

**MATH 303/Section 318: Differential Equations and Partial
Differential Equations For Engineering and The Sciences**

Instructor: Changyou Wang

Office: MATH 714

Email: wang2482@purdue.edu

Phone: 765-494-2719

Course Page: [http://www.math.purdue.edu/~ wang2482/303-2022.html](http://www.math.purdue.edu/~wang2482/303-2022.html)

Check this page often for important information and announcements.

Course Description: This is a second-semester course in differential equations. The main topics covered are linear and nonlinear systems of differential equations, Laplace transform, and an introduction to Fourier series and partial differential equations.

Textbook: Differential Equations and Boundary Value Problems, by Edwards, Penney, and Calvis, 6th Edition, Pearson:

Most of Sections 5, 6, 7, 9 and the beginning of Section 10

Learning Outcomes: In this course you will learn to:

1. Classify homogeneous first order linear systems of differential equations by their phase portraits and solve them by using the eigenvalue method.
2. Analyze the behavior of nonlinear systems near critical points by their stability and type and apply this knowledge to study some ecological models and mechanical systems.
3. Use the method of Laplace transform to solve linear differential equations.
4. Use the Fourier series and the method of separation of variables to solve partial differential equations.
5. Use the eigenfunction expansion method to solve Sturm-Liouville problems.

Time and Location: TR, 9am -10:15 am, UNIV 117

Office Hours: Wednesday 11am-12:15 pm; Thursday 1:45pm-3pm.

Online Course Resources: <https://purdue.brightspace.com/d2l/login>

Exams: There are two midterm exams and one final exam:

Midterm I: October 4, 9:00-10:15 am, UNIV 117

Midterm II: November 15, 9:00-10:15 am, UNIV 117

Final: TBA

Homework It contains both online and handwritten homework. Online homework assignments are managed through *MyLab*. You can access *MyLab* through your section's Brightspace page. You can find their due dates from the *Assignment Sheet*. The handwritten homework can also be found in the *Assignment Sheet*. You can submit your handwritten homework as a single pdf file through GradeScope (via BrightSpace/Content/GradeScope).

Policy on Late Homework: Except in cases of University approved reasons, late homework will not be accepted. At the end of the semester, the **three lowest online homework scores will be excused**. No handwritten scores will be dropped.

Homework Score Appeal: If you believe there is a computer error in the grading of your homework problems, please contact me by email.

Course Grades: The course grades are determined from your overall total scores as follows:

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|--------------------------|-----|
| Online Homework | 22% |
| Written Homework | 6% |
| Two Midterms @ 18% each | 36% |
| Comprehensive Final Exam | 36% |

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.

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. (In other words, the lowest percentage to get, for example, an A could be lower but will not be higher than 93%).

Important Dates:

Last day to drop a course without record: **Friday, September 2**

Last day to drop a course with W or WF: **Tuesday, October 25**

Academic Integrity: Academic integrity is one of the highest values that Purdue holds. Individuals are encouraged to alert university officials to potential breeches of this value by either emailing integrity@purdue.edu 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. Purdue prohibits academic dishonesty. According to University policy cheating, plagiarism, lying and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid, abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest. If found guilty of academic dishonesty, possible penalties can range from receiving a zero on the assignment to expulsion from the University. For more details about the Purdue policy on academic dishonesty see

Accommodations for Students with Disability: Purdue 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. If you have been certified by the Disability Resource Center (DRC) as eligible for accommodations, you should contact your instructor to discuss your accommodations as soon as possible. Here are instructions for sending your Course Accessibility Letter to your instructor:

Attendance Policy: 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 Spring 2022 on the Protect Purdue website.

Individuals who test positive for COVID-19 will be required to isolate per medical protocols and cannot attend class. An unvaccinated individual who has had a high-risk exposure may not attend class and will be required to quarantine for 14 days after any and every such high-risk exposure, regardless of symptoms. The impact of a potential 14-day absence(s) may vary depending on the academic course work for each individual. We will try to accommodate students by excusing the student or allowing the student to make up work, when possible. However, remote access to courses, activities, and materials (other than lecture recordings and online homework) cannot be guaranteed.