

COURSE TITLE AND COURSE NUMBER: MATH 1020 – Business Calculus I

TERM: Spring 2024

CLASS MEETING TIME AND PLACE: Lectures will primarily be delivered asynchronously through pre-recorded videos produced by Clemson University instructors specifically for students enrolled in this course. Video links will be provided in Canvas. Question/answer sessions and/or supplementary instruction will take place at the beginning of the corresponding lab. See iRoar or your Math 1021 syllabus for lab in-person meeting time and place.

COURSE COORDINATOR: Mrs. Donna M. Simms, dsimms@clemson.edu, (864)-656-5210, Martin Hall O-311

DEPARTMENT AND COLLEGE OF INSTRUCTOR: School of Mathematical & Statistical Sciences (SMSS), College of Science

COURSE DESCRIPTION: Intuitive approach to the concepts and applications of calculus. Topics include functions and graphing, differentiation, and integration. Applications from social, biological, and management sciences are presented. Not open to students who have received credit for MATH 1060. Preq: Any MATH or STAT course, or a score of 620 or higher on the SAT Math section, or a score of 26 or higher on the ACT Math section, or a score of 60 or higher on the Clemson Mathematics Placement Test (CMPT).

COURSE OBJECTIVES:

- To develop a conceptual understanding of basic calculus concepts through the study of rates of change and the interpretation of rates of change in non-technical settings using a data-driven approach.
- To model discrete data as continuous functions and understand mathematical connections.

LEARNING OUTCOMES: Upon successful completion of this course, a student will be able to

- Evaluate functions and solve equations with the aid of a course-approved calculator.
- Mathematically describe the behavior of functions.
- Apply business terms: profit, revenue, cost, average cost, or the break-even point.
- Find and interpret marginal revenue and cost, given a revenue or cost function.
- Use compound interest formulas to find present value, future value, and doubling time.
- Develop a completely defined model from a data set. Use the model for extrapolation and interpolation and finding rates of change.
- Find change, average rate of change and/or percentage change from a function represented verbally, graphically, numerically, or algebraically.
- Find and interpret the slope of a tangent line to a function graph.
- Find and interpret derivatives for a large class of functions, including polynomial, exponential, logarithmic, and logistic functions, and their sums, products, and compositions.
- Use derivatives to optimize a function and interpret that value.
- Sketch first and second derivative graphs.
- Determine a function graph from its derivative graph.
- **GENERAL EDUCATION STUDENT LEARNING OUTCOMES: Mathematics**
Students will demonstrate mathematical literacy through interpretation of mathematical forms and performing calculations. - Problems that require mathematical literacy can be found in section work, WebAssign assignments, and tests: finding a mathematical model for discrete data; using a model to extrapolate or interpolate, with interpretation; finding and interpreting various types of rates of change; using a derivative to optimize a function, with interpretation; finding and interpreting marginal revenue or cost.

REQUIRED MATERIALS:

- **WebAssign Access** associated with Calculus Concepts: An Informal Approach to the Mathematics of Change 5th edition, by LaTorre, Kenelly, Fetta, Carpenter, and Biggers. The textbook is included as an eBook in the WebAssign online homework system. (Use same WebAssign access code in Math 2070.)
- **Lecture and Note-taking Guide** to Accompany Calculus Concepts 13th edition (2019-2020), by Biggers, Davidson, Hanna, and McKnew. (Text will be used next semester in Math 2070.)
- Course-approved **Calculator**: TI-84 Plus (or SE, or CSE, or CE), TI-84, or TI-83 (or Plus or Plus SE). The calculator will be used extensively in this course, both in lab and on assignments, quizzes, and exams. (NOT permitted: TI-Inspire, TI-89, TI-92 and similar calculators with symbolic algebra systems.)
- **Laptop** with LockDown Browser downloaded (see instructions for free download on Math 1020 Course website). Some student may also be required to use Respondus Monitor with integrated or separate microphone and webcam (and a handheld mirror). Students with Chromebook (and possibly Lenovo) laptops may have issues that need to be resolved by immediately contacting CCIT at ithelp@clermson.edu. You will need audio capabilities for listening to recorded lectures, audio comments on assignments, and attending online office hours.
- **Pencil & Paper**. All assignments will be submitted online, but students will need paper for working problems during lab and during exams. Students will be asked to scan and upload written work.
- Access to **high-speed internet** connection. If you need help, contact CCIT at ithelp@clermson.edu.
- Ability to **print** learning activities, HW, etc. as directed by section instructor.

OPTIONAL SUBSCRIPTION TO CENGAGE UNLIMITED: WebAssign homework access can be obtained by purchasing one of the bundles described above, or by purchasing the access code separately, or by subscribing to Cengage Unlimited, a service offered by the publisher of the textbook. If you are taking other courses that use Cengage materials, the subscription may save you money. (Cengage Unlimited allows you to rent a hard copy of the Calculus Concepts textbook for a low price.)

SMSS COURSE WEBSITE:

https://mthsc.clemson.edu/ug_course_pages/MATH1020 Math 1020 is a departmental course, with several sections following the same syllabus and taking the tests at the same time. The Course Website contains the *Course Policies*, *Course Calendar*, *Objectives and Exercises*, a previous semester's tests with solutions, testing and WebAssign information, and links to important websites.

Problem solving is essential to mastering the objectives in this course. For additional practice problems, refer to the *Objectives and Exercises* document for a list of Suggested Textbook Exercises.

CANVAS AND CU EMAIL:

www.clemson.edu/canvas/ Students are responsible for materials and announcements posted on Canvas, as well as any email sent to their Clemson email address (userid@clemson.edu). Set up Canvas notifications. Check Canvas and email on a regular basis. An instructor's Canvas Course provides access to videos, learning activities, WebAssign, quizzes, other assignments, tests, and grades, and other resources.

COURSE GRADE:

The course grade will be assigned based on a 10-point scale (90% = A, 80% = B, etc.) according to the more favorable of the two methods shown below:

Method I: $0.28 * (\text{Lab Average}) + 0.18 * (\text{Test 1} + \text{Test 2} + \text{Test 3} + \text{Final Exam})$

Method II: $0.28 * (\text{Lab Average}) + 0.18 * (\text{sum of best of two tests}) + 0.36 * (\text{Final Exam})$

Course Average: Method I		Course Average: Method II	
Lab average	28%	Lab average	28%
3 Exams @ 18% each	54%	Best 2 of the 3 Exams @ 18% each	36%
Final Exam	18%	Final Exam	36%

In other words, the final exam is at least 18% of the final course grade and the final exam replaces one low test if it is higher than that low test.

Note: Math 2070 requires a grade of C or higher in Math 1020 as a prerequisite.

GRADING SYSTEM:

The course grade will be assigned based on a 10-point scale (90% = A, 80% = B, etc.)

Letter	Percentages
A	90
B	80
C	70
D	60
F	

GRADING POLICIES:

Rounding will be allowed for the final course grade (for example 69.50 would round up to a course grade of C.)

Test grades, WebAssign grades, and daily grades are used as two decimal place numbers in intermediate grade calculations.

GRADING ACTIVITIES:

Lab Average (28%): Lab Average will account for 28% of your MATH 1020 course grade. See your MATH 1021 lab course policies for more details.

Tests and Final Exam (72%): Three ninety-minute tests, all requiring use of a Lock Down Browser & potentially Respondus Monitor, are scheduled on Wednesday nights at 7:30 pm Eastern. Students are required to be available on these dates at 7:30 pm Eastern for testing: **February 7, March 6, and April 17.** Do **not** make any arrangements (elective activities, social, travel, etc.) that interfere with these dates and times.

Each test and the final exam are closed-book and closed-notes and require a course-approved calculator. Tests and the final exam will be administered electronically with in-person proctoring. Tests will require a computer with Lock Down Browser downloaded, installed, and working properly.

Students may request remote proctoring with proper documentation supporting the need for remote proctoring. Permission must be attained in advance from the course coordinator through the section instructor to use remote proctoring. Students who use remote proctoring without proper documentation and approval from the course coordinator will only receive half of the points they earn on the test. Remote proctoring will require a computer with a Lock Down Browser & Respondus Monitor downloaded, a webcam, a reliable internet connection with lots of bandwidth, and a mirror. Failure to perform all required steps for technology-based proctoring may

result in significant point deductions and/or charges of academic dishonesty. Failure to take a test in a correctly proctored environment (in person or remote) may result in a 0 on the test. Other devices and technology will **not** be permitted in any testing environment. Use of unapproved technology, or any type of cheating, will lead to a charge of academic dishonesty and a possible failure in the course.

- Make-ups for missed tests **may** be available for **university-sanctioned absences** if the instructor is notified at least one week in advance.
- Inform your instructor at least 24 hours **prior** to the scheduled test or exam regarding a **conflict** that might qualify as an excused absence in order to gain any consideration for this conflict.
- Students who are **verifiably ill** (documentable) and unable to take a test or the final exam at the scheduled time are responsible for contacting their instructor **prior** to the start of the exam time.
- **Documentation must be provided to the course coordinator for all cases** and allowed make-ups must be completed by 5 pm the Monday after a scheduled test.
- In rare cases, a make-up may be granted if you contact your instructor during or after the scheduled test but no make-ups will be considered if instructor is not contacted by **noon the day after** a scheduled test.
- In the event that you are not able to take a test, method II of course grade calculation will be used – which results in the final replacing that one test and no other test.

A comprehensive final exam is scheduled for 7:00 pm on **May 1, 2024**. The final exam must be taken at the scheduled time. No rescheduling of the final exam will be permitted to accommodate travel arrangements. The final exam for MATH 1020 is required for all students and exemptions of the final exam are not allowed.

Since Math 1020 has a common exam, and common exams take priority over other final exams, a student who has more than two final exams in one calendar day or two final examinations at the same time **must take the Math 1020 final exam at the scheduled time**. A student with such a conflict should contact their non-Math 1020 instructor no less than one week prior to the last class meeting to reschedule. In resolving issues with conflicts or excessive numbers of final exams in a single day, please note the registrar's policy which states that "common exam times may not be rescheduled", <https://www.clemson.edu/registrar/student-menu/examinations.html>. Issues with rescheduling should be brought to the attention of the department chair for the other course.

We reserve the right to require all testing be done with remote proctoring with Respondus Monitor if pandemic circumstances and University decisions merit such.

ATTENDANCE:

Class attendance to the lab component of this course is critical to the educational process. Lab attendance will be factored into the course grade – see the MATH 1021 course policies for details. Students are expected to be regular and punctual. Students are expected to come to lab prepared, in possession of all required materials, having watched the required lecture videos, and having completed required assignments beforehand. Students are responsible for all notes, assignments and announcements made during lab time.

- Students with a scheduled absence or a University sanctioned activity (athletic travel, field trip, etc.) should provide documentation to their instructor at least one week in advance.
- Students absent due to an emergency should make direct contact with their course instructor, preferably before a missed lab or exam.
- Students with excessive absences (3 or more lab classes) might be withdrawn at the discretion of the instructor at any time.
- In the case of inclement weather, check Canvas and/or your Clemson email address for communication from your instructor.
- If an assignment is due at the time of a class cancellation due to inclement weather (or any university cancellation), it will be automatically be due at the next lab meeting, unless contacted by your instructor via email or Canvas within 24 hours of the cancellation. In the event of the university closing during a scheduled test, students will be notified by their instructor as to the date of the rescheduled exam.
- Students with contagious illnesses, students who have been asked to quarantine/isolate due to exposure/illness, and/or students experiencing other illnesses keeping them from attending in-person lab:
 - should inform you instructor, via the Notification of Absence module in Canvas.

- The student will continue the coursework in an asynchronous manner.
- Because the assignments are entirely online and open in advance, the student should keep up with their WebAssign assignments while quarantined/ill.
- Please follow up with your instructor by email (not just sending Notification of Absence) to develop a continued plan of study.
- If you are not well enough to continue the coursework while quarantined/ill, it is imperative to contact your instructor within a reasonable time period to determine a plan for getting caught up in the course.

NOTIFICATION OF ABSENCE:

The Notification of Absence module in Canvas allows students to quickly notify instructors (via an email) of an absence from class and provides for the following categories: court attendance, death of immediate family member, illness, illness of family member, injury, military duty, religious observance, scheduled surgery, university function, unscheduled hospitalization, other anticipated absence, or other unanticipated absence. The notification form requires a brief explanation, dates and times. Based on the dates and times indicated, instructors are automatically selected, but students may decide which instructors will receive the notification. This does not serve as an “excuse” from class. It is a request for an excused absence and students are encouraged to discuss the absence with instructors, as the instructor is the only person who can excuse an absence. If students are unable to report the absence by computer, they may reach the Office of Advocacy and Success via 864.656.0935. Students with excessive absences who need academic or medical assistance can also contact the Office of Advocacy and Success.

INSTRUCTOR ABSENCE:

If an instructor is required to quarantine, then that instructor’s section(s) will likely convert to an online only format until the instructor is cleared to return.

- If the instructor is well enough to conduct lab, then the section(s) will likely meet in a synchronous manner (with Zoom).
- If the instructor is not well enough to conduct lab, then the section(s) will likely meet in an asynchronous manner. Details about expectations during this time will come from the instructor (or a designee) through e-mail and/or Canvas announcements.
 - If this continues beyond three lab meetings, every effort will be made for an alternate instructor to temporarily substitute and return the lab to a synchronous format, be it in-person or online.
- Students should pay close attention to communications from the instructor or a designee during this time.

TOPICAL OUTLINE:

See the SMSS MATH 1020/1021 Course Calendar document. The Course Calendar is a separate document but should be considered part of the syllabus materials for this course along with this document.

ACADEMIC INTEGRITY:

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. All infractions of academic dishonesty by undergraduates must

be reported to Undergraduate Studies for resolution through that office. In cases of plagiarism instructors may use the Plagiarism Resolution Form.

See the Undergraduate Academic Integrity Policy <https://www.clemson.edu/academics/integrity/> website for additional information and the current catalog <https://catalog.clemson.edu/index.php> for the policy. Please read the information concerning Academic Regulations in the *Undergraduate Academic Catalog* on topics such as: Academic Integrity, Class Attendance, Midterm Grades, Final Exams, and Posting of Grades.

- Giving another person access to an academic website that requires your password (for example WebAssign or Canvas) violates the code of student conduct computer-use policy.
- Giving, receiving or using unauthorized aid, including the use of electronic devices, on any work submitted to fulfill academic requirements are defined as academic dishonesty.
- Students are required to abide by the Honor Code during tests, whether conducted in-person or online.
- Work from other past or current courses may not be used to meet the requirements for this course.
- Violations of the Honor Code will not be tolerated.

ACCESSIBILITY:

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the instructor know and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen if at all possible, but there could be a significant wait due to scheduled appointments. Students who have accommodations are strongly encouraged to request, obtain and send these to their instructors through their AIM portal as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester.

Once an instructor has received an email notification of a student with accommodations, that student must meet privately with their instructor, and in addition, may be required to meet with the Math 1020 Academic Course Coordinator dsimms@clemson.edu to finalize the accommodations. The above process must be **completed at least one week prior to the first test on which accommodations are granted**. Students who do not follow these procedures will not be accommodated. Please be aware that accommodations are not retroactive and a new Academic Access Letter or Notification must be presented each semester.

You can access further information at the Student Accessibilities Website <https://www.clemson.edu/academics/studentaccess/index.html>. Other information is at the university's Accessibility Portal <https://www.clemson.edu/accessibility/access/accommodations-services.html>

EMERGENCY PROCEDURES:

Emergency procedures have been posted in all buildings and on all elevators. Students should be reminded to review these procedures for their own safety. All students and employees should be familiar with guidelines from the Clemson Police Department.

Clemson University is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:

1. Familiarize yourself with all possible exits, safer locations, and other key information on the emergency evacuation maps in this building, and those that you visit regularly.

2. Make a plan for how you would Run, Hide, and Fight in case of an [active threat](#) in this building, and those that you visit regularly. For example:
 - a. Run – what are all the possible exits in this building, and the routes to them?
 - b. Hide – what are the potential hiding locations in this room and building that are out of sight of doors and windows, how do you lock the door(s), how would you barricade the door(s) and windows, where do you turn off the lights?
 - c. Fight – What tools are available in this room and building, should you have to fight?
3. Ensure you are signed up for [emergency alerts](#). Alerts are only sent when there is a potential threat to safety, a major disruption to campus services, and once-monthly tests.
4. Download the [Rave Guardian app](#) to your phone. (<https://www.clemson.edu/cusafety/cupd/rave-guardian/>)
5. Learn what you can do to [prepare yourself](#) for the hazards that affect our locations. (<http://www.clemson.edu/cusafety/EmergencyManagement/>)

SAFETY:

Clemson University is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:

1. Ensure you are signed up for emergency alerts: <https://www.getrave.com/login/clemson>
2. Download the Rave Guardian app to your phone:
<https://www.clemson.edu/cusafety/cupd/rave-guardian/>
3. Learn what you can do to prepare yourself in the event of an active threat
<http://www.clemson.edu/cusafety/EmergencyManagement/>

TITLE IX (COMMITMENT TO DIVERSITY):

Clemson University aspires to create a diverse community that welcomes people of different races, cultures, ages, genders, sexual orientation, religions, socioeconomic levels, political perspectives, abilities, opinions, values and experiences.

THE CLEMSON UNIVERSITY TITLE IX STATEMENT REGARDING NON-DISCRIMINATION

The Clemson University Title IX statement: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This Title IX policy is located on the Campus Life website:

<http://www.clemson.edu/campus-life/campus-services/access/title-ix/> Ms. Alesia Smith is the Clemson University Title IX Coordinator, and the Assistant Vice President of Equity Compliance. Her office is located at 223 Brackett Hall, 864.656.3181. Remember, email is not a fully secured method of communication and should not be used to discuss Title IX issues.

STUDENT SUPPORT RESOURCES:

- The Academic Success Center (ASC) <https://www.clemson.edu/asc/> offers a variety of free learning and success services for all undergraduate students that include
 - Mastery of course content
 - Tutoring – This course is supported by the Academic Success Center tutoring program. The ASC Tutors have successfully completed this course and they understand the concepts well enough to help you work through questions you have. The ASC Tutoring program is certified by the College Reading and Learning Association (CRLA), which means that our tutors are trained to share learning and study strategies during tutorial sessions. While tutors will not complete/correct homework for you or help you on take-home tests or quizzes, they will help you understand and reinforce concepts that you are learning in your classes. All ASC Tutoring appointments are available through CU Navigate. To view the courses ASC Tutoring is supporting or for instructions on how to make an appointment, visit [clemson.edu/asc](https://www.clemson.edu/asc/) and click on the "View Tutoring Schedule" icon.
 - Peer-Assisted Learning (PAL) – sessions are available as a complement to the course lectures. Your PAL leader has taken this course in the past and can share tips and tricks for success. Sessions are a great way to stay current with course content and learn from other students' understanding. You can take advantage of this valuable resource by watching for emails and announcements from your PAL leader. And if your schedule does not allow you to attend their sessions, you can find additional PAL sessions by visiting the ASC website (<https://www.clemson.edu/asc/>) and clicking on the orange "Visit PAL Website" button on the right.
 - Learning and Success Strategies
 - Academic coaching - students can expect a 1:1 meeting with a trained professional academic coach during which the coach helps students see themselves, their skills, and their study habits from a fresh perspective through one-on-one sessions focused on learning and personal success strategies.
 - Success strategy workshops – students can expect 30-45 minute workshops on college success skills, time management and organizational skills, test-taking strategies, study strategies, finals preparation, life skills, and academic resources.
 - College success skills course (CU 1010) – students experiencing academic difficulty can expect a course focused on academic and personal skill building taught by instructors who wish to work with this student population
 - ASC services are designed to equip students with strategies and resources they can use to:
 - Succeed in their courses
 - Become more confident, independent, and skillful learners
 - Engage in more productive and effective study and learning strategies
 - Manage their time more effectively
 - The Class of 1956 Academic Success Center building is located in the center of campus adjacent to Cooper Library and the Watt Family Innovation Center.
- Academic Advising <https://www.clemson.edu/academics/advising/index.html> is an ongoing educational process that connects the student to the University. Academic advising supports the University's mission of preparing the student for learning beyond the confines of the academy. Academic advisors represent and interpret University policies and procedures to the student and help the student navigate the academic and organizational paths of the institution.
- Library: Clemson Libraries has three copies of the required class textbook, *Lecture & Note-taking Guide to Accompany Calculus Concepts (13th edition)*. The books can be checked out at the Libraries main circulation desk, and students can check them out for 4 hours at a time and can renew them if no one else has a hold on the books. Students can also check on the status of the books using this link: https://pascal-clemson.primo.exlibrisgroup.com/permalink/01PASCAL_CLEM/g45dlb/alma991014326435505612. The libraries also has copies of textbooks for many other courses for you to check out through its Textbook Lending Program, and it encourages you to examine the works available through this link: <https://libraries.clemson.edu/borrow/textbook-lending-program/#>

- The Michelin Career Center, https://career.sites.clemson.edu/michelin_career_center/, in the Center for Career and Professional Development, assists undergraduate and graduate students in selecting appropriate fields of study, learning effective job searching strategies, and making connections with employers. Career counselors are available to meet with students to explore career or educational options, develop résumés and cover letters, hone interviewing techniques, conduct searches for internships and full-time jobs, and ready themselves for interviewing with employers. In addition, students may utilize ClemsonJobLink, the Career Center's on-line recruiting system, to view part-time jobs, internships, and full-time job postings and to sign up for on-campus interviews.
- The Registrar's Office <https://www.clemson.edu/registrar/> provides information about important deadlines, degree and program requirements, and other key information, including use of iROAR to add, drop, or withdraw from courses.
- Counseling and Psychological Services
<https://www.clemson.edu/campus-life/student-health/caps/services-and-programs/index.html> At CAPS, you are encouraged to be an active participant in your medical and mental health care. Which service is the right one for you hinges on your individual need, and CAPS will help you figure that out. CAPS is committed to educating students, as well as offering "outreach services to faculty and staff members in order to improve the quality of their interactions with students and to promote a healthy work environment."

COPYRIGHT:

Course materials are intended for use only by students registered and enrolled in Math 1020 and only for instructional activities associated with and for the duration of the course. Materials in courses are copyrighted, including instructor's materials. They may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the Teach Act. Students must seek permission from instructors to record any class activity, including lectures, discussions, and presentations. Students should refer to the Use of Copyrighted Materials and "Fair Use Guidelines" policy on the Clemson University Website for additional information.

Original works of authorship including but not limited to books, novels, poetry, articles, works of art, photos, images, videos, movies, music, architectural designs etc. are protected under copyright law. Unless otherwise indicated all such materials are copyright protected. When copyright protected materials or portions of such materials are made available to you by an instructor, they are intended to be used for educational purposes, for use only by students enrolled in a particular course and only for instructional activities associated with the course. They should not be retained in another medium or disseminated. Any further use of this material may be in violation of federal copyright law.