

MATH 428 –1001 Differential Equations II, Spring 2016

Class time/place: Tuesday & Thursday 8:30am-9:45am

Break-out sessions: (Section 1002) Friday 10:00am-11:15am

Prerequisite: Math 427

Textbook: Elementary Differential equations and boundary value problems, 10th edition, W. Boyce and R. DiPrima

Material Covered: Chapters 6, 7, 8, 9, and 10 (10.1, 10.2, and 10.3)

Homework: Will be assigned at the end of each lecture. It is very important that you do not get behind on these assignments, as it is very difficult to catch up. The GA will spot check it each Friday during the break-out session.

Tests and Final: There will be 4 tests and one final exam. No make-up exams will be given. Failure to take an exam during the scheduled class time will result in a score of zero for that exam. Scientific (non-programmable and non-graphing) calculators are allowed during exams. Final exam is comprehensive and it is **scheduled for Thursday, May 12, 2016, at 8:00am-10:00am.**

Projects: A set of homework problems will be selected and the students will have to type the problems and the corresponding solutions using latex/pdf. The files (tex and pdf) will need to be submitted in webcampus. More instructions will be given during lecture.

Grading: 16% each test, 5% project, and 31% final exam.

	A: [93 1/3, 100]%	A-: [90, 93 1/3)%
B+: [86 2/3, 90)%	B: [83 1/3, 86 2/3)%	B-: [80, 83 1/3)%
C+: [76 2/3, 80)%	C: [73 1/3, 76 2/3)%	C-: [70, 73 1/3)%
D+: [66 2/3, 70)%	D: [63 1/3, 66 2/3)%	D-: [60, 63 1/3)%
	F: [0, 60)%	

Course Description: This is a course of introduction to the topic of differential equations and it is the continuation of Math 427. This course is designed to introduce students to the concepts and techniques for solve differential equations with constant and variable coefficients and systems of linear differential equations using Laplace transform and numerical methods. Some nonlinear differential equations and their stability, and boundary value problems and Fourier series are introduced as well.

Learning Outcomes: Students will be able to identify and understand differential equation, and model based on the concept of differential equation. In particular, students will be able to:

- 1) solve initial value problems using Laplace transform, use Laplace transform for steps functions, impulse functions, differential equations with discontinuous forcing functions and convolution integral
- 2) solve homogenous and nonhomogeneous systems of first order linear differential equations and understand its basic theory,
- 3) solve initial value problems using numerical methods such as Euler method, Runge-Kutta method and multistep method, and understand their errors and stability

- 4) solve and understand the theory of some nonlinear differential equations such as autonomous systems, locally linear systems, systems for competing species and predator-prey equations.
- 5) find Fourier series for the given functions.

Attendance: You are expected to attend class regularly. You are responsible for all the material presented and all the announcements made, if any, at each lecture.

Material covered and tentative schedule:

Week	Date	Subject
1	Jan. 19	6.1 and 6.2
	Jan. 21	6.2 and 6.3
2	Jan. 26	6.4 and 6.5
	Jan. 28	6.5 and 6.6
3	Feb. 2	7.1 and 7.2
	Feb. 4	TEST 1
4	Feb. 9	7.3 and 7.4
	Feb. 11	7.5 and 7.6
5	Feb. 16	7.6 and 7.7
	Feb. 18	7.8 and 7.9
6	Feb. 23	7.9
	Feb. 25	TEST 2
7	March 1	8.1 and 8.2
	March 3	8.2 and 8.3
8	March 8	8.4 and 8.5
	March 10	8.5 and 8.6
9	March 15	8.6
	March 17	TEST 3
10	March 22	Spring Break
	March 24	Spring Break
11	March 29	9.1
	March 31	9.2
12	April 5	9.3
	April 7	9.4
13	April 12	9.5
	April 14	9.6 or 9.7 or 9.8
14	April 19	TEST 4
	April 21	10.1 and 10.2
15	April 26	10.2
	April 28	10.3
16	May 3	Study week
	May 5	Study week
17	May 10	
	May 12	Final exam: 8:00am – 10:00am

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Academic Misconduct – Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <http://studentconduct.unlv.edu/misconduct/policy.html>.

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Religious Holidays Policy – Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Transparency in Learning and Teaching — The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

<https://www.unlv.edu/provost/teachingandlearning>

<https://www.unlv.edu/provost/transparency>

Incomplete Grades – The grade of I – Incomplete – can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor

believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring and Coaching – The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call 702-895- 3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

UNLV Writing Center – One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student’s Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>

Rebelmail – By policy, faculty and staff should e-mail students’ Rebelmail accounts only. Rebelmail is UNLV’s official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students’ e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. **Emailing within WebCampus is acceptable.**

Library Resources — Students may consult with a librarian on research needs. For this class, the subject librarian is https://www.library.unlv.edu/contact/librarians_by_subject. UNLV Libraries provides resources to support students’ access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>.

Final Examinations — The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.