

Course Information

Math 303 (Sections 377 and 388)
CRN 10280 (Sec 377) and 17648 (Sec 388)
Meeting time MWF 1:30 PM -2:20 PM (Sec 377) and 2:30 PM - 3:20 PM (Sec 388)
Meeting location: SCHM 122
Instructional Modality: Face-to-Face
Course credit: 3 hours
Prerequisites MA 262 or MA 366 or (MA 265 and MA 266) or (MA 351 and MA 266)

Professor Ning Wei
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Office hours, times and location: MW 4PM- 5PM or by private appointment.
Course page at personal website: https://www.math.purdue.edu/~wei307/teaching_Spring2025.html

Course Description

From the Course Catalog: “Credit Hours: 3.00. This is a methods course for juniors in any branch of engineering and science, designed to follow MA 26200 or MA 26600. Materials to be covered are: linear systems of ordinary differential equations, nonlinear systems, Fourier series, separation of variables for partial differential equations, and Sturm-Liouville theory. Typically offered Fall Spring Summer.”

Learning Outcomes

1. To solve linear systems of differential equations using the Eigenvalue method.
2. To evaluate and interpret the dynamics of nonlinear systems of differential equations.
3. To compute the Fourier series of periodic functions in order to solve endpoint problems and partial differential equations.
4. To compute eigenvalue expansions and solve Sturm-Liouville problems.
5. To compute Laplace transforms and inverse transforms in order to solve linear differential equations.

Teaching Philosophy

I believe that my role as an instructor is to facilitate your learning and help you maximize your potential within the context of the course. There are two levels of learning for any course like this. The first is to become an expert in the specific topics and techniques of that subject. The second, more subtle, level, is one of metacognition in that we should pay attention to what we are learning that is more universally applicable. We often think of mathematics as a subject about computation, and so the only measure of success is getting the right answer. But it is more about learning how to develop the systems and tools that allow you to get an answer, and to understand why those techniques should give you the “right” answer. When you can do that for the material in this class, you will find you are able to manage all sorts of challenges outside of mathematics which you may not have been able to excel at before. A big part of my job is to stimulate that part of the process. I think there are lots of ways to learn the topics in this class., and I want to give you every opportunity to find the way(s) that works (work) best for you.

How to Succeed in this Course

Successful students in this class typically:

- Are self-motivated and self-disciplined;
- Reads the text and re-reads some sections several times;
- Usually attends class;
- Ask questions in class and seek help in office hours
- Work cooperatively with their peers, even when the assignments are not specified as group activities;
- Are willing and able to commit to 8 to 15 hours per week per course.;
- Work hard to communicate clearly in their writing, including being clear with the use of mathematical symbols;
- Be able to meet the minimum requirements for the course.
- Understand that learning is not always in a straight line.

In contrast, here are some common behaviors that lead to failing the course.

- Not looking at the book very often except for the exercises;
- Not reading the part of the text which will be discussed in class ahead of time;
- Waiting until the last day to begin assignments;
- Forgetting about deadlines;
- Ignoring emails from the instructor and/or peers regarding course activities;
- Are not willing to say “I don’t know” and reluctant to seek help.

Learning Resources, Technology, & Texts

Required Textbook : Differential Equations and Boundary Value Problems, by C. Henry Edwards, David E. Penney, and David T. Calvis, 6th Edition, Pearson.

- There are many other textbooks on this subject, and you can find them in the Purdue Library catalog (usually they have similar names to our textbook).
- [Brightspace page](#)
- MyLab Math (Brightspace/Content/MyLab Math, online HW)
- (Brightspace, handwritten HW. The HW listed is posted there, and the HW problems can be found at the end of each section in the book).

Course Logistics

- Deadlines are an unavoidable part of being a professional and this course is no exception. Course requirements must be completed and posted or submitted on or before the specified due date and delivery time deadline. Due dates and delivery time deadlines are defined as Eastern Time (as used in West Lafayette, Indiana). To encourage you to stay on schedule, due dates have been or will; be established for each assignment. Late assignments will no longer be accepted (unless extreme situations).
- An assignment file should be appended by your username, such as “assignment1-sara-smith-53.doc”. This will make it easier to manage assignment files.

Instructor’s Email Availability and Policies

You can e-mail me any time and I will try to respond as soon as possible (generally within 48 hours). When emailing me, please place the course number/section and the topic in the subject line of the email (*e.g.*, MA351 Sec. 128 Assignment 5 Question). This will help me tremendously in locating and responding to your emails quickly. Some questions are much more efficiently answered “face to face” during virtual office hours, so if I suggest we meet virtually to discuss your question, it doesn’t mean I don’t want to answer it precisely.

Your learning will be assessed through a combination of homework, midterms and final exam, spread throughout the semester. Details on these assignments and exams will be posted on my webpage. The answer to homework and midterms will be posted on [Brightspace page](#).

Grade Component	Due	Percentage
Handwritten Homework Assignment	Throughout the semester	10%
Online Homework Assignments	Throughout the semester	25%
Midterm Exams	Midterm 1, Midterm 2	30%
Final Exam	TBA	35%
TOTAL		100%

- Handwritten Homework (20 points each) will be assigned in [Brightspace](#) and will be due Friday at 11:59 PM. Homework should be scanned and submitted via Brightspace.
- Online Homework will be assigned in MyLab Math and will be due Friday at 11:59 PM.
- There are two 60-min midterm exams, each has 100 points and each is counted as 15% of the total score.
- There will be a two-comprehensive final exam, 200 points, and is counted as 35% of the total score.

Homework and online resources

You can talk with other students when you do your homework, but everyone should write down their own solutions and show enough work to get full credit. If there are two students who turned in the identical solutions, you will get zero.

If you worked with any online resources, please make sure to write your own solutions afterwards. In addition, you should be explicit about it for full disclosure and list all sources and the extent of help they got from each source. I do not take points off for such disclosures, but if they present as their own work what was not their own work, then they'll get zero points on the assignment.

No late homework will be accepted and no make up exam will be give, except extreme situations (with ahead of time notification).

Drop and Add calendars

In accordance with the updated university policy, since last year, the course drop deadlines have been set at the end of week 13 (April 18 for Spring 2025). You can access the Drop/Add calendars by visiting:

<https://purdue.edu/registrar/calendars>

and scrolling down to locate the Drop/Add Refund & Deadline Calendars, or by following this direct link:

https://catalog.purdue.edu/preview_program.php?catoid=17&poid=31358

Quite Period

Per university regulations, the week preceding final exams is designated as the Quiet Period (April 28 – May 3 for Fall 2024). 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=17&navoid=21832#c-quiet-period>

Grading Scale

Students who get at least 97% of the total points in this course are guaranteed an A+, 93% guarantees an A, 90% an A-, 87% a B+, 83% a B, 80% a B-, 77% a C+, 73% a C, 70% a C-, 67% a D+, 63% a D, and 60% a D-; for each of these grades, it's possible that at the end of the semester a somewhat lower percentage will be enough to get that grade.

Attendance Policy:

Students are expected to attend all classes in-person unless they are ill or otherwise unable to attend class. If they feel ill, have any symptoms associated with COVID-19, or suspect they have been exposed to the virus, students should stay home and contact the Protect Purdue Health Center (496- INFO).

In the current context of COVID-19, in-person attendance cannot be a factor in the final grades. However, timely completion of alternative assessments can certainly be part of the final grade. Students need to inform me of any conflict that can be anticipated and will affect the timely submission of an assignment or the ability to take an exam. Classroom engagement is extremely important and associated with your overall success in the course. Some questions on learned concepts/quick calculations will be asked during class meetings. Everyone is encouraged to answer them or propose some ideas.

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 me of the situation as far in advance as possible. For unanticipated or emergency conflicts, when advance notification to me is not possible, the student should contact me by email, through Brightspace, or by phone afterwards. 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.

Academic Guidance in the Event a Student is Quarantined/Isolated

If you must quarantine or isolate at any point in time during the semester, contact the Protect Purdue Health Center at 765-496-4636. Please also reach out to me via email so that we can communicate about how you can continue to learn remotely. Work with the Protect Purdue Health Center (PPHC) to get documentation and support, including access to an Academic Case Manager who can 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. Your Academic Case Manager can be reached at acmq@purdue.edu. Importantly, if you find yourself too sick for an extended period of time to progress in the course, notify your academic case manager and notify me via email or Brightspace. We will make arrangements based on your particular situation.

Classroom Guidance Regarding Protect Purdue

Please refer to the [Protect Purdue Plan](#) including the Protect Purdue Pledge, for campus policy and as such all members of the Purdue community must comply with the required health and safety guidelines.

Please refer to the latest Protect Purdue Pledge and Classroom Expectation below.

<https://www.purdue.edu/odos/protect/overview.html>

Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either [emailing](#) or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

The [Purdue Honor Pledge](#) “As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue”

If you have any questions regarding academic integrity, you can consult [student guide for academic integrity](#).

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 their 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. [Link to Purdue’s nondiscrimination policy statement](#).

Students with Disabilities

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: 765-494-1247, as soon as possible.

If the Disability Resource Center (DRC) has determined reasonable accommodations that you would like to utilize in this class, you must send your Course Accommodation Letter to the instructor. Instructions on sharing your Course Accommodation Letter can be found by visiting: <https://www.purdue.edu/drc/students/course-accommodation-letter.php>. Additionally, you are strongly encouraged to contact the instructor as soon as possible to discuss implementation of your accommodations.

Basic Needs Security

Purdue has a range of ways to support students through times of struggle and insecurity. In addition to availability of the Dean of Students, the following resources are also helpful:

- [ODOS overall resources portal](#) and the [Critical Need Fund](#).
- [Student of concern reporting](#) (anyone on campus can submit a report if they are unsure where to go or in what way they can help a student - it does not need to be an emergency).
- The [ACE Campus Food Pantry](#) (open to the entire Purdue community)
- The [Center for Advocacy, Response & Education](#) (open to the entire Purdue community) “provides support and advocacy for survivors of sexual violence, dating violence, and stalking.

[Basic Needs Security sample language](#)

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 Brightspace page or can be obtained by contacting your instructors via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

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 procedures:

- 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 and proceed to **Purdue Mall, John Purdue Fountain**.
- If we are notified of a Shelter in Place requirement for a tornado warning we will stop classroom 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.

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 see the [Office of the Dean of Students](#) for drop-in hours (M-F, 8 am- 5 pm).
- **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.

Violent Behavior Policy

Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity.

See the [University's full violent behavior policy](#) for more detail.

Diversity and Inclusion Statement

In all academic discourse, including mathematics, diversity is an asset, and we need to encourage and respect differences. We are all in the process of learning about others and their experiences. Please speak with me, anonymously if needed, if something has made you uncomfortable. Intention and impact are not always aligned, and we should respect the impact something may have on someone even if it was not the speaker's intention. We all come to the class with a variety of experiences and a range of expertise, we should respect these in others while critically examining them in ourselves. You will learn more from each other than you will learn from me, and I hope you'll welcome that in our exchanges.

Course Evaluation

During the last two weeks of the course, you will be provided with an opportunity to evaluate this course and me. Purdue uses an online course evaluation system. You will receive an official email from evaluation administrators with a link to the online evaluation site. You will have up to two weeks to complete this evaluation. Your participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

Disclaimer

This syllabus is subject to change. Some of those possible changes have been described already, but there can be unforeseen events that will necessitate change. In the event of such change I will notify you as a class by posting on the course website or discussion boards, and individually by e-mail. I will also post a new version of this syllabus to the Brightspace page.