

**Instructor:** Dr. Joseph Stover  
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**Office hours:** Monday & Friday, 11:00 - 11:50 AM (office);  
Wednesday, 3:00 - 4:00 PM (in math lab, Herak 224);  
Thursday, 1:00-1:50 PM (office); by appointment, or just drop by.

**Course meeting times:**

Monday, Wednesday, & Friday (MWF) 2:10 - 3:00 PM (Herak 237)  
and Thursday (R) 2:10 - 3:00 PM (Herak 237 ~~Jepson-103~~)

**Course websites:**

<http://webwork.gonzaga.edu/webwork2/2019-sp-math-259-03/>  
(WebWork is for regular homework assignments.)  
<http://connect.gonzaga.edu/stover/math-259-03-spring-2019->  
(Course information will be posted on my GU Connect website.)  
<https://learn.gonzaga.edu>  
(I may post things on Blackboard from time-to-time.)  
<http://www.mymathlab.com>  
Course ID: stover27037  
Access code: WSCMMV-SWANK-TERNE-QUEUE-FRONT-CANES  
(A variety of learning tools are available here.)

**Textbook:** *Calculus: Early Transcendentals*, 2nd Edition, by William L. Briggs, Lyle Cochran, Bernard Gillett. ISBN-10: 0321947347.

**Calculators & computational aids:** You are encouraged to explore a variety of software and online apps to help you learn the material in this course. You are normally allowed access to such computational aids on homework assignments. Computational aids will not be allowed on quizzes or exams.

**Course description:** A treatment of multivariable calculus and the calculus of vector fields. Topics include: vectors and vector-valued functions, partial derivatives, multiple integration, curl and divergence, line integrals, Green's theorem, Stokes' theorem, and the Divergence theorem. Prerequisite: MATH 258 Minimum Grade: D

**What this course is really about:** The primary goal of this course is for you to develop an understanding of calculus in 3 dimensions. You know how to calculate integrals over the  $x$ -axis for functions like  $y = f(x)$ , but now we will think about functions as not being restricted to having the  $x$ -axis as their domain. We will have functions whose domain is the  $xy$ -plane or a curved path or surface that lives in  $xyz$  3-dimensional space. We will learn to calculate integrals of functions over lines, curves, surfaces, and spatial volumes.

Consider a cold room with a heating air vent in the ceiling. The air coming into the room causes the molecules of air in the room to be put into in motion and will start to change the temperature in the room. We can consider several things here.

The temperature in the room now varies in 3-dimensional space. Nearest to the vent, it is warmer, and furthest from the vent, it is colder. We can think of the temperature in the room as a function of each point in space. We will learn to take derivatives of such a function and to integrate it over the entire room. For example, we may integrate the temperature function over the entire room to calculate the average temperature in the room.

Furthermore, we can think of another, different kind of function. Consider that each molecule of air in the room will have a different velocity. This means each molecule will have a different speed and will also be moving in a different direction. Air molecules coming out of the vent will be moving in one direction, but air molecules near a wall may be bouncing off the wall with reversed motion, or molecules near the door may be escaping through the gap near the floor. Direction of motion is not something that can be captured with a single number. But we can still think of a function that gives us the speed and direction of motion of air molecules at each point in space. This function is a sort of ‘arrow-valued’ or vector-valued function. We will learn to take derivatives and integrals of such functions. For example, we might integrate such a function over the surface of the air vent to calculate the total flow of air through the vent.

**Course Grading:** The percentage allocated to each assignment category is summarized in the table below:

Homework & other Assignments	10%
Quizzes	10%
Lowest exam score	10%
Middle exam score	15%
Highest exam score	25%
Final Exam	30%
TOTAL	100%

Grades are calculated as a percentage and rounded to the nearest whole number percentage in the standard way (e.g. 79.5% is rounded up to 80% and any grade in  $[79, 79.5)\%$  is rounded down to 79%). Letter grades are assigned according to your course average as follows: 90-100% is an A, 80-89% is a B, 70-79% is a C, 60-69% is a D, and 0-59% is an F. I reserve the right to assign “+” and “-” to letter grades at my discretion.

**A note on collaboration and working in groups:** Students are encouraged to work together on homework assignments and to study in groups. Helping other students and being helped by fellow students is a great way to learn. However, *you cannot claim to have solved a problem if you are not able to complete it on your own.* It is generally acceptable that someone explain the solution to you or that you find the solution from other sources on assignments where collaboration and access to other resources is allowed, however, you can not copy that solution down and claim to have solved the problem. You must be able to produce the solution from scratch on your own.

**Homework and other assignments:** There will be regular assignments posted on Web-Work. There may also be other homework assignments or other in class assignments from time-to-time.

**Exams and quizzes:** There will be several regular quizzes, three regular exams, and a comprehensive final exam. Exams will happen at regular intervals, and there will be one

to two quizzes between successive exams. The comprehensive final will be at the assigned time during the final exam period. The use of any materials such as notes, books, online or other references (but not limited to these) or any electronic devices during exams and quizzes is strictly prohibited unless specifically authorized by the instructor.

Exam	Tentative Date	Topics Covered
Exam 1	Friday, 2/8	Ch. 11, Vectors and vector-valued functions
Exam 2	Friday, 3/8	Ch. 12, Functions of several variables
Exam 3	Monday, 4/8	Ch. 13, Multiple integration
Final Exam	Tuesday, 5/7, 6:00-8:00 pm	Ch. 14, Vector calculus & Comprehensive

Make-up exams and quizzes will only be given in extenuating circumstances at the discretion of your instructor and may include more difficult questions.

**Responsibility for course information:** You are responsible for all course information communicated during class. You are also responsible for any course materials and information disseminated via email or the course websites.

**A NOTE ON HARASSMENT, NON-DISCRIMINATION AND SEXUAL MISCONDUCT:** Consistent with its mission, Gonzaga seeks to assure that all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX and Gonzaga’s policy prohibit gender-based harassment, discrimination and sexual misconduct. Gonzaga encourages anyone experiencing gender-based harassment, discrimination or sexual misconduct to talk to someone from the Campus and Local Resources list found in the [Gonzaga’s Harassment and Non-Discrimination Policy](#).

It may be helpful to talk about what happened in order to get the support needed and for Gonzaga to respond appropriately. There are options for support and resolution, namely confidential support resources, and campus reporting and support options available. Gonzaga will respond to all reports of sexual misconduct in order to stop the harassment, discrimination, or misconduct; prevent its reoccurrence; and address its effects. Responses may vary from support service referrals to formal investigations.

As a faculty member, I want to get you connected to the resources here on campus specially trained in and experienced in assisting in such complaints, and therefore I will report all incidents of gender-based harassment, discrimination and sexual misconduct to Title IX. A representative from that office will reach out to you via phone and/or email to explore options for support, safety measures and reporting. I will provide our Title IX Director with all relevant details, including names and identifying information, of the information reported. For more information about policies and resources or reporting options, please visit the following websites: [Equity and Inclusion](#) and [Title IX](#). If you would like to make a report of harassment, discrimination or sexual misconduct directly, you may:

- Contact the Title IX Director by phone, email, or in person  
Stephanie N. Whaley, Title IX Director  
509-313-6910  
[whaley@gonzaga.edu](mailto:whaley@gonzaga.edu)  
Business Services Building, 018
- Or complete an online form: [Sexual Misconduct Report Form](#)

**NOTICE TO STUDENTS WITH DISABILITIES/MEDICAL CONDITIONS:**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability/medical condition requiring an accommodation, please call or visit the [Disability Access Office](#) (second floor of Foley Center Library, Room 208.)

**CLASS ATTENDANCE:** I follow strictly the university's standard policy on absences: the maximum allowable absence is two class hours (100 minutes) for each class credit. For a three-credit class meeting three times a week, the maximum number of absences allowed is six. For a three-credit class meeting twice a week, the maximum number of absences allowed is four. The grade for excessive absences is "V," which has the same effect as "F" (Fail) and is counted in the GPA. (See also "[Class Attendance Policy](#)")

**ACADEMIC INTEGRITY:** All members of the Gonzaga community are expected to adhere to principles of honesty and integrity in their academic endeavors, and I will abide strictly by procedures and guidelines of the University's Academic Integrity Policy, which you can find in full [here](#). Students and faculty are governed by this policy, and I encourage you to familiarize yourself with its scope and procedures. Ignorance of the policy shall not serve as a defense against any violations.

**COURSE EVALUATION:** At Gonzaga, we take teaching seriously, and we ask our students to evaluate their courses and instructors so that we can provide the best possible learning experience. In that spirit, we ask students to give us feedback on their classroom experience near the end of the semester. I will ask you to take a few minutes then to carry out course/instructor evaluation on-line. Please know that I appreciate your participation in this process. This is a vital part of our efforts at Gonzaga to improve continually our teaching, our academic programs, and our entire educational effort.