

## MA26200 SPRING 2022 COURSE SYLLABUS

THIS DOCUMENT CONTAINS INFORMATION COMMON TO ALL MA26200 SECTIONS  
YOUR PROFESSORS MAY HAVE ADDITIONAL INFORMATION ABOUT THEIR PARTICULAR  
SECTIONS -- CHECK YOUR SECTION BRIGHTSPACE PAGE

- Instructors: Professors [Alexandre Eremenko](#), [Zhaopeng Hao](#), [Antônio Sá Barreto](#) and [Samy Tindel](#)
- All lectures and recitations will be in person. Some lectures may be boilercast for the convenience of the students, but there will be no online instruction per se in MA262 during the spring 2022.
- There will be different meeting times for lectures and recitations. *Consult the schedule for times and location.*
- Course Brightspace page. There are different Brightspace pages for lectures and recitations.

### Instructors Contact Information

- [Alexandre Eremenko](#)
- [Zhaopeng Hao](#)
- [Antônio Sá Barreto](#) (please do not leave phone messages, he will not get them.)
- [Samy Tindel](#)

### Learning Resources, Technology & Texts

- Required text -- Edwards/Penney/Calvis: Differential Equations & Linear Algebra, 4<sup>th</sup> Edition.
- MyMathLab is required. Students will use it to do online homework.
- An electronic version of the textbook comes with MyMathLab, and a hard copy of the textbook is not required.
- Students should access MyMathLab through their recitation Brightspace page. Their lecture page is not linked with MyMathLab.
- We recommend that students should buy a MyMathLab 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 MyMathLab.
- This 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.

## Assignments

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. Comprehensive exam covers lessons 1 to 36	200
		Total: 600

## Online Homework

- There will be 36 online homework assignments
- TAs may assign online homework along the semester, when material is covered in lecture or assign all homework at the beginning of the semester. Due dates will be stated in MyMathLab.
- 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 dead week) during recitation according to what has been covered in lecture and recitation.
- TAs will also 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. There will be no online exams in the spring 2022.
- Exams will be computer graded.
- Students who are entitled to special accommodations will get the appropriate time and conditions for exams from the DRC.
- Exam 1: Monday, February 21<sup>st</sup>, 6:30—7:30 p.m. covers lessons 1 to 14
- Exam 2: Monday, April 4<sup>th</sup>, 6:30-7:30 p.m. covers lessons 15 to 27.
- Final Exam (date TBA by Purdue). The final exam covers Lessons 1 to 36.
- 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 (for example 509.5) will be considered on a case-by-case basis

For example, a student with 480 points is guaranteed to get at least a B+ in the course. These cut-offs may be lowered at the end of the semester, but they cannot be raised.

## Grade check during the semester:

*MyMathLab 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*

## **Academic Integrity**

- 1. The online homework will be done using MyMathLab and students can access it through Brightspace. TAs will assign the online homework.*
- 2. 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.*

*The two midterms and the final exam will be in person:*

- 1. The exams are multiple choice and will be computer graded.*
- 2. Students are not allowed to discuss exam or quiz problems with other students, or anyone else. If they have a question, they can only ask their professor or their TA.*
- 3. Students are not allowed to use calculators during exams.*
- 4. Students are not allowed to use any electronic devices during exams.*

*There will be one quiz per week (with the exception of the first week and exam weeks) during recitation.*

- 1. Quizzes will be hand graded by the TA.*
- 2. Students are not allowed to discuss exam or quiz problems with other students, or anyone else. If they have a question, they can only ask their TA.*
- 3. Students are not allowed to use calculators during quizzes.*
- 4. Students are not allowed to use any electronic devices during quizzes.*

*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](mailto:integrity@purdue.edu).*

## Course Schedule

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 MyMathLab.**

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 (Linear First-Order Equations)  
Sec 1.6 (Substitution Methods and Exact Equations)  
Sec 1.6 (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 (Homogeneous Equations with Constant Coefficients)  
Sec 5.4 (Mechanical Vibrations)  
Sec 5.5 (Non-hom Eqns and Undetermined Coefficients)  
Sec 5.5 (Non-hom Eqns and Undetermined Coefficients)  
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 (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

**January 10 – Classes Begin**

**Midterm Exam 1 – February 21st**

**Midterm Exam 2 – April 4th**

**April 30 – Classes End**

**May 2-7 – Final Exam week (to be scheduled by Purdue)**

**May 7 – Semester Ends**

**May 10 – Grades Due**

## 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](mailto: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>

## Attendance:

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. For unanticipated or emergency absences when advance notification to the instructor is not possible, the student should contact the instructor as soon as possible by email or phone. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor's department because of circumstances beyond the student's control, and in cases falling under excused absence regulations, the student or the student's representative should contact or go to the [Office of the Dean of Students website](#) to complete appropriate forms for instructor notification. Under academic regulations, excused absences may be granted for cases of grief/bereavement, military service, jury duty, and parenting leave. For details, see the [Academic Regulations & Student Conduct section](#) of the University Catalog website.

Guidance on class attendance related to COVID-19 are outlined in the [Protect Purdue Pledge for Fall 2021](#) on the Protect Purdue website.

## Attendance Policy during COVID-19

Students should stay home and contact the Protect Purdue Health Center (496-INFO) if they feel ill, have any symptoms associated with COVID-19, or suspect they have been exposed to the virus. In the current context of COVID-19, in-person attendance will not be a factor in the final grades, but the student still needs to inform the instructor of any conflict that can be anticipated and will affect the submission of an assignment or the ability to take an exam. Only the instructor can excuse a student from a course requirement or responsibility. When conflicts 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. For unanticipated or emergency conflict, when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor's department because of circumstances beyond the student's control, and in cases of bereavement, quarantine, or isolation, the student or the student's representative should contact the Office of the Dean of Students via [email](#) or phone at 765-494-1747. Our course Brightspace includes a link on Attendance and Grief Absence policies under the University Policies menu.

## Academic Guidance in the Event Students are Quarantined/Isolated

If you become quarantined or isolated at any point in time during the semester, in addition to support from the Protect Purdue Health Center, you will also have access to an Academic Case Manager who can provide you academic support during this time. Your Academic Case Manager can be reached at [acmq@purdue.edu](mailto:acmq@purdue.edu) and will provide you with general guidelines/resources around communicating with your instructors, be available for academic support, and offer suggestions for how to be successful when learning remotely. Importantly, if you find yourself too sick to progress in the course, notify your academic case manager and notify your professor and TA via email or Brightspace. They will make arrangements based on your particular situation. The Office of the Dean of Students ([odos@purdue.edu](mailto:odos@purdue.edu)) is also available to support you should this situation occur.

## Classroom Guidance Regarding Protect Purdue

The [Protect Purdue Plan](#), which includes the [Protect Purdue Pledge](#), is campus policy and as such all members of the Purdue community must comply with the required health and safety guidelines. Required behaviors in this class include: staying home and contacting the Protect Purdue Health Center (496-INFO) if you feel ill or know you have been exposed to the virus, wearing a mask [in classrooms and campus building](#), at all times (e.g., no eating/drinking in the classroom), disinfecting desk/workspace

prior to and after use, maintaining proper social distancing with peers and instructors (including when entering/exiting classrooms), refraining from moving furniture, avoiding shared use of personal items, maintaining robust hygiene (e.g., handwashing, disposal of tissues) prior to, during and after class, and following all safety directions from the instructor.

Students who are not engaging in these behaviors (e.g., wearing a mask) will be offered the opportunity to comply. If non-compliance continues, possible results include instructors asking the student to leave class and instructors dismissing the whole class. Students who do not comply with the required health behaviors are violating the University Code of Conduct and will be reported to the Dean of Students Office with sanctions ranging from educational requirements to dismissal from the university.

Any student who has substantial reason to believe that another person in a campus room (e.g., classroom) is threatening the safety of others by not complying (e.g., not wearing a mask) may leave the room without consequence. The student is encouraged to report the behavior to and discuss next steps with their instructor. Students also have the option of reporting the behavior to the [Office of the Student Rights and Responsibilities](#). See also [Purdue University Bill of Student Rights](#).

## 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.

## 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](mailto: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. *If you experience any symptoms of COVID-19 or suspect you may have been exposed to someone with COVID-19 stay home and call the Protect Purdue Health Center at 765-496-INFO.*
2. *Keep your cell phone on to receive a Purdue ALERT text message.*
3. 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)**