

# MAT 286 – CALCULUS FOR THE LIFE SCIENCES II

## SPRING 2019

**Course Description:** This is the second course in a two-course, terminal calculus sequence. It is designed to introduce students to the beauty and power of calculus. Topics include, integration, areas and volumes, double integrals and differential equations. Applications to the life sciences are emphasized.

**Course Restrictions/ Prerequisites:** MAT 285 must be successfully completed before taking MAT 286. Students planning to major in a physical science, engineering or mathematics should take MAT 295-296-397 sequence.

**Liberal Arts Core:** This course is the second course in the Quantitative Skills sequence MAT 285-286.

**Text:** *Calculus for the Life Sciences*, by Greenwell, Ritchey and Lial; Addison Wesley, 2nd Edition. The course will cover Chapters 7, 8, part of Chapter 9 and Chapter 11.

**Calculator:** A graphing calculator is required for this course and the TI-84 or TI-83 calculator is recommended. Students who already own and know how to use another equivalent calculator (e.g. TI-85 or TI-86) are free to use it. A calculator with symbolic calculus capability (such as the TI-89, TI-92 or TI-Nspire) is **NOT** allowed for exams and quizzes.

**Homework and Quizzes:** Your instructor will announce the homework and quiz policies for your section of the course.

**Tests:** There will be three in-class midterm exams and a final exam during the semester, each accounting for 20% of your final grade. There will be **no makeup tests**, and a missed examination counts as a zero unless you present a valid excuse from a physician or the Dean's office. With a written excuse, the final exam will be used to determine the score of the missing test.

**Test Corrections:** An essential part of the testing process is to learn from your mistakes. Hence, students not earning at least 90% on the first two tests are required to submit test corrections. Your instructor will give you details.

**Final Examination:** The final exam covers the entire course and accounts for 20% of the final grade. It will be given on Monday, May 6, 2019 sometime between 8:00 am & 2:30 pm. The MAT 286 final exam will be scheduled for a two-hours period during this block. The precise time and location of the final exam will be announced in class later. The final examination is given at this announced time and at no other time. **DO NOT PLAN TO LEAVE CAMPUS BEFORE 2:30 PM ON MONDAY, MAY 6.**

**Grading:** The final score will be computed on a scale of 0 to 100 from the tests (60%), homework & quizzes (20%), and the final exam (20%). Numerical grades will be combined as above, and rounded to two decimal places. Then letter grades will be assigned as follows:

<i>Grade</i>	<i>Range</i>	<i>Grade</i>	<i>Range</i>	<i>Grade</i>	<i>Range</i>	<i>Grade</i>	<i>Range</i>
A	93 – 100 %	A-	90 – 92.99%	B+	87 – 89.99%	B	83 – 86.99%
B-	80 – 82.99%	C+	77 – 79.99%	C	73 – 76.99%	C-	70 – 72.99%
D	60 – 69.99%	F	0 – 59.99%				

**Class Attendance and Participation:** You are expected to attend and participate in class. Missing class is the most common reason for poor performance in the course. **If you miss a class, you are responsible for obtaining notes for that class from a student who attended. It is also your responsibility to find out about any announcements made in class.**

**Academic Integrity:** Syracuse University’s Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University’s academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see <http://class.syr.edu/academic-integrity/>

**Students with disabilities.** If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**Religious observances policy.** Syracuse University's Religious Observances Policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors no later than the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.

## **Course Objectives and Learning Goals:**

- To reinforce prior understanding of functions, including linear, polynomial, exponential, logarithmic and trigonometric functions.
- To understand what an integral is, how to compute integrals (limits, formulas), and how integrals can be used.
- To correctly use and understand the usage of mathematical notation.
- To develop critical thinking and problem solving skills.
- To be able to select an appropriate mathematical model for a given real world problem.
- To be able to do hand calculations accurately and appropriately.

**Help:** Your instructor will hold regular office hours and will make appointments with students having class conflicts with their scheduled office hours. In addition, the Mathematics Department offers regular math clinics. These will be set up by the second week of the semester and a schedule of the clinics will be posted outside the math office and on the department's website.

**Course Supervisor:** Kari Shaw, 305 Carnegie, 443-2650, keshaw@syr.edu

**Course-related problems.** Please inform your instructor of any problems you have with this course. Problems not satisfactorily resolved with your instructor should be brought to the attention of the course supervisor (listed above) without delay.

**How to Succeed:** Here are a few basic suggestions for how to succeed in this course.

1. It is absolutely essential that you understand how to solve the assigned homework problems and, more importantly, how and why the skills and techniques presented in the course are used in solving the assign problems. Quiz and exam questions will be similar to these problems.
2. Ask questions in lecture, recitation and/or at the clinic about anything that is not completely clear. Don't hesitate to bring questions to your instructors during office hours.
3. Every day, read and study the sections in the textbook covered in the lecture. Learning mathematics takes time! Read carefully and work through all the examples in complete detail. It can be helpful to try to work through an example on your own before reading the solution.
4. Stay caught up. Mathematical concepts build on each other cumulatively and you need to stay on top of the material at every stage. If you are having difficulty, don't expect that the problem will take care of itself and disappear later. Contact your course instructor or your recitation instructor immediately and discuss the problem!
5. Form a study group. Many students benefit from a study group to work through challenging problems and to review for exams. You should attempt the problems ahead of time by yourself and then work through any difficulties with your study partners. Explaining your reasoning to another student can help to clarify your own understanding.
6. You should expect to work hard. Don't get discouraged if you find some of the material very difficult. Be persistent and patient! If you follow the above suggestions, your experience in this course will be a rewarding one.

### **Important Dates:**

- Add Deadline: Tuesday, January 22, 2019
- Academic & Financial Drop Deadline: Monday, February 4, 2019
- Withdrawal Deadline: Tuesday, April 16, 2019
- Final Exam: Monday, May 6, 2019