

Welcome to MATH 1C: Multivariable Calculus

Section 1079: MW 7:00am-9:00am, Kunde Hall 104
Santa Rosa Junior College, Fall 2019

Description: The focus of this course is the calculus of multivariable functions. There are three units:

1. partial differentiation, chain rule, directional derivatives, optimization and other applications;
2. double and triple integration, integration in varied coordinate systems, areas, volumes, mass, change of variables and more;
3. vector analysis including vector fields, line integrals, surface integrals, and the (very cool) theorems of **Green**, **Gauss** (Divergence) and **Stokes**.

The course will also include the exploration of specific topics using *Mathematica*.

Instructor: Greg Morre, PhD Mathematics, UNM	Office: Kunde Hall, 216
Phone: 707-527-4357	E-mail: gmorre@santarosa.edu
Office Hours: MW 9:00am-10:00am, 11:20am-11:50am	TTH 9:50am-10:20am, 2:00pm-2:30pm

Required Course Materials

Textbook: CALCULUS Early Transcendentals (Eighth edition), James Stewart, ISBN: 9781305616691. Don't just look at the pages with the homework exercises. Read the text! Reading assignments will be posted on Canvas. Reading a mathematics text is challenging but will also be very helpful to you in this course!

Calculator: **No calculators** will be allowed on any of the exams. I recommend that you use calculators as little as possible when solving homework problems or class exercises to help you prepare for exams. However, calculators and other technology are useful for checking your work. Aside from exams, you may use calculators in class, if you feel this is necessary.

Internet Access: It is important you have access to the internet. All assignments and other information for this course will be posted on Canvas.

Time: This is a 4 unit course. This means you need to have at least 8 to 12 hours outside of class per week to devote to homework and study for this course. You will need to spend some of this time in the **Computer and Mathematics Lab**, Kunde Hall, room 153, in order to complete two projects that require the computer algebra system *Mathematica*.

Class Policies

Participation: Students are encouraged to ask questions and answer questions I ask. Keep in mind, it is not a competition. If during a class you have already responded to a question, let other students have a chance to answer the next question. During class exercises will be assigned. You should attempt these exercises and help your fellow students when you can. Class will occasionally include group activities. Work with your group in a courteous and helpful manner.

Attendance: It is very important that you attend and are on time for **every** class. However, if you do miss a class you are responsible for all announcements and material covered in your absence. Students who have missed over 10% of class time or miss two exams may be dropped from the course.

Cell Phone Policy: Cell phones are not allowed. Really! Cell phones must be **turned off** at the beginning of class, put away and remain so for the duration of class, except during the break. Cell phones may not be used in class as calculators. I understand this may be the greatest challenge of this class for some of you. The ability to not use your phone for one or more hours is a very important skill to develop. Students who do not comply will be asked to leave for the remainder of that class!

Other Electronic Devices: Laptops, headphones, and other electronic devices are not to be used during class. Tablets are allowed for legitimate note-taking. Additional rules may be added for any electronic devices not mentioned in this syllabus.

Drops: If a student wishes to drop the course it is the students responsibility to do so. A student who stops attending will not necessarily be dropped from the course.

Class Conduct: You are expected to act in a mature and courteous manner toward me and your classmates. Students are expected to conduct themselves in a manner which reflects their awareness of common standards of decency and the rights of others. Please refer to <https://student-conduct.santarosa.edu/student-conduct-and-discipline-due-process> for more information.

Academic Integrity: Cheating on exams and quizzes will not be tolerated! You may discuss homework and projects with your fellow students but the work you submit must be your own! For more information, please see the link <https://rightsresponsibilities.santarosa.edu/academic-integrity>.

Grade

The grading scheme (using interval notation) is as follows:

A: [90%, 100%], B: [80%, 90%), C: [70%, 80%), D: [60%, 70%), F: [0%, 60%)

Homework (15%): Follow the **homework guidelines**. Most homework assignments are due on Mondays but some weeks assignments will also be due on Wednesday. Late assignments that were due on a Monday will still be accepted in class that Wednesday. Late assignments that were due on a Wednesday must be handed in at my office by that Thursday at 2:30 pm. Homework assignments will not be accepted after this.

Mathematica Projects (10%): Guidelines for the *Mathematica* projects can be found on Canvas. *Mathematica* is a computer algebra system which is installed on the computers in the **Computer and Mathematics Lab**, Kunde Hall, room 153. There will be two of these projects. The completed projects are to be submitted through Canvas. The late policy for these projects is the same as for the homework.

Quizzes (10%): There will be approximately 4 – 6 take home quizzes throughout the semester. The quizzes are due at the beginning of class the day after they are assigned. There are no make-up quizzes. The late policy for quizzes is the same as for the homework.

Exams (50%): There will be three exams. One following each chapter. There are no make-up exams under any circumstances. Advice: Do not wait until we have finished the chapter before starting to study for the exam. There won't be enough time. After finishing each section, do some review of the previous sections.

Final Exam (15%): The final exam is on Monday, December 16 from 7:00 am-9:45 am. It is cumulative.

**Wait a minute! How can this be fair! No make-ups!
What if students miss class through no fault of their own?
(Don't worry. Keep reading.)**

Grade Insurance Program

Students may be absent from class due to circumstances beyond their control, such as illness, car accident, funeral etc. I understand this and want to make allowances for these serious situations. So everyone in the class is automatically enrolled in the **grade insurance program**. The premium for this policy is zero dollars per semester and it includes the following benefits. It's a great deal!

- the 3 lowest written homework scores will be dropped,
 - the lowest quiz score will be dropped,
 - the lowest of the final exam percentage or homework percentage will replace the lowest exam score if this improves the student's grade,
 - Extra Help Resources:
 - **Instructors Office Hours**, Kunde Hall, room 216.
 - **Computer and Mathematics Lab**, Kunde Hall, room 153.
 - **Santa Rosa Campus's Tutorial Center** on the first floor of library, room 4251.
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Miscellaneous Important Info

Students with Disabilities: If you need disability related accommodations for this class, such as a notetaker, test-taking services, special furniture, etc., please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to me as soon as possible. You may also speak with me privately during office hours about your accommodations. The terms of this syllabus may be altered to accommodate students with disabilities. If you have not received authorization from DRD, it is recommended that you contact them directly. DRD is located in Bertolini Student Center on the Santa Rosa Campus, and Jacobs Hall on the Petaluma Campus.

Library Reserve Desk: Copies of the text are available at the Doyle Library at the reserve desk. The call number is QA303.2 .S7315 2016.

Syllabus Changes: I reserve the right to change the syllabus at any point of time during the semester! However, I will make every effort to make as few changes as possible.

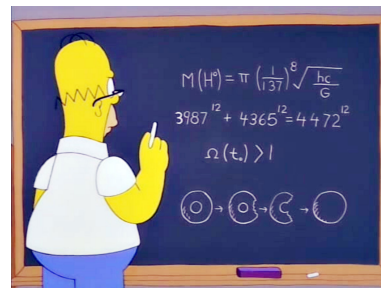
Course Outline:

https://portal.santarosa.edu/SRWeb/SR_CourseOutlines.aspx?mode=1&CVID=24999&Semester=20147

Homework Guidelines

Approach:

1. Answers are important, but communicating how the problem was solved is more important.
2. Every problem should serve as an example to your future self.
3. If your solution provides less details than examples in the text or examples from class it is most likely an inadequate solution.
4. Your solution should consist of an orderly argument using both proper mathematical notation and English sentences.
5. You should write a first draft of each solution on another sheet of paper before presenting a final draft of the solution in your homework.



Formatting:

1. Assignments must be written on engineering or graph paper and done in pencil.
2. Use only one side of the paper. If you are using engineering paper, use the "light" side.
3. At the top of **every page**, in the **upper right hand corner**, include your first and last name (do not use initials), class (Math 1C), and your instructors last name (Morre).
4. At the top of the **first page** additionally include the section(s) from the text and a list of the assigned problems.
5. Divide each page into two columns with a ruled vertical line. Work down each column. Separate problems with ruled horizontal lines. (If you need more space you can opt to not divide the page into two columns.)
6. Writing must be neat and legible. Use ample space for each problem, do not cram too many problems on the page. Leave room for comments.
7. Number each problem with its number from the text and problems must be in order they are assigned. Do not write problems or solutions sideways or upside-down.
8. Write down the problem with instructions unless it is more than 140 characters. Otherwise include any given initial expressions or equations and paraphrase instructions. If the same instructions apply to a set of problems write the instructions once.
9. As stated above: Include any necessary justification for your answer! Most problems will need some justification. (Your answer should have more details than the solution manual!)
10. Box final answers.
11. Use a straightedge when drawing graphs. Include all necessary labelling on your graph.
12. Staple the assignment together. Do not staple multiple assignments together.

Your **homework score** will be based upon conforming to the above guidelines, completeness and/or selected graded problems.

If you intend on **typing/LaTex-ing** your homework please talk to me, as these guidelines will need to be altered.

Math 1C 1079 Fall 2019 Tentative Schedule			
Date	Day	Topic	Sections
8/19/19	M	Introduction, Functions of Several Variables	14.1
8/21/19	W	Functions of Several Variables, Limits and Continuity	14.1, 14.2
8/26/19	M	Limits and Continuity	14.2
8/28/19	W	Partial Derivatives, THQ1, MP1	14.3
9/2/19	M	No classes	
9/4/19	W	Tangent Planes and Linear Approximations	14.4
9/9/19	M	The Chain Rule	14.5
9/11/19	W	Directional Derivatives and the Gradient Vector, THQ2	14.6
9/16/19	M	Maximum and Minimum Values	14.7
9/18/19	W	Lagrange Multipliers	14.8
9/23/19	M	Double Integrals Over Rectangles	15.1
9/25/19	W	Exam 1, (14.1-14.8)	
9/30/19	M	Double Integrals Over General Regions	15.2
10/2/19	W	Double Integrals In Polar Coordinates	15.3
10/7/19	M	Applications of Double Integrals*, Surface Area	15.4*, 15.5
10/9/19	W	Triple Integrals, THQ3	15.6
10/14/19	M	Triple Integrals, MP2	15.6
10/16/19	W	Triple Integrals in Cylindrical Coordinates	15.7
10/21/19	M	Triple Integrals in Spherical Coordinates	15.8
10/23/19	W	Change of Variables in Multiple Integrals	15.9
10/28/19	M	Vector Fields	16.1
10/30/19	W	Exam 2, (15.1-15.9)	
11/4/19	M	Line Integrals	16.2
11/6/19	W	The Fundamental Theorem of Line Integrals, THQ4	16.3
11/11/19	M	No classes	
11/13/19	W	Green's Theorem, MP3	16.4
11/18/19	M	Curl and Divergence	16.5
11/20/19	W	Parametric Surfaces and Their Areas, THQ5	16.6
11/25/19	M	Surface Integrals	16.7
11/27/19	W	Stokes' Theorem	16.8
12/2/19	M	The Divergence Theorem	16.9
12/4/19	W	Catch-up/Summary	16.10
12/9/19	M	Exam 3, (16.1-16.9)	
12/11/19	W	Catch-up/Review	
12/16/19	M	Final Examination, 7:00AM-9:45AM	