Common Course Syllabus

(the information in this document supersedes the section syllabus provided by your instructor)

Course Coordinator: Mrs. Jennifer Hanna, Martin O-318, jennifL@clemson.edu, 864.656.6405

Course Description: MATH 2070, Multivariable Calculus, is an introduction to integral calculus, calculus of several variables, differential calculus, and optimization of several variables. Topics from the management and social sciences are used to illustrate the above concepts. This course satisfies the Mathematics General Education Competency, wherein the student will demonstrate mathematical literacy through solving problems, communicating concepts, reasoning mathematically and applying mathematical methods, using multiple representations.

Prerequisite: Credit for either MATH 1020 or MATH 1060. Students unfamiliar with the calculator skills used in MATH 1020 are responsible for acquiring the calculator techniques used on a TI-83 or TI-84 to model data and graph and analyze functions before the first test. These are the ONLY calculators which are permitted to be used in MATH 2070. To learn more about using this type of calculator, students are directed to the demonstrations in Chapters 1 – 4 of the Lecture Guide and to the on-line, searchable reference manual, located on the Course Website https://mthsc.clemson.edu/ug_course_pages/MATH2070.

Required Materials:
1. WebAssign Access Code: This code will give you access to the online homework system and the e-book for this course, *Calculus Concepts: An Informal Approach to the Mathematics of Change*, by LaTorre, et al. 2014. The code can be purchased online at www.webassign.net or at the bookstore, ISBN: 9781285858500. Students who previously took MATH 1020 or MATH 2070 with this edition of the text should still have access to WebAssign, as it is linked to the book and good for three semesters.
3. Calculator: A TI-83, TI-83+, TI-84, or TI-84+. Only these calculators are acceptable. Neither a TI-89 nor a TI-NSpire calculator is permitted.

Students should bring the Lecture Guide and a calculator to every class meeting. Students who fail to bring these required materials to class may receive a zero for that day’s activity grade.


Optional Materials:

Cell phones, Laptops and Other Technology: The use of electronic devices other than the TI-83 or TI-84 calculator (i.e. laptops, iPods, cell phones, unapproved calculators, etc.) is strictly prohibited during tests and the final exam. The use of such devices during regular class meetings must be pre-approved by the instructor. All calculator programs must be deleted prior to tests or the final exam. Failure to delete programs prior to exams may result in charges of academic dishonesty. See the Course Website for instructions on how to delete programs from your calculator.
Websites: Students are directed to the following websites.

- [https://mthsc.clemson.edu/ug_course_pages/MATH2070](https://mthsc.clemson.edu/ug_course_pages/MATH2070) - is the MATH 2070 Course Website which includes this syllabus, a daily calendar, learning objectives for the course with suggested problems from the text, a sample of previous exams and answer keys, test information, WebAssign help, an on-line graphing calculator guide and other information that may be helpful.

- [http://bb.clemson.edu](http://bb.clemson.edu) – is a link to your section of MATH 2070 in Blackboard. Each student is responsible for checking this website as well as his university e-mail account on a regular basis for announcements and class materials. Most instructors post student grades on this website.

- [http://www.webassign.net](http://www.webassign.net) – is a link to WebAssign where on-line homework assignments and e-book are found. Your instructor will provide detailed information about how to register and access assignments. The due dates for each assignment are listed on the calendar. You will not be permitted to register for WebAssign or work on homework until **Friday, January 8th**.

- [http://www.registrar.clemson.edu/html/catalog.htm](http://www.registrar.clemson.edu/html/catalog.htm) - is the website where detailed information about Course Regulations at Clemson University undergraduate class regulations including policies on academic integrity, attendance, midterm grades, final examinations and the posting of grades are found.

**Academic Integrity:** Students are expected to adhere to the following official Clemson Academic Integrity statement:

“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.”

Note that work from past or current courses may not be used to meet the requirements for this course. Also note that giving access to an academic website that requires your password (such as WebAssign or Blackboard) violates the code of student conduct computer use policy.

**Attendance:**

Attendance will be recorded. Students are expected to be regular and punctual in your class attendance, and are responsible for all notes, assignments and announcements made in class.

- If you are absent due to an emergency or a University sanctioned activity (athletic travel, field trip, etc.), you should provide documentation to your instructor. A student wishing for an excused absence for illness must demonstrate that the illness actually prevented attendance.

- Students who have more than 4 unexcused absences are subject to being dropped from the course or earning a grade of F.

- If your instructor does not show up for class, quietly wait 15 minutes before leaving. Email jennifL@clemson.edu should this happen.

- If you miss a class, consult with a fellow student to obtain the course notes. Instructors are NOT obligated to reconstruct the classroom experience for a student who failed to attend class.

- If class is cancelled due to inclement weather (or other unforeseen event) the give back days indicated on the Course Calendar will be used as an instructional day to make up the lost time. If an assignment is due at the time of a class cancellation, it will be due at the next class meeting, unless stated otherwise by your instructor via email or Blackboard within 24 hours of the cancellation. In the event of the university closing during a scheduled test, your instructor will notify you as to the date of the rescheduled exam.
Structure of Class: Class time will generally consist of a lecture followed by a time during which students work on learning activities. Learning activities are typically restricted to a single class period and collected at the end of class. However, some activities may extend over one or more class periods, and some may require that students work outside of class time to complete the assignment. During the activity time the instructor and a Supplemental Instruction leader will circulate around the room to help students. Regardless of minor variations in class structure, it is ultimately the student’s responsibility to master the objectives of the course.

Learning Outcomes: Upon successful completion of MATH 2070 students will be able to:
• Determine the integral formula for a linear, polynomial, logarithmic, or exponential function.
• Calculate the area under a curve using the sums of areas, a definite integral, or an improper integral.
• Calculate the area between two rates-of-change (derivative) curves.
• Use the graph of a rate-of-change function to give information about the related accumulation function including a discussion of the slope and the location and classification of any extreme or inflection points.
• Find the average value and average rate-of-change of a continuous function over a closed interval and give an interpretation of those values in an applied context.
• Use demand and supply functions in applications including the calculation of the price at market equilibrium.
• Use integration to calculate and interpret the revenue, producer surplus, consumer surplus, and social gain at market equilibrium.
• Use integration to find the present and future values of an investment modeled as a continuous income stream.
• Apply Calculus to questions of probability.
• Evaluate multivariable functions, find partial derivatives, solve multivariable equations, and interpret the results of such calculations in an applied context.
• Calculate and interpret the slope and any critical point of a multivariable function of the form $f(x, y)$.
• Calculate and classify the constrained optimal point of elementary multivariable functions given a linear constraint.
• Write mathematical models from single-variable data or a cross-section of multivariable data.

Expectations of Students Enrolled in MATH 2070: Students are responsible for attaining the Learning Outcomes stated for this course. Resources available include the textbook (which students are expected to read), the instructor, the Supplemental Instruction leader, fellow students, the Course Website, Blackboard, WebAssign, and tutoring provided by the Academic Success Center. A detailed list of the course learning objectives is shown on the Course Website with a list of suggested practice problems from the text.

For each class meeting you should…
• Before class, consult the Course Calendar to determine which section will be covered and pre-read the corresponding section of the text.
• During class, be an active listener, take notes, ask questions, work with your group, etc.
• After class, carefully read the corresponding section of the text. This includes working problems on your own calculator along with the text to verify that you are getting the same numbers, working problems at the end of each section, etc.
• Complete the WebAssignment and any written homework associated with the previous class meeting.
• Seek assistance from your instructor, classmates, Supplemental Instruction (SI) Leader, and/or Academic Success Center tutors in a timely manner if you have unresolved questions.
Tests and Final Exam: The Wednesday evening time slot on your schedule is for the three common (course-wide) tests. The three test dates are February 3rd, March 2nd, and April 13th. The testing time is 7:30-9:00 pm. Each test will be closed book and closed notes. A scantron will be provided for each student. The solutions for each test will be posted on-line on the Course Website. Students will have one week from the date tests are handed back to submit the test for re-grading or to correct a clerical error.

Absence from a test or the final exam will result in a grade of zero. If you must miss a test/exam due to a conflict that might qualify as an excused absence, you must inform your instructor at least 24 hours prior to the scheduled test or exam in order to gain any consideration for this conflict. Students who are ill and unable to attend a test may, in extreme cases, be able to schedule a make-up exam: otherwise, the syllabus is written in such a manner that an absence from one of the three semester tests will be compensated by substituting the final exam score in for that test score.

The final exam for this course is Wednesday, April 27th from 7:00 - 9:30 pm. The final exam is mandatory and comprehensive. No rescheduling of the final exam will be permitted to accommodate travel arrangements. There will be no exemptions from the final exam.

Accommodations: Students with disabilities requesting accommodations should make an appointment with Dr. Margaret Camp (864-656-6848), Director of Disability Services, to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disability Services when they meet with instructors. Accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

Students with a letter stating specific testing accommodations to which they are entitled should meet with the MATH 2070 Academic Coordinator, Mrs. Jennifer Hanna (O-318 Martin Hall), to turn in a current copy of the letter from Student Disability Services and to arrange for test accommodations at least one week prior to an upcoming test. During this meeting, arrangements for accommodations will be made for the remaining tests in the semester, including the final exam. Therefore, students should consult their final exam schedule prior to this meeting. Contact Mrs. Hanna via email at jennill@clemson.edu using the subject Accommodations Appointment as soon as possible to arrange an appointment. Students who have not made appropriate arrangements will not be accommodated for testing.

WebAssign: WebAssign is a set of on-line homework exercises designed to enhance a student’s understanding of the course material. WebAssign registration will begin on Friday, January 8th. There are one to three WebAssignments due each week (the due dates are found next to the link to each assignment in WebAssign and listed on the Course Calendar). Students are encouraged to do their on-line homework as soon as possible after learning the associated material in lecture, both to reinforce their learning, and to avoid missing the due dates.

Given the ample time allotted for on-line homework, extensions will generally not be permitted. Best practices for WebAssign: (1) Read the associated material in the book, (2) print the exercises, so that you have room to work the problem on paper, (3) submit your responses. Once WebAssign has confirmed that your answers are correct, (4) save all exercises in a binder, so that you can refer to these when preparing for a test. WebAssign exercises will not be reopened at the end of the semester for practice before the final exam.

At the end of the semester, a student’s preliminary WebAssign average will be calculated by dividing the total number of points earned by the number of points possible. The final WebAssign average will be calculated by dividing the preliminary WebAssign average by 0.9. Any final WebAssign average greater than 100% will be scaled back to 100%.
Section Work: The Section Work average is calculated from the student’s performance on learning activities, quizzes (announced or unannounced), written homework assignments, and any other assignments specified by the instructor. Each instructor will provide information specific to the Section Work average for his/her section of 2070 on the first day of class in their Section Syllabus. Late work is generally not accepted for credit unless specific arrangements have been made in advance of the due date with the instructor. No make-ups will be given on quizzes.

At the end of the semester, the preliminary Section Work average will be divided by .9 to compute the final Section Work average. Any final Section Work average greater than 100% will be scaled back to 100%.

Grading: Your final course average for MATH 2070 will be computed using the more favorable of the two methods outlined below. The letter grade will be assigned using the course average. No extra credit is possible. Under Method 2, your lowest test score is replaced by your final exam score (Method 2 is only used if one of your test scores is lower than your final exam score).

<table>
<thead>
<tr>
<th>Method 1</th>
<th>Method 2</th>
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<tbody>
<tr>
<td>3 Unit Tests, at 20% each</td>
<td>60%</td>
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<tr>
<td>WebAssign</td>
<td>10%</td>
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<tr>
<td>Section Work</td>
<td>10%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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<tr>
<td><strong>Total</strong></td>
<td>100%</td>
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Grading Scale: 90% or above = A; 80 – 90% = B; 70 – 80% = C; 60 – 70% = D, Below 60% = F.

Example: Mary earned a 90 on Test 1, an 85 on Test 2, and a 30 on Test 3. Her WebAssign average was 80 and her Section Work average was 96. Her Final Exam score was 84. Under Method 1 she would earn a C, but under Method 2 she would earn a B. Mary’s final course grade would therefore be a B.

<table>
<thead>
<tr>
<th>Method 1</th>
<th>Method 2</th>
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<tbody>
<tr>
<td>.20(90+85+30)</td>
<td>41%</td>
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<tr>
<td>.10(80)</td>
<td>8%</td>
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<tr>
<td>.10(96)</td>
<td>9.6%</td>
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<tr>
<td>.20(84)</td>
<td>16.8%</td>
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<tr>
<td><strong>Course Average</strong></td>
<td>75.4%</td>
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Supplemental Instruction (SI): [http://www.clemson.edu/asc/si/](http://www.clemson.edu/asc/si/)
Supplemental Instruction is offered by the Academic Success Center. SI is a collaborative study session guided by a peer SI Leader (a fellow undergraduate student who earned an A in 2070). Sessions are designed to aid your mastery of course material and develop effective learning strategies. Your SI Leader will attend class regularly and you are encouraged to interact with your SI Leader if you have a question while working on the learning activity. The complete SI schedule with times, locations and SI leader names are provided on the ASC website. You are welcome to attend any session. SI sessions begin on Sunday, January 10th.

Drop-in Tutoring – Academic Success Center: [http://www.clemson.edu/asc/tutoring/](http://www.clemson.edu/asc/tutoring/)
Free, drop-in tutoring is available for this class through the Academic Success Center. These sessions are open to all students who wish to improve their understanding of course material, concepts and study skills. The scheduled times, locations and tutors for this course are provided on the ASC website above. Be sure to come to all tutoring sessions fully prepared with your book, notes, and other relevant class materials. Tutoring begins on Sunday, January 10th.
How is SI different from tutoring?
Tutoring addresses specific questions a student has (“I missed this question on the exam but I don’t understand what I did wrong.”) as well as gaps in understanding (“I reviewed my lecture notes and read the section in the textbook but still don’t understand. Can you help me learn this material?”).
Supplemental Instruction reinforces daily lecture material and provides extra practice and review. SI leaders set a learning agenda for the sessions and plan activities around that agenda but will negotiate session content.

Title IX: 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 (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) 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 policy is located at http://www.clemson.edu/campuslife/campus-services/access/title-ix/. Mr. Jerry Knighton is the Clemson University Title IX Coordinator. He also is the Director of Access and Equity. His office is located at 111 Holtzendorff Hall, 864.656.3181 (voice) or 864.565.0899 (TDD).

Last Update: January 4, 2016