

Instructor

Mark Ferguson

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Office Hours in 1746

<i>Tuesday</i>	<i>Thursday</i>
7:30am- 10:00am	7:30am- 10:00am

A Few Important Notes

- No active (ear, cell, smart) phones or computers are allowed during class. Please turn them off and put them away.
- Our classroom is a place reserved for learning. Being kind, open-minded, respectful, patient, and tolerant are qualities conducive to learning. It is expected that you are prepared to learn and exhibit these behaviors.
- This syllabus is intended to give the student guidance to what/how/when topics will be covered and assessed during the semester and will be followed as closely as possible. However, I reserve the right to modify, supplement, or make changes to the syllabus as needed. Continued registration in this course means that you agree to the policies and procedures outlined in this syllabus.
- It is critical that students work on homework frequently during the semester. Students are expected to work on homework by working homework exercises out of the text.
- Students are required to have a text for our course. Our text is available nowadays in many different forms; e.g., as a traditional textbook, in electronic format, etc. You are welcome to choose the one that works best for you; you may have a preference or there may be cost savings with one format versus another.
- Students are expected to frequently use technology to explore mathematics throughout our course; therefore, a graphing calculator is required. You are welcome to choose any that works sufficiently for our course, however TI graphing calculators will frequently be used in class (and now and then a computer algebra system). Technology will rarely be used in traditional testing settings. Let me know if you have questions regarding technology.
- I will be teaching the course with the 4th edition of our textbook. If you choose an earlier/different/later version, it is up to you to reconcile the differences between editions.

Also...

Academic Integrity—All written work is to be original; plagiarism of any kind will result in a failing grade on that assignment. Students who plagiarize or cheat may be suspended [for one or two class meetings] and referred to the Vice President of Student Services for discipline sanction, in cases of egregious violation.

Accommodations for Students with Disabilities—If you need disability related accommodations for this class, such as a note taker, 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. If you have not received authorization from DRD, it is recommended that you contact them directly. DRD is located in the Bertolini Student Center, Third Floor, Room 4844 on the Santa Rosa campus.

Attendance—Attending class greatly increases the likelihood of success in our course, however I believe that adult college students know this (or, are learning this), and will make their own choice regarding attendance. There are no points associated with attendance. I am required to follow College Policy regarding attendance: A student may be dropped from any course when that student's absences exceed ten percent (10% constitutes an "excessive" number of absences for this course) of the total hours of class time. Students who fail to attend the first class meeting may be dropped from the course. Students who enroll in the course and do not attend the first two class meetings are declared "No-Show" and will be dropped from the course.

Course Description

Calculus, Fourth Course: First and second order differential equations with applications, series solutions, numerical methods, introduction to Laplace transforms, systems of differential equations with applications.

Course Outline of Record

is available online: https://portal.santarosa.edu/SRweb/SR_CourseOutlines.aspx?CVID=25000&Semester=20147

Prerequisites, Required and Optional Materials

Prerequisite: Completion of MATH 1C or MATH 2A.

Required Materials: The textbook (below).

TEXT: Differential Equations, Computing and Modeling, Fourth Edition, C. Henry Edwards, David E. Penney, ISBN 978-0-13-600438-7, Pearson Publishing, 2008.

*Our text is available on reserve at the Doyle Library at the Reserve Desk. Bring your SRJC ID to check out the text.

Class Structure/Content

- We will cover topics from chapters 1-7 out of our text. With a few exceptions, we will cover one section per day.
- My goal is to have a typical day in class go as follows: We will discuss a new topic for a while, and then, time permitting, work on some exercises together. You will likely need a pencil and paper every day in class. You are expected to work on homework outside of class almost every day—as often as you need—in order to succeed in the class. **Your success depends greatly on the amount of work that you put into the class.**
- We may dedicate some days completely as “work” days. The exams and final will be comprised of topics we discuss in class **AND** the assigned homework and take-home quizzes, so, **PLEASE COME TO CLASS AND KEEP UP WITH THE HOMEWORK** (including readings).

Activities & Points—Keep Track of Your Grade

Activity	Points Possible	Your Points	Your Cumulative Points	Cumulative Points Possible	Your Cumulative Percentage
Take-Home Quiz 1 due Wednesday, February 8	50			50	
Take-Home Quiz 2 due Wednesday, March 1	50			100	
Midterm Exam Wednesday, March 15	100			200	
Take-Home Quiz 3 due Wednesday, April 25	50			250	
Take Out Lowest Quiz Score	-50			200	
Final Exam on Monday, May 22, 7:00am-9:45am	150			350	

Activity Details

Take-home Quizzes

You will be allowed one week to finish this quiz. You will only be allowed to use class resources on this quiz. **Only your top two quiz scores will be counted toward your grade.** No quiz make-ups are available.

Midterm Exam (100 points)

This will be taken in our classroom on Wednesday of week 9. It will be given prior to midterm progress reports. You will be notified of the materials you can use on the midterm prior to the midterm. The midterm can only be taken at a different time with advanced notice and must be taken prior to the original scheduled date.

Final Exam (150 points)

Be prepared for a cumulative final exam. It will be written to take about 2.0 hours and will be given at the College-designated time. You will be notified of the materials you can use on the final prior to the final. The final can only be taken at a different time with advanced notice and must be taken prior to the original scheduled date.

Grading Policy

Letter grades will be assigned on a scale no stricter than the following:

Letter Grade	Percentage
A	90 to 100
B	80 to 89
C	70 to 79
D	60 to 69
F	0 to 59

Tutoring

You have choices for tutoring:

1. **The Computer and Mathematics Lab in Shuhaw Hall, Room 1733**

Here you may use the computers with math and science software, print assignments, scan documents, update or add programs to your TI calculator, and probably most importantly, obtain tutoring— free to registered SRJC students—from lab instructors in math and science.

2. **The Tutorial Center in the Frank P. Doyle Library, First Floor, Room 4251**

Here you can get tutoring— free to registered SRJC students—in a variety of topics, including the most important, of course: math. You may make an appointment, but drop-in service is available in math.

Ideal Schedule and List of Text Homework Exercises

(Note that the ideal schedule is just that—ideal. Our actual pace may run a little behind or ahead of the ideal schedule throughout the semester... hopefully we stay ahead more often than behind!)

Week Number	Date (Week Beginning...)	Section Number and Title from Our Text Read these sections before they are covered	Homework Exercises Unless otherwise noted, do ODDS ONLY
1	January 17		
2	January 23	1.1: Differential Equations and Mathematical Models 1.2: Integrals as General and Particular Solutions 1.3: Slope Fields and Solutions Curves	1.1: 1-21 odd, 37, 39, 41, 45 1.2: 1-31 odd 1.3: 1-25 odd
3	January 30	1.4: Separable Equations and Applications 1.5: Linear First-Order Equations	1.4: 1-27 odd, 33-39 odd 1.5: 1-25 odd, 33, 35
4	February 6	1.6: Substitutions Methods and Exact Equations 2.1: Population Models (Wednesday Take-Home Quiz 1 Due)	1.6: 1-13 odd, 31, 33 2.1: 1-11 odd, 21, 27
5	February 13	2.2: Equilibrium Solutions and Stability 2.3: Acceleration-Velocity Models	2.2: 1-11 odd, 19 2.3: 1-11 odd, 19
6	February 21	(No Class Monday) 2.4: Numerical Approximation: Euler's Method	2.4: 1-9 odd
7	February 27	2.6: The Runge-Kutta Method 3.1: Introduction: Second-Order Linear Equations (Wednesday Take-Home Quiz 2 Due)	2.6: 1-11 odd 3.1: 1-25 odd, 33, 35
8	March 6	3.2: General Solutions of Linear Equations 3.3: Homogeneous Equations with Constant Coefficients	3.2: 1-23 odd 3.3: 1-35 odd
9	March 13	(Monday Midterm Review) (Wednesday Midterm Exam)	

Week Number	Date (Week Beginning...)	Section Number and Title from Our Text Read these sections before they are covered	Homework Exercises Unless otherwise noted, do ODDS ONLY
10	March 27	3.4: Mechanical Vibrations (time permitting) 3.5: Nonhomogeneous Equations and Undetermined Coefficients (time permitting)	
11	April 3	4.1: First-Order Systems and Applications 5.1: Matrices and Linear Systems	
12	April 10	5.2: The Eigenvalue Method for Homogeneous Systems	
13	April 17	5.3: Second-order Systems and Mechanical Applications (time permitting) 6.1: Stability and the Phase Plane	
14	April 24	6.2: Linear and Almost Linear Systems (time permitting) (Wednesday Take-Home Quiz 3 Due)	
15	May 1	7.1: Laplace Transforms and Inverse Transforms 7.2: Transformation of Initial Value Problems	
16	May 8	Series Solutions to Differential Equations (supplement, time permitting)	
17	May 15	Catch-up/Loose Ends Final Review	
Finals		Final Exam on Monday, May 22, 7:00am-9:45am	