

**MATH 290**  
**CALCULUS AND ANALYTIC GEOMETRY**  
**Spring 2021**

Professor: Frank V. Tran  
E-mail: [frank@mtsac.edu](mailto:frank@mtsac.edu)

Office hours: MTWTh: 2:30pm – 3:30pm

Course website: <http://faculty.mtsac.edu/fran>

Materials Required

Text: *A First Course in Differential Equations with Modeling Application, 11<sup>th</sup> Edition* by Zill

Calculator: TI graphing calculators are highly recommended.

Course Structure:

- *This course is conducted entirely online, which means you do not have to be on campus to complete any portion of the class.*
- *You are expected to attend ALL classes from 4:30 pm to 6:35 pm on Zoom Tuesday, and Thursday.*
- *Course materials will be provided on your Canvas account and on the course website <http://faculty.mtsac.edu/fran>*
- *Also, you will participate in the course using Mt. SAC learning system called Canvas for completing assignments, taking quizzes and exams.*
- *You are expected to have the lecture outlines for each time we meet. The lecture outlines are available on your canvas account or on the course website.*

Computer requirements:

- *You will need to have an up-to-date browser, operating system and some additional software on your computer to take this class.*
- *Need to download the Canvas app and Zoom app onto your computer or cell phone.*
- *Know how to download and scan your works and then upload pdf files thru your Canvas account. (For uploading pdf files, you can use Notes app on your cellphone, or download CamScanner app)*
- *You must have a camera for taking exams and quizzes.*

### **Course Participation Policy:**

*Participation is essential to your success in this class. In distance course you are required to participate just as if you were in face – to – face course. This means that in order to get full credit for participation you have to complete your discussion assignments, group works, lesson assignments, quizzes and exams on timely basis. Consistent failure to participate in class will result in being dropped from the course.*

Student learning Outcome: SLO are under the department website:

[http://www.mtsac.edu/math/slo\\_math.html](http://www.mtsac.edu/math/slo_math.html)

### **Course Assignments:**

*Important Dates: The due dates for your assignments can be found in the CALENDAR on this syllabus.*

### **Topics to be covered:**

- 1. First Order Differential equations: direction fields for autonomous and non-autonomous DEs, Separable, linear, exact DEs and solutions by substitutions, numerical method.*
- 2. Modeling with First Order DEs: Linear and non – linear models.*
- 3. Higher Order Differential Equations: Linear Equations, reduction of order, homogeneous linear equations with constant coefficients, method of undetermined coefficients: superposition approach, the method of undetermined coefficients with annihilators, variation of parameters, Cauchy – Euler Equations.*
- 4. Modeling with Higher Order Differential Equations: spring – mass systems: free, undamped motion, driven motion, series circuit analogue.*
- 5. Series Solution of Linear Equations: Solutions about ordinary points.*
- 6. The Laplace Transform: definition, inverse transform, transform of derivatives, translation on the  $s$  – Axis, translation on the  $t$  – Axis.*
- 7. System of Linear First – Order Differential Equations: Linear systems, homogeneous linear systems: distinct real eigenvalues, repeated eigenvalues, complex eigenvalues.*
- 8. Numerical Solution of Ordinary Differential Equations: Euler methods and error analysis, Runge-Kutta methods.*

## **Homework**

*The completion of daily homework is critical to your success in this course. Homework will be assigned every lecture, and they are NOT going to be collected, but there will be similar problems from the homework assignment on quizzes and exams. It is very important both for your understanding of the material and for preparing for exams that you work all the assigned problems as soon as the material covered in class.*

## **Quizzes:**

*There will be 8 quizzes. All quizzes are consisting of problems similar to the homework and examples in lectures. There will be no makeup quizzes and the lowest quiz will be dropped.*

## **Exams:**

*There will be three exams and there's no make up exam. The exams will test your understanding of the concepts covered in the course. Most of the questions on these exams will require showing a significant amount of work to justify your answer. A correct answer with no work shown will be given a zero. The exams will also require you to explain and interpret your results. **Graphing calculator is NOT allowed on any exam.***

## **Grading:**

*Your semester course grade will be determined by your percentage of the total points possible. You should keep an accurate record of your grades. I will provide information on your grade standing after each exam.*

<b>Percentage</b>	
<i>Exams</i>	<i>45%</i>
<i>Final Exam</i>	<i>30%</i>
<i>Quizzes</i>	<i>15%</i>
<i>Participation</i>	<i>10%</i>

*The scale used to convert from total points earned to a letter grade will no more stiff than:*

<b>Percentage</b>	<b>Grade</b>
<i>90.0 - 100.0</i>	<i>A</i>
<i>80.0 - 89.9</i>	<i>B</i>
<i>70.0 - 79.9</i>	<i>C</i>
<i>60.0 - 69.9</i>	<i>D</i>
<i>Below 60.0</i>	<i>F</i>

**Late Work:** *Late work will not be accepted. Assignments will not be available after the deadline. If you have an extenuating circumstance, please contact me by private message before the assignment is due to make alternate arrangements.*

**Drop:**

*All distance education courses currently follow the Mt. SAC policy for Attendance, Class Drops and Auditing courses. In order to avoid getting an F or the course, it is your responsibility to officially withdraw from the class prior to the deadline.*

*Students who do not participate in class, that is, who consistently do not complete assignments, quizzes, exams will be dropped from the class for non – participating.*

**Accommodations:**

*Any student who feels he/she may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs so that we can strategize together on ways to help you succeed in this class. . Please contact the DSPS & S at (909) – 274 – 4290 in Student Service Center, Building 9B to coordinate the necessary accommodations. Appointments for taking quizzes and exams at DSP&S must be the same day that the quiz or exam is scheduled.*

**Academic Honesty/Student Conduct:**

*As a student at Mt.SAC, you are expected to following the College’s guidelines for Academic Honesty/Student Conduct can be found here:*

<https://catalog.mtsac.edu/registration-policies/college-policies-notice/#academichonestytext>

*This means that you should not:*

- a. Cheat*
- b. Plagiarize, that is, use another person’s words or ideas as your own without proper documentation.*
- c. Collaborate with others unless specially requested in an assignment or discussion.\*
- d. No imposter, (i.e. let other people take the class or do any work for you)*
- e. Let another student login to your Canvas account.*

*Failure to follow this policy will result in disciplinary action which ca affect your academic standing in the College.*