

# Math2A Differential Equations

## Spring 2024, Section 27, CRN 48876

### INSTRUCTOR INFORMATION

Instructor	MISAKO VAN DER POEL
Email	<a href="mailto:van_der_poelmisako@fhda.edu">van_der_poelmisako@fhda.edu</a> Please following the format of the subject line stated below. <b>"Math 2A-27: _____"</b> You write your inquiry after the colon.
Class Hour	<b>Tuesday &amp; Thursday: 4:00pm–6:15pm at MLC 110</b>
Office Hours	<b>Monday &amp; Wednesday: 6:00pm–6:50pm</b> Zoom Link: <a href="https://fhda-edu.zoom.us/j/97937658869">https://fhda-edu.zoom.us/j/97937658869</a> Passcode: 640477 or email me for appointments on Monday through Friday.

For this course, **all you need to do is:**

1. **Attending** all classes, joining on time, and staying for the entire class. 

2. Reading **Study Sheets or Power Point posted in Canvas:** 

3. Watching videos in **MyOpenMath.**

4. Completing **Homework assignments** in **MyOpenMath.**

5. Taking **Quizzes** in **MyOpenMath.** 

6. Taking **Midterms** and **Final Exam** at our classroom.

**Assignments that you need to:**

1. Upload your signed **student contract** in Canvas "**Assignments**" by **Apr 21.**

2. Complete **homework assignments** and take **quizzes** in **MyOpenMath.**

3. Take **midterm exams** and **final exam** in class.

4. Upload your completed **score sheet** in Canvas "**Assignments**" by **Jun 23.**

You are expected to attend all classes and check our Canvas page to see announcements and week module regularly.

The due date of all the assignment follows the **U.S. Pacific Standard Time (PST).**

### PREREQUISITES

MATH 1D or MATH 1DH (with a grade of C or better).

### MATERIALS (Cost free materials)

- A First Course in Differential Equations with Modelling Applications, 11th edition, by Zill
- Elementary Differential Equations with Boundary Value Problems by William Trench
- Use of **MyOpenMath** is **required** to complete homework, quizzes, and exams.

## CALCULATORS

The TI-83, TI-83 plus, TI-84, or TI-84 plus are recommended for the students.

Download: TI-SmartView™ Emulator Software for the TI-84 Plus Family

<https://education.ti.com/en/software/details/en/FFEA90EE7F9B4C24A6EC427622C77D09/sda-ti-smartview-ti-84-plus>

**TI Emulator Apps** For iPhone: GraphNCalc83 (free) For Android: Wabbit EMU (free)

Free online graphing tool such as <https://www.desmos.com/> or <https://www.wolframalpha.com/> .

## CANVAS

You are expected to check our Canvas page frequently to see

- **Modules:** A new module will be created every week, and all the lectures and the assignments will be listed in each module.
- **Files:** Formula Sheets or any documents will be posted on the Files tab.
- **Announcements:** Emergencies, date change, change of plans, and etc.

## READING or WATCHING VIDEOS

In general, you should do the assigned reading section or watching video before the topics come up in class or in the homework. Throughout the quarter, I'll always assume that you've done all of the reading section or watching video.

## ALL ASSIGNMENTS (Homework, Quiz, and Exam)

### Late Submission = Zero Credit

Regardless of why you missed it;

- **Late submissions are not acceptable**, and there is **no exception**.
- **Do not ask for any extensions**.
- **Every score counts**, and your lower score in all types of assignments (homework, quizzes, and exams) will **not** be dropped.
- Submission of each homework and quiz assignment is due at **11:59pm** on each due date.

### NO Extra Credit Assignment

There are no extra credit assignments in this course to improve your grade. Please do not ask for any.

**You are expected to check the due dates on your MyOpenMath account at least once a day to plan accordingly.**

## HOMEWORK

- Homework will be assigned in [MyOpenMath](#) weekly.
- **you will have at most 3 versions of each problem and three attempts are allowed for each problem . (This means that you will have at most 9 attempts on each homework problem.)**
- There are **30 homework assignments and the total point is 234**.  
At the end of this course, please compute your HW score out of 100 as follows:  
 $[100 \times (\text{the total of HW})] / 234$

To create an account in MyOpenMath follow these steps:

- Click here: <https://www.myopenmath.com/>
- Click "Register as a new student"
- Course Name: Math2A-27
- Use Course ID: **223234**
- Use Enrollment Key: **da2a27**

## QUIZZES

Quizzes will be assigned in MyOpenMath. (Each due date will be posted in Week Module in Canvas and MyOpenMath.)

For each quiz:

- It is a timed quiz of **60 minutes**.
- **One submission** is allowed for each question.
- Use any materials including textbook and notes.
- There will be **7 quizzes** and each quiz is worth **5 points**.

## EXAMS

- There will be **two** exams (**90 min**-exams) in class.
- Each exam is worth **120 points**.
- All the exams are **closed-book**.
- You may use **one 8.5 X 11 inch sheet of handwritten notes (one side)**.
- **NO calculator** is allowed.
- **NO phones**, and **other aids** are allowed.
- There are **no dropped exams**.
- If the percentage of the lowest of your exam scores is lower than that of your final exam score, then the percentage of the lowest exam will be replaced by that of your final exam. (Note that the final exam score will NOT be replaced in this manner).
- More details on exam dates and procedures can be found in Canvas. You may not submit your assignments once the deadline has passed.

**Missed Exam:** There are **no make-up exams**, regardless of why you missed it. If you are unable to take the exam at the scheduled time due to illness or an emergency, then your percentage from the final exam will be used to compute your score for the missed exam. If a second exam is missed, you will get a zero.

## FINAL EXAMS

- There will be a mandatory comprehensive final exam worth **200 points** in MyOpenMath.
- Final exam must be taken on **June 27, Wednesday at 4:00pm-6:00pm**.
- The final will cover all the material discussed during the quarter.
- Missing the final will result in a grade of "F" for the course.
- It is **closed book**.
- You may use **one 8.5 X 11 inch sheet of handwritten notes (both sides)**.
- **NO calculator** is allowed.
- **NO phones**, and **other aids** are allowed.
- There are **no make-up final exams**, regardless of why you missed it.

## ATTENDANCE / PARTICIPATION

- You are expected to attend all classes, arrive on time, and stay for the entire class.
- Your participation will be checked in **Canvas** on each day.
- Each attendance is worth **1 point** as a participation.

## STUDENT CONTRACT

- Please read "Student Contract" carefully and write your signature (do NOT type your name) and date. And then upload it into "Assignments" in Canvas by **Apr 21**.

## SCORE SHEET

- You will record all scores in the score sheet which will be uploaded into “Assignments” in Canvas by **June 23**. It is worth **5 points**.

## GRADES

Your grade will be based upon the total points earned, according to the following:

Participation/ Attendance	20 pts
Score Sheet	5 pts
Homework-MyOpenMath	100 pts
Quiz-MyOpenMath (5 pts each)	35 pts
Midterms- MyOpenMath. (120 pts each)	240 pts
Final Exam- MyOpenMath (200 pts)	200 pts
<b>Total</b>	<b>600 pts</b>

Points		Percentage
558 – 600	<b>A</b>	93%-100%
540 – 557	<b>A-</b>	90%-92.9%
510 – 539	<b>B+</b>	85%-89.9%
480 – 509	<b>B</b>	80%-84.9%
450 – 479	<b>B-</b>	75%-79.9%
432 – 419	<b>C+</b>	72%-74.9%
408 – 431	<b>C</b>	68%-71.9%
390 – 407	<b>C-</b>	65%-67.9%
372 – 389	<b>D+</b>	62%-64.9%
348 – 371	<b>D</b>	58%-61.9%
330 – 347	<b>D-</b>	55%-57.9%
Below 330	<b>F</b>	Below 55%

## TIME COMMITMENT

The De Anza College catalog advises students to do at least two hours studying outside of class for each credit hour. That means you should be spending at least four and one half hours on each homework assignment (reviewing the notes, reading the textbook, doing the homework problems, watching videos related to the course material, etc.).

## TUTORIAL HELP

- SSC tutoring links and schedules:** go to the [SSC homepage](#) and click on the yellow link to add yourself to [SSC Resources Canvas](#). Once there, click on Modules then the SSC area for your course. <https://www.deanza.edu/studentsuccess/>
- Support for online learning:** If you'd like to speak with someone about motivation and organization strategies for online classes, we encourage you to talk with a peer tutor or SSC staff member. We get it and are going through the same things, so let's support each other!
- Need after-hours or weekend tutoring?** See the [Online Tutoring](#) page for information about NetTutor (via Canvas) or Smarthinking (via MyPortal).

## STUDENT RESPONSIBILITIES

- It is your responsibility to keep up with the material even if you miss class.  
**Note: I will not answer any Math questions over email.**
- Students are responsible for any material covered and any announcements made in their Absence. It is your responsibility to find and use all materials posted in CANVAS.
- You are expected to attend all classes via zoom. If you miss class, please send me an email explaining the reason.
- It is your responsibility to submit all assignments on time.  
**Note: There are no make-ups and no extensions will be granted.**
- If you plan on dropping the class, it is your responsibility to use “MyPortal” online, or contact Admissions and Records office.
- It is your responsibility to record all the scores you have earned, using a “Score Sheet.”
- Please type “**Math2A-27**” in the subject line when you contact me by email.  
**Your email will not be read** without the course and section number in the subject line.

## **ACADEMIC MISCONDUCT**

Academic dishonesty will not be tolerated. If a student is found cheating on an exam, plagiarizing on writing assignments, or violating other codes of academic integrity, he or she will receive a failing grade for the course and may be reported to the college for an appropriate action. See section on Academic integrity in your current schedule of classes catalog.

Please refer to [https://www.deanza.edu/policies/academic\\_integrity.html](https://www.deanza.edu/policies/academic_integrity.html)

## **DISABILITY SUPPORT SERVICES**

For information or questions about eligibility, support services or accommodations to disability (physical or learning disability) see contacts below:

Disability Support Service (DSS): Student Services Building (408) 864-8753; TTY (408) 864-8748

Educational Diagnostic Center (EDC): Learning Center West 110; (408) 864-8839

Special Education Division: 864-8407; [www.deanza.edu/specialed](http://www.deanza.edu/specialed)

The application process can be found here: <https://www.deanza.edu/dsps/dss/applynow.html>

## **IMPORTANT DAYS TO REMEMBER**

Saturday Apr 19	Last day to add quarter-length classes
Sunday Apr 20	Last day to drop for a full refund or credit.
Friday May 31	Last day to drop with a "W"

Spring 2024

**Math 2A Tentative Course Schedule**

<b>Week 1</b> Apr 9 & 11	Introduction Section 1.1: Definitions and Terminology 2 Section 1.2: Initial-Value Problems 13 Section 2.1: Solution Curves Without a Solution 36
<b>Week 2</b> Apr 16 & 18	Section 2.1: Solution Curves Without a Solution 36 Section 2.2: Separable Equations 46 Section 2.3: Linear Equations 54
<b>Week 3</b> Apr 23 & 25	Section 2.4: Exact Equations 63 Section 2.5: Solutions by Substitutions 71 Section 3.1: Linear Models 84
<b>Week 4</b> Apr 30 & May 2	Section 3.1: Linear Models 84 Section 3.2: Nonlinear Models 95 Section 3.3: Modeling with Systems of First-Order DEs 106
<b>Week 5</b> May 7 & 9	<b>Exam 1 (Ch 1, 2 &amp; 3) on May 7 (4:00pm-5:30pm)</b> Section 4.1: Preliminary Theory of Linear Equations 117 Section 4.2: Reduction of Order 129
<b>Week 6</b> May 14 & 16	Section 4.2: Reduction of Order 129 Section 4.3: Homogeneous Linear Equations with Constant Coefficients 132 Section 4.4: Undetermined Coefficients of Superposition Approach 139
<b>Week 7</b> May 21 & 23	Section 4.5: Undetermined Coefficients of Annihilator Approach 149 Section 4.6: Variation of Parameters 156 Section 4.7: Cauchy-Euler Equations 162
<b>Week 8</b> May 28 & 30	Section 4.7: Cauchy-Euler Equations 162 Section 4.9: Solving Systems of Linear DEs by Elimination 180 Section 4.10: Nonlinear Differential Equations 185
<b>Week 9</b> Jun 4 & 6	Section 5.1: Linear Models: Initial-Value Problems 193 <b>Exam 2 (Ch 4) on Jun 6 (4:00pm-5:30pm)</b>
<b>Week 10</b> Jun 11 & 13	Section 6.1: Review of Power Series 232 Section 6.2: Solutions About Ordinary Points 238 Section 7.1: Definition of the Laplace Transform 274 Section 7.2: Inverse Transforms and Transforms of Derivatives 281
<b>Week 11</b> Jun 18 & 20	Section 7.3: Operational Properties I 289 Section 7.4: Operational Properties II 301 Section 7.5: The Dirac Delta Function 312 <b>Last day of class on June 20</b>
<b>Week 12</b> Jun 27	<b>Final Exam on June 27 at 4:00pm – 6:00pm</b>

**Student Learning Outcome(s):**

- Construct and evaluate differential equation models to solve application problems.
- Classify, solve and analyze differential equation problems by applying appropriate techniques and theory.

**Office Hours:**

M,W 06:00 PM 06:50 PM Zoom