

MATH 108, QUANTITATIVE METHODS III  
SPRING 2022

**Information.**

Instructor: Dr. S. Muir  
Office: Loyola Science Center (LSC) 271  
Office Hours: T: 3:00 – 5:00 p.m., F: 1 – 1:50 p.m.  
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Web Address: [www.scranton.edu/faculty/muir2/](http://www.scranton.edu/faculty/muir2/)  
Class Meetings: MWF 11:00 – 11:50 a.m., STT 313

**Important Dates.**

January 26: First day of class  
February 1: Last day to add a class  
February 25: Last day to drop a class with no grade  
March 14 – 18: Spring break, no class  
March 23: Midsemester grades submitted  
April 13: Last day to withdraw with a “W” grade  
April 14, 15, 18: Easter break, no classes  
May 13: Last day of class  
May 18: Final Exam (tentative), 10:15 a.m. – 12:15 p.m.

**Textbook:** The required textbook for this course is *Calculus for Business, Economics, and the Social and Life Sciences, 11 ed.* by Hoffman, Bradley, Sobecki, and Price.

**Catalog Description:** (Prerequisite: MATH 107 or MATH 114) Topics from integral calculus including the definite and indefinite integral, techniques of integration, and multivariable calculus. Not open to students with credit for or enrolled in MATH 221.

**Student Learning Outcomes:** By the end of this course, students should, among other things, be able to

- demonstrate knowledge of integral calculus by using the Fundamental Theorem of Calculus to evaluate definite integrals
- use techniques such as substitution and integration by parts, in conjunction with algebraic manipulations, to evaluate definite and indefinite integrals
- apply the integral in the calculation of area between curves and/or in various business applications
- calculate partial derivatives of multivariable functions and apply them,
- and evaluate double integrals.

Selected questions on exam(s), which will consist of previously unseen problems, will be used to assess some of these outcomes. Because of this, I will retain all exams; however, exams may be viewed at later times by appointment or in office hours. You may find it necessary to seek additional help to meet these expectations and objectives.

**General Information:** Mathematics is a discipline which builds on prior knowledge. Because of this, it is assumed students are comfortable using material from MATH 107, Quantitative Methods II. Additionally,

because of this continuity of material in math, it is imperative that fundamental skills are practiced and conquered throughout this course. Students should expect to spend a reasonable amount of time outside of the scheduled class time (typically two to three hours outside class for each hour in class) reading the text, mastering terminology and notation, and solving problems. In addition, students should understand that solving a problem is a process and *the steps of this process are as important as the final result*. Therefore, this emphasis on the process will be reflected in the grading and unsupported answers may receive no credit. Participation in this course is also strongly encouraged.

**Grading:** The course grade is broken down as follows:

In-class exams	45%	(15% for each of three exams)
Comprehensive final exam	25%	
Homework quizzes	30%	

Exam dates will be announced in class.

I assure you assigning fair and accurate grades is of utmost importance to me, and the grade you earn should reflect your level of knowledge and grasp of the material. It is not determined by how well or how poor you perceive your fellow classmates are performing. The anticipated grade ranges are as follows: 93 – 100% is an A; 90 – 92% is an A<sup>-</sup>; 87 – 89% is a B<sup>+</sup>; 83 – 86% is a B; 80 – 82% is a B<sup>-</sup>; 77 – 79% is a C<sup>+</sup>; 73 – 76% is a C; 70 – 72% is a C<sup>-</sup>; 67 – 69% is a D<sup>+</sup>; 60 – 66% is a D; 59% or below is an F. See the University catalog for help in interpreting each letter grade and do not hesitate to see me if you have questions about your grade at any time throughout the semester.

**Homework Quizzes:** A quiz will be given at the start of class, typically once a week, with dates announced in advance. The problems for the quizzes will be taken *directly* from a list of suggested homework problems announced in class and posted on the web page given above. You may discuss the homework problems with other members of the class in preparation for the quizzes. Since working through a problem is not the same as reading a solution, students who do not make an effort to understand the homework independently are likely to have difficulty with the quiz and exam material. Keep in mind, I assume when you are taking the quiz, you have *already worked* the problems which will influence the amount of time given to complete the quiz! The lowest quiz score will be dropped when computing the final quiz average. Note that the quizzes together weigh as much as two in-class exams.

**Electronic Devices:** No calculators or electronic devices of any kind may be used on exams unless otherwise stated in class; however, a scientific non-programmable non-graphing calculator may be used on quizzes. Calculators may *not* be shared and cell phones cannot be used in lieu of a calculator. Note that on *all* graded material students are still expected to show work to support their answers.

While you may consider yourself an expert multi-tasker and while you may not intend it to be, texting and other cell phone usage *is disruptive and disrespectful* to your fellow classmates (and to me!). Cell phones must be *put away* during class and be *silenced or turned off*. Smart watches may not be worn during in-class graded assessments. Additionally, these devices are not to be used during class at other times.

**Office Hour Details:** Office hours are a time for you to stop by to ask questions about course material (e.g., the readings or something that came up in class), homework problems and other assignments, study tips, etc. So plan ahead for your studying so that you can utilize office hours if you need more help. When in my office, you are expected to maintain reasonable social distancing and you must wear an appropriate mask covering your nose and mouth. I will limit the number of students in my office at a given time so

that some social distancing can be maintained.

**Attendance/Missed Assignments:** I expect you to be in every class from start to finish. If you miss for any reason, you are still responsible for all announcements made and all material presented. Considering an absence an excused absence is at the discretion of the professor. *It is the student's responsibility to contact me to request this consideration for an absence.* If at all possible, contact should be made prior to the absence, and contact is expected to be made within one class period of an absence except under unusual circumstances. If I receive *official* notification from the University that you have been required to quarantine or isolate, those missed classes will be excused absences but please be aware in these cases you may still be expected to meet deadlines and/or complete alternative activities/assignments and/or make up work. As appropriate, you may also be expected to participate in synchronous Zoom class viewing. It is imperative that you are in regular communication with me to address the missed class time. Keep in mind things such as oversleeping and leaving early or returning late from breaks do *not* justify make-up opportunities nor do they qualify as an excused absence.

You are free to choose not to attend class, but if you attend class, you are expected to refrain from discourteous or disrespectful behavior with classmates and the instructor, using electronic devices in class not pertaining to the work at hand (see more above), working on things other than the course material, improper mask wearing (see below), and so on. If need be, additional cell phone/electronic device and other policies will be implemented throughout the semester.

**Mask Policy:** Students are expected to follow all University implemented mask-wearing policies which includes properly wearing approved masks covering the nose and mouth whenever and wherever the University requires masks to be worn. At the start of the spring semester, a higher-grade mask (e.g., N-95, KN-95, or KF-95) or a cloth mask worn over a surgical mask is the requirement. Additionally, at any time during the semester with a 24-hour notice, I may implement a modified mask requirement for the classroom or my office but it will never be a lesser requirement than the broad University one. Students not following mask requirements in the classroom or my office will be asked to leave until they are able to meet the requirements, potentially leading to a non-excused absence.

**“What if”:** At any point, we need to be prepared to adapt to changing circumstances brought on by the coronavirus be it quarantining/isolating or having to shift to remote instruction. If I have to quarantine or isolate, through advisement with my department chair and dean, there may be a substitute or I may be able to teach remotely with a synchronous component. If the University shifts to remote instruction for any stretch, you should plan for some level of synchronous interactions. How the remote instruction plays out has a lot to do with whether it is short term or long term and how far into the semester we are. Should either situation come to be, I will provide more details on how we will modify the course at that time.

**Cheating:** Copying or cheating on any graded work is not allowed! Each person is expected to take reasonable precautions to prevent his/her work from being copied also. The penalty for cheating can be a failing grade in the course, and the student will be reported to appropriate administrators. Whenever you turn in any work to be graded, you are implicitly stating that you abided by the conditions and expectations stated in this syllabus, the directions for an assignment, and the Academic Code of Honesty. You are encouraged to read this code which can be found [www.scranton.edu/academics/wml/acad-integ/acad-code-honesty.shtml](http://www.scranton.edu/academics/wml/acad-integ/acad-code-honesty.shtml)

**Other Valuable Information:** Center for Teaching and Learning Excellence (CTLE): In order to receive appropriate accommodations, students with disabilities must register with the CTLE and provide

relevant and current documentation. For more information, please visit [www.scranton.edu/disabilities](http://www.scranton.edu/disabilities). The CTLE also offers individual, group, and drop-in tutoring. For details, see [www.scranton.edu/tutoring](http://www.scranton.edu/tutoring).

My Reporting Obligations as a Responsible Employee: In any conversation we have, I will try to be as helpful as possible about any concerns you have, whether or not they are directly related to the class, but it is important for you to know that all faculty members are required to report incidents of sexual harassment or sexual misconduct involving students. This means that I *cannot* keep information about sexual harassment, sexual assault, sexual exploitation, intimate partner violence or stalking confidential if you share that information with me. I will keep the information as private as I can but am required to bring it to the attention of the University's Title IX Coordinator, Elizabeth M. Garcia, who, in conversation with you, will explain available support, resources, and options. I will not report anything to anybody without first letting you know. The University's Counseling Center (570-941-7620) is available to you as a confidential resource; counselors (in the counseling center) do not have an obligation to report to the Title IX Coordinator.

Non-discrimination Statement: The University is committed to providing an educational, residential, and working environment that is free from harassment and discrimination. Members of the University community, applicants for employment or admissions, guests, and visitors have the right to be free from harassment or discrimination based on race, color, religion, ancestry, gender, sex, pregnancy, sexual orientation, gender identity or expression, age, disability, genetic information, national origin, veteran status, or any other status protected by applicable law.

Students who believe they have been subject to harassment or discrimination based on any of the above class of characteristics, or experience sexual harassment, sexual misconduct or gender discrimination should contact Elizabeth M. Garcia, Title IX Coordinator, (570) 941-6645 [elizabeth.garcia2@scranton.edu](mailto:elizabeth.garcia2@scranton.edu). The United States Department of Education's Office for Civil Rights (OCR) enforces Title IX. Information regarding OCR may be found at [www.ed.gov/about/offices/list/ocr/index.html](http://www.ed.gov/about/offices/list/ocr/index.html).

**Some More Stuff:** When writing email, please use capitalization, punctuation, and complete sentences, and I assume you regularly check your University email account. All notes and materials that I provide for you throughout the semester may not be distributed, reproduced, or posted anywhere without my permission. Nor may lectures be recorded without my permission.

**Some Keys to Success:** Often the best way to learn math is through practice, and this practicing needs to permeate the semester. Working diligently and frequently is a key to success in this course. As "cramming" does not usually lead to a meaningful course nor a deep understanding, the quiz schedule is set up to facilitate regular practice. Moreover, the quizzes provide a structure that puts a lot of control over your quiz grade in your hands. In my experience, students who approach the quizzes diligently and use them as a way to take ownership of the material (versus memorizing rules/solutions) also have that success translate to exams. You should be studying on average two to three hours outside of class *per* hour inside of class. Below are a few suggestions that you may find helpful.

- Attend class and participate in class regularly.
- There's more to studying for this class than just working homework problems. You should actively read the text before and after the material is covered. You should have paper and a pen in hand while reading. Try working through the examples before reading the solution. Check that you are using proper notation and terms and put the steps for solving problems into your own words.

- It is often a misconception that the homework should be problems that simply and perfectly mimic examples done in class. In fact, while the homework problems are great opportunities to learn through practice and repetition, homework is also fundamental to learning concepts in mathematics. Students who independently master the homework in advance of the quizzes are likely to be more successful not just on the quizzes but also on exams which contain problems you haven't seen before. While you can use a calculator on quizzes, they may not be allowed on every exam. So it is important to understand the process/attack needed for the problem without relying on the calculator too heavily. Also, as I stated above, I assume you have worked the problems *before* taking a quiz. So here are some homework tips:
  - Start the homework early so that you can be prepared to ask questions and learn from others' questions during the class period prior to a quiz or exam where some time is *specifically dedicated to answering questions*.
  - Simply reading a solution to a problem is not the same as *doing* a problem. On the other hand, working backwards can help you work towards a complete solution and can be a good learning opportunity, but then you should work similar problems until you are comfortable working in the forward direction!
  - As you do the homework, make lists of formulas and techniques and identify key words in the directions associated with these techniques to use later when you study for tests.
  - Write practice quizzes. I have had numerous students have success with this technique: Before you start the homework, select two to three problems from the list and write the problems and directions on a sheet of paper leaving room for work. Once you have finished studying and think you are ready for the quiz, go do something else for about an hour or more! Go to dinner, workout, start writing a paper, whatever. Remember, you are trying to train yourself *how* to do a problem not just memorizing the particular problems for a quiz. Then give yourself about 12-15ish minutes to see if you can do the problems without having to look at your notes or book. You can create several practice quizzes in this manner so that if you need to do more studying after the first, another practice quiz is ready!
  - And work more problems if needed!
- I hold office hours throughout the week and these are times for you to drop in (no notice needed!) to ask questions about course material, assignments, study tips, etc. While some class time is dedicated to answering questions in advance of each quiz and exam, due to the pace of the course, there will not always be enough time to answer all questions in class. So plan ahead for your studying so that you can come by office hours if you need more help.