Math 320, Section 1 - Spring 2024 Syllabus

Professor:	Dr. Andy Felt	Office:	D355
Office Hours:	See Canvas	Phone:	none
(zoom available)	or by arrangement	email:	`afelt@uwsp.edu`

Class Meetings: M, W, F, 11:00–11:50, Sci. A208.

Text: *A First Course in Differential Equations*, 10th ed., by Dennis G. Zill, ISBN 978-1-111-82705-2, available from UWSP Text Rental.

Calculators and Computers: A calculator will not be necessary in this course, but you may find one useful. You will need a computer (campus computer OK) for some assignments.

Prerequisites: Math 226

Course Canvas Page: `https://uws.instructure.com/courses/654374`

Fundamental Skills to be Learned:

- Recognizing real life situations where mathematical models apply.
- Translating the real life situations into mathematical models.
- Solving the mathematical model.
- Interpreting the solution in the context of the real life situation.

Grading:

Homework Assignments	23%
Class Participation	2%
2 Exams	50%
Final Exam (Comprehensive)	25%

This percentage gets you	⇒	at least this grade
92%	⇒	A,
90%	⇒	A−,
88%	⇒	B+,
82%	⇒	B, etc.

Homework: Assignments should have the following format:

- Looseleaf paper only (no spiral schnibbles)
- Name, section, assignment, date on first page
- Uploaded to Canvas as a single pdf document
- Stapled, each assignment separately

The grade for each assignment will include 20% based on accuracy and quality of written communication. Examples on this topic are given in Assignment 0. *No late homework is accepted for any reason.* Usually, there will be a class day between the day homework is assigned and the day it is due. Assignments are due at the beginning of class on the day they are due. The lowest three homework scores will be dropped.

Exams: Exams will test your ability to solve problems and understand concepts from lecture and the book. Exams will be closed-book and closed-note. Exams must be ONLY your own work.

Help: Everybody needs help at some point. The key is to *get help right away* when you need it. Here are some ways to get help:

- ask a question in class;
- ask me during office hours;
- ask me in an email;
- the STEM Tutoring Room (CBB 190) provides free drop-in help for students in this course;

- the Tutoring and Learning Center has two kinds of help available; see `https://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx` and `https://www.uwsp.edu/tlc/Pages/default.aspx` for more information.

Disability Accommodations: Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodations needed for the course. All accommodations must be approved through Disability Services, `https://www.uwsp.edu/datc/Pages/default.aspx`.

General Course Policies:

- Cell phones, computers, and other technology should be turned off during class and exam times, except when explicitly told so by the instructor.
- Everyone becomes ill sometimes. When illness or other emergencies require absence from class, I expect you to contact me immediately, preferably by email. I expect you to try to keep up with what is being taught by following in your book and doing the homework. Either have a friend bring your homework, or slide it under my office door. To account for illness and other emergencies, at least three homework scores will be dropped.
- **Academic Dishonesty:** You may discuss homework assignments with each other, and you may seek help from the instructor and tutor. However, we want you to become an independent problem solver. Therefore, you must limit the amount of outside help you receive. You must not copy any part of another person's work, and you must not share any part of your work with others. If there is *any* doubt about the amount of help given or received, you should immediately consult with the instructor before submitting the assignment. Please see `https://www.uwsp.edu/dos/Pages/Student-Conduct.aspx` to read about your rights and responsibilities as a student, and Chapter 14 (at that page) to read about Wisconsin's academic misconduct code.
- The course materials and recordings are the property of the instructor, and may not be copied or recorded (including audio and video recording) without the instructor's permission. Students may not copy or share course materials, answers, or recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement.

Tentative Calendar

Week of	Approximate Coverage
Jan 22	1.1 Definitions and terminology 1.2 Initial-value problems
Jan 29	1.3 Differential equations as mathematical models 2.1 Solution curves without a solution 2.2 Separable equations
Feb 5	2.3 Linear equations
Feb 12	2.4 Exact equations 2.5 Solutions by substitutions
Feb 19	2.6 Euler's method 3.1 Linear (first-order) models
Feb 26	3.2 Nonlinear models (maybe 3.3 Modeling with systems of first-order models) Exam 1
Mar 4	4.1 (higher order) Linear equations 4.2 Reduction of order

Week of	Approximate Coverage
Mar 11	4.3 Homogeneous linear equations w/ constant coefficients 4.5 Undetermined coefficients - annihilator approach
Mar 25	4.6 Variation of parameters 4.7 Cauchy-Euler equations
Apr 1	4.8 Green's functions Exam 2
Apr 8	(maybe 4.9 Solving systems of linear DEs by elimination) 5.1 Linear models: initial-value problems
Apr 15	5.2 Linear models: boundary-value problems 7.1 Definition of the Laplace transform
Apr 22	7.2 Inverse transforms and transforms of derivatives
Apr 29	7.3, 7.4 Operational properties
May 6	(maybe 6.1, 6.2 Series solutions of linear equations)
Finals	Mon. 13 May Final Exam 8:00–10:00