MA26200 SPRING 2026 COURSE SYLLABUS

Course Information

1. MA 26200 - Linear Algebra and Differential Equations
2. Credit Hours: 4.00. Linear algebra, elements of differential equations. Not open to students with credit in MA 26500 or 26600. 4.000 Credit hours.
3. Prerequisites: Undergraduate level MA 26100 Minimum Grade of C- or Undergraduate level MA 18200 Minimum Grade of C- or Undergraduate level MA 17400 Minimum Grade of C- or Undergraduate level MA 27100 Minimum Grade of C- or Undergraduate level MA 27101 Minimum Grade of C- or Undergraduate level MATH 26100 Minimum Grade of C- or Undergraduate level MA 17200 Minimum Grade of C- or Undergraduate level MA 26300 Minimum Grade of C minus
4. Instructor: Taylor Daniels
5. All lectures and recitations will be in person.
6. Course Brightspace page. There are different Brightspace pages for lectures and recitations.

Instructors Contact Information

- Dr. Taylor Daniels: daniel84@purdue.edu

Learning Resources, Technology & Texts

- Required text -- Edwards/Penney/Calvis: Differential Equations & Linear Algebra, 4th Edition.
- MyLab is required. Students will use it to do online homework.
- An electronic version of the textbook comes with MyLab, and a hard copy of the textbook is not required.
- Students should access MyLab though their recitation Brightspace page. Their lecture page is not linked with MyLab.
- We recommend that students should buy a MyLab access code when they access it from their recitation Brightspace page. That way they know they are buying the correct code.
- Students get a two-week grace period at the beginning of the semester. After the grace period expires, they have to buy access to MyLab.
- MyLab access is based on the textbook. Students who bought MyLab for Calculus will have to buy it for MA262, even if their Calculus book code has not expired.
- The MA262 textbook is not used in any other math class at Purdue. Students only need to buy access for one semester.

- Students can find qualified tutors through the Mathematics Department Home page. But keep in mind that your professors do not select those tutors.   If you want to hire a tutor, feel free to ask your professor to recommend someone from that list.

Learning Outcomes

1. Learn the basic properties of matrices.
2. Learn how to solve systems of linear equations.
3. Learn the basic properties of determinants.
4. Learn about linear independence, spanning sets and bases in the context of vector spaces.
5. Learn the statement of the theorem of existence and uniqueness of solutions of first order differential equations and standard methods of solving linear, and some special non-linear, differential equations of first order.
6. Learn the standard methods of solving linear differential equations of constant coefficients of arbitrary order.
7. Learn basic numerical methods for solving differential equations.
8. Learn about the applications of differential equations to mechanical, physical, and biological models.
9. Learn the theory of eigenvalues and eigenvectors and how it applies to systems of differential equations.

Assignments and course grading policies

Assignments	Due	Points
Online homework	Throughout the semester	Average=100
Quizzes during Recitation	Throughout the semester	Average=100
Two (one-hour long) midterm exams	See dates and lessons covered below	100 each
One (two-hour long) Final exam	To be scheduled during finals week. Comprehensive exam covers lessons 1 to 36	200

		Total: 600

Online Homework

- There will be 36 online homework assignments. Students will do the homework using MyLab.
- TAs will assign online homework and due dates will be stated in MyLab. Different sections may have different due dates for the same assignments.
- The lowest three homework grades will be dropped.
- *Partially done homework will be graded accordingly.*
- *Students will get a score of zero on homework they did not attempt to do.*
- Students who want to appeal a homework score due to possible computer error should contact their TA.

Quizzes

- TAs will prepare and give weekly quizzes (except during the first week, exam weeks and quiet period) during recitation according to what has been covered in lecture and recitation.
- Students who are entitled to special accommodations will get the appropriate time and conditions for quizzes. They need to speak with their TA to make arrangements.
- TAs will also manually grade the quizzes.
- The lowest three quiz grades will be dropped.

Exams

- There will be two multiple-choice midterm exams and one multiple-choice final exam, all **in person**.
- Exams will be computer graded.
- Students who are entitled to special accommodations will get the appropriate time and conditions for exams from the DRC. See more details in section Accessibility below.
- Exam 1: Thursday, February 19, 8:00pm—9:00pm, rm. LE 100. [Covers Lessons 1-14]
- Exam 2: Tuesday, April 14, 8:00pm—9:00pm, rm. LE 100. [Covers Lessons 15-30]
- Final Exam (date TBA by Purdue). The final exam covers all lessons.
- No exam grades will be dropped.

Grading Scale

- A+: 570 – 600
- A: 540- 569
- A-: 510- 539
- B+: 480 – 509
- B: 450 – 479
- B-: 420 – 449
- C+: 390- 419
- C: 360 – 389
- C-: 330 – 359
- D+: 300- 329
- D: 270 – 299
- No D minus in MA262
- F: 269 or below
- Borderline cases (this means within one point of a cut-off, say for example 419.5) will be considered on a case-by-case basis

   These cut-offs may be lowered at the end of the semester, but they cannot be raised. For example, a student with 538 points will get at least A minus, but it is possible they actually get A, if these cut-offs are adjusted. Historically these cut-offs have not been adjusted by more than a few points.

Grade check during the semester:

MyLab gives the percentage of the total number of points students have obtained at any given time during of the semester, compared to what they have completed. They can then multiply that percentage by 600 to see where they would be at the end of the semester given the above criteria, provided they keep performing at the same level. At the end of the semester the percentages tend to go up slightly after the lowest quiz and homework grades are dropped. Of course, that only helps those who have done all the assignments. Students who complete all assignments will have very accurate information during the semester. On the other hand, students who have not completed many assignments may see a higher partial grade than what they actually have. In case of doubt, check with your TA.

Attendance

1. Anticipated absences: When conflicts or absences can be anticipated, such as for many University-sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible.
2. For other absences such as *Grief/Bereavement, Military Service, Jury Duty and Parenting Leave,* please consult *[Purdue's attendance policy](#)*
3. **Medically Excused Absence Policy for Students (MEAPS).** Students will be excused, and <u>no penalty will be applied to a student's absence</u> for situations involving hospitalization, emergency department or urgent care visit and be given the opportunity to make up coursework as defined in the course syllabus. Students experiencing hospitalization, emergency department or urgent care visits can provide documentation to ODOS who will then assess the student's request for a Medical Excused Absence, and issue notification of the start and end of the absence to the student's instructors. The student should then follow up with the instructor to seek arrangements as per the policy. Consult *[Purdue's attendance policy](#) for more details.*
4. Students should follow university policy regarding Covid- 19 or any other public health threats

Academic Integrity

1. *Homework: The online homework will be done using MyLab and students can access it through Brightspace. TAs will assign the online homework. Students are encouraged to discuss homework problems with other students, faculty and TAs. They may consult their textbook and use calculators while they do their homework.*
2. *Exams: The two midterms and the final exam will be in person. The exams are multiple choice and will be computer graded. During the exams, students are not allowed to discuss exam questions with other students, or anyone else. If they have a question, they can only ask their professor or their TA. **Students are not allowed to use any kind of electronic devices during exams.***
3. *Quizzes: There will be one quiz per week (with the exception of the first week, quiet period and exam weeks) during recitation. Quizzes will be hand graded by the TA. During quizzes, students are not allowed to discuss quiz problems with other students, or anyone else. If they have a question, they can only ask their TA. **Students are not allowed to use any kind electronic devices during quizzes.***

A violation of the quizzes and exam rules will be considered cheating. Students caught cheating on quizzes will get a zero on the quiz. Students caught cheating on an exam will get a zero on the exam and may get F in the course. All cases of cheating will be reported to the office of the Dean of Students. Students are encouraged to report to their professor or TA if they have knowledge that other students have cheated on exams or quizzes, and the more evidence they can present the better. Students can also report issues of academic integrity that they observe anonymously, through the OSRR by calling 765-494-8778 or emailing integrity@purdue.edu.

The Use of Artificial Intelligence

Students may use artificial intelligence tools to help them understand the course material and complete homework. While AI tools that may help students learn the subject, they should be careful about using these resources and make sure they are getting correct information. **Moreover, no electronic devices of any kind are allowed during quizzes and exams, so students will not be able to use AI tools during quizzes or exams.**

Quiet Period

Per university regulations, the week preceding the final exams week is designated as the "Quiet Period." During this time, no assignments (including homework) can be assigned or collected, unless your course has no exams scheduled for the final exam week. Further details regarding this policy can be found at:

https://catalog.purdue.edu/content.php?catoid=16&navoid=19719#c-quiet-period

Course Lesson Plan

The following lectures will be covered on different days by different instructors. Your instructor will give you more precise information.
TEXT: *Differential Equations & Linear Algebra*, 4th edition, by Edwards, Penney, and Calvis, published by Pearson
Online homework problems are listed in MyLab.

Sec 1.1 (Differential Equations and Mathematical Models)
Sec 1.2 (Integrals as General and Particular Solutions)
Sec 1.3 (Slope Fields and Solution Curves)
Sec 1.4 (Separable Equations and Applications)
Sec 1.5 (Linear First-Order Equations)
Sec 1.5 (Continuation, Linear First-Order Equations)
Sec 1.6 (Substitution Methods and Exact Equations)
Sec 1.6 (Continuation, Substitution Methods and Exact Equations)
Sec 2.1 (Population Models)
Sec 2.2 (Equilibrium Solutions and Stability)
Sec 2.4 (Numerical Approximation: Euler's Method)
Sec 3.1 (Introduction to Linear Systems)
Sec 3.2 (Matrices and Gaussian Elimination)
Sec 3.3 (Reduced Row-Echelon Matrices)
Sec 3.4 (Matrix Operations)
Sec 3.5 (Inverse of Matrices)
Sec 3.6 (Determinants)
Sec 4.1 (The Vector Space $\mathbf{R}^3$)
Sec 4.2 (The Vector Space $\mathbf{R}^n$ and Subspaces)
Sec 4.3 (Linear Combinations and Independence of Vectors)
Sec 4.4 (Bases and Dimension for Vector Spaces)

Sec 4.5 (Row and Column Spaces)
Sec 5.1 (Introduction: Second-Order Linear Equations)
Sec 5.2 (General Solutions of Linear Equations)
Sec 5.3 (Homogeneous Equations with Constant Coefficients)
Sec 5.3 (Continuation, Homogeneous Equations with Constant Coefficients)
Sec 5.4 (Mechanical Vibrations)
Sec 5.5 (Non-hom Eqns and Undetermined Coefficients)
Sec 5.5 (continuation, Non-hom Eqns and Variation of parameters)
Sec 6.1 (Introduction to Eigenvalues)
Sec 7.1 (First-Order Systems and Applications)
Sec 7.2 (Matrices and Linear Systems)
Sec 7.3 (The Eigenvalue Method for Linear Systems)
Sec 7.6 (Multiple Eigenvalue Solutions)
Sec 7.4 (A Gallery of Solutions Curves of Linear Systems)
Sec 7.4 (Continuation, A Gallery of Solutions Curves of Linear Systems)

Important Dates

Students should consult *Academic Calendar to find information about important dates, such as the last day to withdraw from the course, etc. Other important dates are*

1. *Classes begin Mon., Jan 12*
2. *No classes Martin Luther King Jr. Day, Mon., Jan 19*
3. **Midterm Exam 1** *– Feb 19, 8:00 P.M to 9:00 P.M., PHYS 114, UC 114, Covers Lessons 1 to 14*
4. *Midterm Exam 2 – Apr 14, 8:00-9:00 P.M., PHYS 114, PHYS 112. Covers lessons 15 to 26.*
5. *Spring Break Mar 16-21*
6. *Quiet Period, Mon.-Sat., Apr 26-May 2*
7. *Final Exams, Mon.-Sat., May 4-9 (common exam to be scheduled by Purdue).*
8. *Classes end Saturday, May 9*
9. *Grades due by 5 p.m. Tues., May 12*
10. *Students should consult the academic calendar regarding the last days to add or drop a class.*

Accessibility

Purdue University strives to make learning experiences accessible to all participants. If you anticipate or experience physical or academic barriers based on disability, you are encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone at 765-494-1247.

If you have been certified by the Disability Resource Center (DRC) as eligible for accommodations, you should contact your TA to discuss your testing accommodations as soon as possible. For all in-class accommodations please contact your TA and your professor as soon as possible. You should make sure you send your Course Accessibility Letter to your TA and to the professor. Instructions for how to do this can be found at: https://www.purdue.edu/drc/students/course-accessibility-letter.php

Nondiscrimination Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. More details are available on our course Brightspace table of contents, under University Policies.

Medically Excused Absence Policy (MEAPS)

MEAPS joins Grief/Bereavement, Military Service, Jury Duty and Parenting Leave as specific situations with university-defined procedures and instructor/student expectations. Consult the **university regulations on class attendance** for specific details. This policy is intended for emergent care only and those to pose a serious threat to the health of a student (e.g., serious burns, seizures, severe cuts requiring stitches, broken/dislocated limbs or joints, head injuries). **Note that urgent care visits are no longer included in this policy.**   The Office of the Dean of Students will not provide notes to instructors for primary care medical appointments or routine care.

Students are encouraged to speak with their instructors regarding other situations (e.g., overall wellness, dental care, general behavioral health care) nor occasional symptoms (e.g., pink eye, colds, flu). Only your instructor can excuse absence under situations not covered by MEAPS. Instructors will decide if and how students can make up missed work.

Mental Health Statement

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try WellTrack. Sign in and find information and tools at your fingertips, available to you at any time.

If you need support and information about options and resources, please contact or see the Office of the Dean of Students. Call 765-494-1747. Hours of operation are M-F, 8 am- 5 pm.

If you find yourself struggling to find a healthy balance between academics, social life, stress, etc. sign up for free one-on-one virtual or in-person sessions with a Purdue Wellness Coach at RecWell. Student

coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

Emergency Preparation

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

Related Considerations and Guidelines.
1. *Keep your cell phone on to receive a Purdue ALERT text message.*
2. Emergency preparedness is your personal responsibility. Purdue University is actively preparing for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus. Let's review the following procedure
   - For any emergency text or call 911.
   - There are more than 300 Emergency Telephones (aka blue lights) throughout campus that connect directly to the Purdue Police Department (PUPD). If you feel threatened or need help, push the button and you will be connected right away.
   - If we hear a fire alarm, we will immediately evacuate the building. Do not use the elevator. Go over the evacuation route (see specific Building Emergency Plan).
   - If we are notified of a Shelter in Place requirement for a tornado warning we will stop classroom or research activities and shelter in the lowest level of this building away from windows and doors.
   - If we are notified of a Shelter in Place requirement for a hazardous materials release, we will shelter in our classroom shutting any open doors and windows.
   - If we are notified of a Shelter in Place requirement for an active threat such as a shooting, we will shelter in a room that is securable preferably without windows.
   - **(NOTE: Each building will have different evacuation & shelter locations. The specific Building Emergency Plan will provide specific locations and procedures)**