preferred name you chose does indeed show up in CIS on my roll sheet, but not yet in Canvas), please log into Canvas and go to “Account” (on far left) then “Settings” and change your “Display Name” to be the name you prefer to be addressed by. This will help me greatly to know students’ names, and to address you correctly when responding to Canvas comments.

- If you have any thoughts, ideas, or suggestion, please feel free to contact me. I promise to do everything in my power to help.

Tutoring and Extra Help:

- **Tutoring Lab:** The math tutoring center is available free of charge to all university students. It is located in room 155 of the T. Benny Rushing Mathematics Center (adjacent to the LCB and JWB). The tutoring center is open Monday-Thursday 8:00am-8:00pm, and Friday 8:00am-6:00pm. Please take advantage of the tutoring center as needed throughout the semester. They are also offering group tutoring sessions. If you're interested, check out <http://www.math.utah.edu/ugrad/tutoring.html>
- **ASUU Tutoring Center:** University Tutoring Services, 330 SSB. They offer inexpensive tutoring, please see their website: <http://tutoringcenter.utah.edu>
- **Khan Academy:** It is a non-profit, free, educational organization for anyone, anywhere. They have some amazing videos in the Youtube. Check them out: <https://www.khanacademy.org/>

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. <http://regulations.utah.edu/academics/6-400.php>

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the students legal name as well as preferred first name (if previously entered by you

in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your U-ID card, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

Wellness Statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Center for Disability & Access: is dedicated to students with disabilities by providing the opportunity for success and equal access at the University of Utah. They are committed to providing reasonable accommodations as outlined by Federal and State law. The Center for Disability & Access (CDA) also strive to create an inclusive, safe and respectful environment. By promoting awareness, knowledge and equity, they aspire to impact positive change within individuals and the campus community. Please visit <http://disability.utah.edu/> for the latest information.

A.D.A. Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Veterans Support Center: The Center is staffed by student Veterans who are committed to providing their fellow Veterans with the most useful and current information available. The Mission of the Veteran Support Center is to improve and enhance the success of student Veterans; to help them receive the benefits they deserve; to serve as a liaison between the Veteran student community and the University; and to increase their academic success. Additionally to provide an opportunity to continue the relationships built through the service in civilian life. Please see <http://veteranscenter.utah.edu/>

Women's Resource Center: The Womens Resource Center (WRC) at the University of Utah serves as the central resource for educational and support services for women. Honoring the complexities of womens identities, the WRC facilitates choices and changes through programs, counseling, and training grounded in a commitment to advance social justice and equality. <http://womenscenter.utah.edu/>

Disclaimer: All information on this syllabus is subject to change. If any changes on this syllabus, course policies or course outline arise throughout the semester, then I will announce it in class and send the change in email.