MATH-215: DIFFERENTIAL EQUATIONS

Also listed as: MATH-215H

Effective Term
Fall 2026

BOT Approval Date
12/11/2025

Discipline
MATH - Mathematics

Course Number
215

Course Title
Differential Equations

Short Title
Differential Equations

Credit Status (CB 04)
D - Credit - Degree applicable

Units

Lecture Units
4.00

Total Units
4.00

Hours

Lecture Contact Hours
64-72

Out of Class Hours Lecture
128-144

Total Contact Hours
64 - 72

Total Out of Class Hours
128 - 144

Total Student Learning Hours
192 - 216

Distance Education
Yes

Distance Education

Distance Education Type
Hybrid Only

Does the DE also apply to the Honors section?
Yes

What will be done in face-to-face meetings

In addition to attending lectures and participating in class activities, honors students are required to meet regularly with the instructor no less than three times during the semester. Times and location of meetings will be determined by both students and instructor. The purpose of these group meetings is to discuss the heuristics of problem solving, how concepts from class apply to the honors projects, and provide guidance on how to formally write-up and present projects.

Honors component will meet synchronously (face-to-face or moderated through online technology such as Zoom)

Are you using publisher content?

No

Regular Substantive Interaction

Instructor-to-student, student-to-student, and student-to-content contact shall be distributed in a manner that will ensure regular substantive interaction (RSI) is maintained not only weekly but also for the duration of the course. Instructor interactions should be equivalent in time, quality and consistency to the engagement students would receive in a face-to-face course—for example, through announcements, discussion participation, personalized feedback, video messages, or other instructional communications. Instructors are expected to be responsive to student inquiries within a 24-72 hour time frame excluding holidays. RSI will be maintained through a variety of methods: • Orientation - Students must be oriented to the online and face-to-face portions at the start of the course. • Announcements - Announcements using the course management system must be posted at least weekly to keep students current on course events, due dates, materials, etc. • Discussion Forums - Content-related discussion forums within the designated CMS will include appropriate instructor participation and will be initiated and maintained, with timely feedback provided. Instructors are required to monitor the discussions and related activities to provide guidance and direction. Open-ended discussion boards may be used to further learning and interaction. • MSJC Communication – Instructor will use MSJC-administered communication tools (such as email or the designated CMS communication tools) to regularly communicate with and provide ease of access to students. • Timely Feedback - Timely feedback on student work will be provided by the instructor, which may include comments and/or rubrics, within the Grades area of the designated CMS. • Scheduled Meetings – Hybrid and synchronous courses will meet at regularly scheduled times. ADA Compliance - All course interactions and content must be designed with accessibility in mind and meet ADA requirements.

Honors / Non-honors

MATH-215H

C-ID (Admin Only)

CB 00

CCC000610101

Course Title

Honors Differential Equations

Approved Cal-GETC Area

AREA-2

Approved Second Cal-GETC Area

Approved Third Cal-GETC Area

C-ID (Admin Only)

C-ID MATH 240

Catalog Description

This course is an introduction to ordinary differential equations. It introduces theoretical aspects of differential equations as well as its applications in various disciplines such as engineering and life sciences. It explores existence of solutions, methods of solutions, Laplace transforms, series solutions about ordinary and singular points, and linear systems.

Requisites

Prerequisite(s)

Prerequisite(s) (must be taken before)
MATH-C2220 (with a grade of C or better).

Codes

TOP Code (CB 03)
1701.00 - Mathematics, General

CIP Code
27.0101 - Mathematics, General.

Repeatability Code
No

Grading Option
Letter grade OR P/NP

Minimum Qualifications

Minimum Qualifications	And/Or
Mathematics (Masters Required)	End

GE Information

Check GE Types Requested
AA/AS G - Math Competency

Cal-GETC Areas

Approved Cal-GETC Area
AREA-2

Learning Objectives

Learning Objectives

Learning Objective
1. Classify the types of differential equations.
2. Determine the interval of existence and uniqueness of solutions for ordinary differential equations.
3. Identify the most common types of first- and higher-order ordinary differential equations and solve them using an appropriate analytical technique.
4. Create and analyze mathematical models using ordinary differential equations and derive solutions for the models.
5. Formulate series solutions to ordinary differential equations about ordinary and singular points.
6. Solve systems of ordinary linear differential equations.
7. Apply Laplace Transforms, and inverse Laplace Transforms to solve ordinary linear differential equations.
8. Solve ordinary differential equations to identify and explore trends by using examples from different cultures and socioeconomic backgrounds.

Honors Objectives

1. Apply ordinary differential equations concepts in a more advanced and rigorous manner to theoretical or practical applications.
2. Develop and demonstrate proficiency in proving theorems and writing formal proofs related to ordinary differential equations for students completing the pure option.

3. Utilize advanced techniques of ordinary differential equations to solve challenging applied problems for students completing the applied option.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
1. Students will solve the most common types of first- and higher-order ordinary differential equations.
2. Students will find series solutions to ordinary differential equations.
3. Students will use Laplace Transforms to solve ordinary linear differential equations.

Content

Course Lecture Content

1. Ordinary differential equations and solutions.
    a. Classification of differential equations
        i. By type
        ii. By order
        iii. By linearity
    b. Definition of the solution of a differential equation
    c. Existence and uniqueness of solutions of a differential equation
    d. Initial value problems
        i. Definition
        ii. Existence and uniqueness of solution of an initial value problem
    e. Contribution to differential calculus from mathematicians of diverse cultures and socioeconomical backgrounds.
2. First-order differential equations.
    a. Separable
    b. Linear
    c. Exact
    d. Solutions by substitution
        i. Homogeneous
        ii. Bernoulli
    e. Approximation techniques
        i. Euler's method
            1. Contribution from underrepresented groups to NASA's space program
3. Applications of differential equations such as
    a. Slope fields
    b. Newton's law of cooling
    c. Series circuits
    d. Mixture problems
    e. Population modeling
        i. Comparison of populations from different countries and cultures
        ii. Trending epidemic models
    f. Orthogonal trajectories
4. Higher-order linear differential equations
    a. Solutions
        i. Independence of solutions
        ii. Superposition principle
        iii. Wronskian
        iv. Fundamental sets of solutions
    b. Homogeneous and nonhomogeneous differential equations
        i. Reduction of order
        ii. Constant coefficients
        iii. Method of undetermined coefficients
        iv. Variation of parameters
        v. Cauchy-Euler equations

5. Applications of Second order differential equations
    a. Free undamped motion
    b. Forced motion
    c. Resonance
    d. Electric circuit problems
6. Series solutions of differential equations
    a. Power series
        i. Definition
        ii. Interval and radius of convergence
        iii. Arithmetic of power series
        iv. Derivatives of power series
    b. Series solutions of differential equations
        i. Ordinary points
        ii. Singular points
            1. Regular
            2. Irregular
        iii. Solutions about ordinary points
        iv. Solutions about regular singular points
            1. The method of Frobenius
        v. Bessel's Equations
7. Systems of linear ordinary differential equations
    a. Operator method
        i. Substitution
        ii. Elimination
    b. Applications of systems
        i. Harmonic motion
        ii. Predator-prey models
8. The Laplace transform
    a. Definition
    b. Inverse Laplace transforms
    c. Transforms of derivatives
    d. Derivatives of Laplace Transforms
    e. Dirac Delta functions
    f. Convolution and the Impulse Response Function

Honors Content

The topics covered in Math 215H are the same as those covered in Math 215, however, students in Honors Math 215H will complete a pure or applied option, as mutually agreed upon by the student and instructor. The pure option will emphasize theory and mathematical proofs. This may include proofs such as series representation of functions to prove Euler's identity. The application projects will cover challenging applications of differential equations from physics, computer science, and engineering. By promoting additional critical thinking, emphasizing development of advanced analytical skills and extending the discussion of course content beyond that provided in Math 215, Math 215H provides the student with a broader intellectual experience.

Methods of Instruction

Method

Discussion

Integration

Discussion will be used to reinforce student comprehension of lecture topics, such as how to construct differential equation models. These models will include models on population growth from different countries with different cultures. Students will discuss how to apply appropriate solution techniques and make inferences from the observed results.

DE Adaptations for MOI

Asynchronous discussions can be adopted using the discussion boards in the CMS and synchronous discussions can be done via accessible video conferencing tools. Instructor feedback can be posted in the gradebook comments and/or in the discussions within a timely manner.

Method

Activity

Integration

Various in-class group or individual activities may be employed, as appropriate, to assist students with developing intuition and depth of understanding of concepts, such as finding series solution about ordinary points or regular singular points.

DE Adaptations for MOI

All activities will be adapted using the built-in features of a course management system (CMS). For example, group activities can be facilitated via threaded discussions. Collaborations can be promoted by creating groups within the CMS. Instructions to group activities will meet accessibility requirements.

Method

Lecture

Integration

Lectures will be used to present terminology, definitions, theorems, and heuristics of problem-solving supporting discussion of different methods of solutions, such as using Laplace transforms, variation of parameters, or annihilator approach.

DE Adaptations for MOI

Lectures can be adapted to a course management system (CMS) to be delivered synchronously or asynchronously. For example, videos can be recorded by the instructor and embedded to a course page and lecture notes can be added utilizing a content editor. All material will meet accessibility requirements.

Method

Observation and Demonstration

Integration

Technology can be used in class to explore, build, and strengthen the connections between concepts. For example, a graphing utility can be used to illustrate slope fields or harmonic motion models.

DE Adaptations for MOI

All demonstrations can be delivered within a course management system (CMS) by embedding applets, providing links to online resources, sharing recorded video or slide presentation. All material will meet accessibility requirements.

Additional Methods of Instruction for Honors

Students will be required to meet regularly with the instructor individually or in groups. To build rapport and to promote the community of practice it is recommended that the meetings occur regularly and at least monthly with a minimum of three meetings required. The meetings can be used to develop and discuss the progress of the students' projects as well as to improve the understanding of the course content or to introduce new honors content.

Students will be required to summarize and present the results of their projects via multimedia demonstration at the end of the term to the instructor, the honors section and/or the entire class. Presentations will provide honors students the opportunity of presenting their research projects to their honors colleagues or the regular class to facilitate the development of their presentation and communication skills. Presentations will include a multimedia component or other visual aids. In the DE component of a hybrid course, the meetings may be held in person or remotely using built-in features of a course management system (CMS).

Methods of Evaluation

Method

Exams/Tests

Integration

Interim exams and a comprehensive final exam may be used to determine if a student successfully acquired skills, such as applying Laplace Transforms to solve linear differential equations. Exams will be graded on accuracy, completeness, mathematical correctness, and demonstration of understanding through work done to solve the problems posed.

DE Adaptations for MOE

In the hybrid modality, interim exams and the comprehensive final exam will be proctored in person, only. The instructions and the tests will meet accessibility requirements.

Method

Homework

Integration

Problems will be assigned allowing students, at their own pace, to develop skills necessary for success in Differential Equations, such as classifying equations and solving them using an applicable technique. Homework will be evaluated on accuracy and completeness.

DE Adaptations for MOE

The homework will be assigned, submitted, and graded through the course management system (CMS). For example, a link to a third-party publisher's accessible content may be provided or the entire assignment can be embedded on CMS. The instructor is responsible to ensure that all content, all instructions, and all assignments meet accessibility requirements. Accessible feedback will be delivered using the comment section or within an accompanying rubric within a timely manner.

Method

Quizzes

Integration

Periodic quizzes may be used to assess the students' skill development throughout the course, such as deducing the interval of definition and interval of existence and uniqueness of solutions. Quizzes will be evaluated on accuracy, completeness, and correctness.

DE Adaptations for MOE

Quizzes may be assigned, submitted, and graded through the course management system (CMS). For example, a link to a third-party publisher's content may be provided or the entire quiz can be embedded on CMS. The instructor is responsible to ensure that all content, all instructions, and all assignments meet accessibility requirements. Accessible feedback can be delivered using the comment section or within an accompanying rubric within a timely manner. The instructions and the quizzes will meet accessibility requirements. Instructors may consider using online and real time proctoring services approved by the college.

Method

Projects

Integration

The instructor may use a group or individual project(s) to provide targeted feedback to enhance the students' understanding of learning objectives. For example, an instructor will ask students to collect data pertaining to different countries' populations, build a linear model to describing the rate of change of those populations, and solve the differential equation. Projects will be evaluated in a timely manner based on both correctness and completeness.

DE Adaptations for MOE

Group or individual projects will be assigned and submitted through the course management system (CMS). Students can communicate with peers and the instructor through the discussion boards and inbox of the CMS. Students may be required to present their results through the creation of a slide presentation, a written report, or a live video conference and the presentations will then be made available to the entire class through the CMS. Accessible feedback may be provided either through comments or within an accompanying rubric within a timely manner.

Method
Portfolios

Integration
The instructor may use individual portfolios to provide targeted feedback to enhance the students' understanding of learning objectives. For example, students will present a solution to a system of linear differential equations. Portfolios will be evaluated based on completeness, correctness, clarity, and presentation.

DE Adaptations for MOE
Individual portfolios will be assigned and submitted through the course management system (CMS). Students may communicate with peers and the instructor through the discussion boards and inbox of the CMS. Students may be required to present their results through the creation of a slide presentation, a written report, or a live video conference and the presentations will then be made available to the entire class through the CMS. Accessible feedback may be provided either through comments or within an accompanying rubric within a timely manner.

Evaluation of Honors assignments
Students will principally be graded on the requirements of the regular section.

For the pure option: Proofs will be evaluated based on accuracy, completeness, correct application and demonstration of proof techniques, and creativity. Research papers will be assessed on clarity of argument, supporting evidence, the number and types of references consulted, depth of analysis, and mathematical accuracy.

For the applied option: The submitted problems will be evaluated on accuracy, completeness, and demonstration of understanding through work done to solve the problems posed. The short papers will be assessed on clarity of argument, supporting evidence, the number and types of references consulted, depth of analysis, and mathematical accuracy.

Oral presentations will be evaluated based on clarity, organization, critical thinking, mathematical accuracy, creativity, appropriateness of any visual aids, appropriate length, and polished presentation in front of an audience.

Assignments

Assignment Type
Writing

In-class and/or outside of class
In-class

Formative or Summative
Summative

Assignment
Complete the following exam.

1. Determine whether a given differential equation is separable, linear, neither, or both.
y'+y^2=cos(x)

2.Solve the given initial value problem. Give the largest interval I for which the solution is defined.
dy/dx + tan(x)y = cos^2(x); y(0)=1

3. A fishing vessel has a fish-cooler that contains 100 gallons of a brine solution containing 1lb of salt. At t = 0 another brine solution containing 1lb of salt per gallon is poured into the tank at a rate of 3 gal/min, while the well-stirred mixture leaves the tank at a rate of 3.5 gal/min. Find the amount of salt in the tank when the tank contains exactly 50 gallons.

4.Determine whether the given differential equation is exact. If exact, solve it.
(sin(x) − ysin(x) − 2cos(x))dx + (cos(x))dy = 0; y(0) = 1

How assignment will be adapted in online format
Summative assignments such as exams and final exams will be proctored in class, only.

Assignment Type
Reading

In-class and/or outside of class
Outside of class

Formative or Summative
Formative

Assignment
Select any one of the short stories to read in Part 1 of Living Proof: Stories of Resilience Along the Mathematical Journey (link: https://maa.org/wp-content/uploads/2024/06/LivingProof_WEB.pdf); these are stories 1-11 under the section "Mathematics Just Suddenly Feels Hard!" and it includes mathematicians from different socioeconomic backgrounds, cultures, and other underrepresented groups.

After reading a story of resilience, be ready to discuss which story you read, and provide a brief summary to your classmates including any takeaways. Reflect on how you might relate to the story you read, and any personal experiences related to resilience.

How assignment will be adapted in online format
The problem will be assigned, submitted, and graded through the course management system (CMS). For example, the assignment may be posted and shared on a discussion board in the CMS. The feedback may be delivered using the comment section or within an accompanying rubric through the CMS within a timely manner. The instructions and the assignments will meet accessibility requirements.

Assignment Type
Writing

In-class and/or outside of class
Outside of class

Formative or Summative
Formative

Assignment
Complete the following homework problem.

A 2 lb weight stretches a spring 6 inches in equilibrium. An external force F(t)=sin(8t) lb is applied to the weight, which is released from rest 2 inches below equilibrium. Find its displacement for t>0.

How assignment will be adapted in online format
The problem will be assigned, submitted, and graded through the course management system (CMS). For example, a link to a third-party publisher's content may be provided or the entire assignment can be embedded on CMS or student may be allowed to submit a scan of their work. The instructor is responsible to ensure that all content, all instructions, and all assignments meet accessibility requirements. Accessible feedback can be delivered using the comment section or within an accompanying rubric through the CMS within a timely manner.

Honors Assignments

Assignment
Students in Math 215H are required to complete all of the assignments for the regular Math 215 class. In addition, students, in consultation with their instructor, will select either the pure option or the applied option for the Honors assignments.

Required or Optional
Required

Assignment
Applied Option (choose 1 of 2):

(Option 1) Solve three or four application problems provided by the instructor such as deducing the voltage function for the electrical stimulus applied to the heart by a pacemaker and use computer software to graph it over an interval of time. Problems will be submitted to the instructor in writing, generally not exceeding three pages in length, for evaluation in accordance with instructor specified deadlines. For each problem, in your written work, include at least two accredited sources on modeling the application with differential equations. Present the solution to your honors colleagues or the regular class. The presentation will be 15 to 30 minutes long and will include the research on the chosen topic and the mathematical approach used to solve the problem.

(Option 2) Choose three or four instructor-approved topics in STEM that includes applications of differential equations concepts, such as modeling the cartoon character Wiley coyote riding on a plane at 3,000 meters above the ground in search of the Road Runner. Wiley weighs 20 #g and he is wearing a backpack with dynamite weighing 50 #g. When he spots the Road Runner on the ground, Wiley jumps off the plane, but in the excitement, he forgets to grab his parachute. Find the time it takes Wiley to splash flat on the ground. Problems will be submitted to the instructor in writing, generally not exceeding three pages in length, for evaluation in accordance with instructor specified deadlines. For each problem, in your written work, include at least two accredited sources on modeling the application with differential equations. Present the solution to your honors colleagues or the regular class. The presentation will be 15 to 30 minutes long and will include the research on the chosen topic and the mathematical approach used to solve the problem.

Required or Optional
Required

Honors Core Values
Academic Rigor and Research
Engagement

Justify how the assignment reflects the Academic Rigor and Research Core Value
These assignments will encourage students to research specific applications of differential equations in STEM, such as different physics laws and principles related to the project. This
requires students to dedicate time to research how to interpret physical phenomena, such as electrical impulses, acceleration, and velocity, with appropriate differential equations and initial conditions. Students will also focus on analyzing the existence of a solution and utilizing an appropriate method of solution for the differential equation.
Students will also learn how to formally write and present complete work to solve differential equations using appropriate techniques of solution and formal mathematical notation, contributing to academic rigor. Ultimately, students will learn more about the process of applying mathematical ideas to real-world problems.

Justify how the assignment reflects the Engagement Core Value
These assignments will encourage student presenters to engage the audience regarding the topic of their interest and validate their results through a scholarly discussion.

Assignment
Pure Option (choose 1 of 2):

(Option 1) After researching different proof techniques (direct, by contradiction, induction, etc.) prove three or four advanced results or theorems used in the course, such as the superposition principle to solve a higher-order differential equation. Each proof will be submitted to the instructor in writing, generally not exceeding one page in length, for evaluation in accordance with instructor specified deadlines. Present the proofs to your honors colleagues or the regular class. The presentation will be 15 to 30 minutes long and will include an explanation of the proof techniques employed, along with a formal written version of the proofs.

(Option 2) Use your knowledge from previous courses and this course to present three or four rigorous proofs, such as using a series representation to derive Euler's identity. Each proof will be submitted to the instructor in writing, generally not exceeding one page

in length, for evaluation in accordance with instructor specified deadlines. Each proof will be presented in classroom or remotely to the instructor and peers in a formal academic setting via multimedia presentation not to exceed a total of 30 minutes for all chosen proofs. The presentation will include an explanation of the proof techniques employed, along with a formal written version of the proofs.

Required or Optional

Required

Honors Core Values

Academic Rigor and Research
Engagement

Justify how the assignment reflects the Academic Rigor and Research Core Value

These assignments will encourage students to research the different proof techniques and learn how to use them to prove results. This requires students to dedicate time to research how to formally recognize and state appropriate assumptions and use definitions, theorems, and known results to arrive at logical conclusions. Students will also learn how to formally write proofs using formal mathematical notation, contributing to academic rigor. Ultimately, students will learn more about the process of writing a formal mathematical proof in general.

Justify how the assignment reflects the Engagement Core Value

These assignments will encourage student presenters to engage the audience regarding the topic of their interest and validate their results through a scholarly discussion.

Course Materials

Textbooks

Zill, D. (2024). A First Course in Differential Equations With Modeling Applications, 12th Cengage Learning. ISBN: 978-0357760192

Open Educational Resources

Differential Equations (No Linear Algebra Required) LibreTexts.org
Link: https://math.libretexts.org/Courses/Mt._San_Jacinto_College/Differential_Equations_(No_Linear_Algebra_Required)

Class Size Information

Class Size

30

Class Size Category

C - Remedial or advanced math 30

Diversity and Inclusion

Course Design and Materials: Course will incorporate diverse perspectives, authors, and examples that reflect a variety of cultures, identities, and lived experiences. Instructional materials will be reviewed regularly to ensure representation, inclusivity, and alignment with equity-minded practices across disciplines.

Inclusive Learning Environment: Instructors will establish classroom norms and policies that promote respect, civil discourse, and belonging in both online and face-to-face classes. Clear expectations for communication and engagement will support a learning space where all students feel valued and heard.

Accessible Instruction: Course content will be delivered using accessible design. Materials will follow accessibility guidelines within the CMS, including captioned media, readable document formats, and multiple means of engagement to support diverse learning.

Equitable Teaching Practices: Instructors will use transparent and grading criteria, varied assessment methods, and timely feedback to promote fairness and student success. Opportunities for revision, reflection, and multiple demonstrations of learning may be incorporated when appropriate to the discipline.

Culturally Responsive Pedagogies: Instructional strategies will encourage critical thinking about diverse perspectives and systems of power relevant to the course content. Faculty will foster opportunities for students to connect course material to real-world contexts.

Ongoing Reflection and Improvement: Faculty will engage in continuous professional development related to IDEAA principles and reflect on course practices using metacognition to identify opportunities for increased equity, inclusion, and accessibility.

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

The objectives include applications of differential equations where examples are drawn from different cultures and socioeconomic backgrounds to identify and explore differences and similarities. The content highlights and discusses the contributions of mathematicians from underrepresented groups such as women, people of color, and people from different cultures, for their contributions to formulating integration methods needed to solve a variety of applications. The methods of evaluation will provide opportunities for students to explore applications of calculus to fields they are interested in and make connections to their own experiences and cultures. Assignments will include readings and discussions around the alternative origins of differential calculus with contributions from mathematicians of diverse cultures and socioeconomical backgrounds.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

We have incorporated a variety of assignments that explore the content through the lens of equity and diversity. The instruction includes discussions like "Stories of Resilience" and activities that allow learners to explore the content from unique perspectives. It includes various formats to serve a variety of learning styles. For example, integration techniques can be shown using digital tools or physical interpretations. The methods of evaluation have also been redesigned to allow for a variety of formative and summative assessments. For example, the curriculum includes new opportunities for group work and project-based learning to explore applications of integration. Also, an OER textbook was included which promotes equity by significantly lowering the cost of taking the course and removing additional barriers for learners.

Interactions

Explain how the course will incorporate student-to-student interaction.

Students will interact with each other through in-class discussions on different topics. For example, students could work together in a group to compare and contrast different solution methods for first and higher-order differential equations. Students will also interact with each other through online discussion boards where they can ask each other questions on the content and answer each other's questions from their diverse perspectives as well as share relevant outside information related to the course.

Explain how the course will incorporate instructor-to-student interaction.

The instructor will introduce material such as finding a series solution for a differential equation about a regular singular point or ordinary point. The instructor will also participate as needed in discussion boards to answer questions and address the needs of the students. For example, in a discussion around series solutions, the instructor will introduce ideas and moderate the discussion to ensure all perspectives are considered. The instructor will also return comments and feedback for projects, exams, and other assignments such as stories of resilience through the course management system or in-person.

Explain how the course will incorporate student-to-content interaction.

Students will interact with accessible materials such as the textbooks, written lecture materials or transcripts of lectures, illustrative images, charts and graphs, video or audio lectures. In-class exercises and/or at-home assignments will allow students to practice content material such as solving an initial-value problem using Laplace transforms.

Explain how the course will incorporate student-to-self interaction (metacognitive).

This course incorporates metacognition by encouraging students to actively monitor and modify their thought processes. For example, after reading a story of resilience, the student will reflect on how they might relate to the story and share any personal experiences related to resilience.

Key: 2112