



MATH 24: Ordinary Differential Equations

Summer 2015

(This document's location is: <http://tamanoi.math.ucsc.edu/tamanoi/math24.htm>)

Review Session: **Tuesday Aug 18, 12-1:35PM, McHenry 1257.**
Extra Office Hours (Alex): Friday 8/14, 1PM -- 2:30PM

DRC accommodation: If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me as soon as possible, preferably within the first week of the Summer Session. Contact DRC by phone at [831-459-2089](tel:831-459-2089) or by email at drc@ucsc.edu for more information.



Instructor

Professor Hirotaka Tamanoi

Office: McHenry 4180
Hours: Monday 1:00-2:30PM
Wednesday 1:00PM-2:30PM
or by appointment
Phone: (831) 459-5174

tamanoi@ucsc.edu

Lecture

Room: Engineering 2, room 192
MWF: 9:00AM -- 11:30AM

Discussion Sections

Tuesday, Thursday: 9AM—10:45AM, Soc. Sci. 1, room 161

TA

Alex Beloi abeloi@ucsc.edu

Office: McHenry 1261

Hours: Monday 2:45pm—3:45pm, Tuesday 11am—1pm

Textbook

UCSC Custom Edition: *Elementary Differential Equations*

Tenth (10th) Edition

William E. Boyce
and Richard C. DiPrima

John Wiley &
Sons

Course Description

We will cover the following chapters from the text.

Chapter 1: Introduction

Chapter 2: First Order Differential Equations,

Chapter 3: Second Order Linear Equations,

Chapter 5: Series Solutions

Chapter 7: Systems of First Order Linear Equation

Chapter 9: Nonlinear Differential equations and stability

Homework, Quiz, Exams, and Course Grade

Homework: Homework assignments are given every week and posted on this course web page. See below. They will be due every Friday 5PM and graded. You can turn in your homework either in class or into the homework folder in the math filing cabinet located on the 1st floor of McHenry across room 1240.

Quiz: There will be weekly quizzes in sections. Starting from the second week.

Course grade will be determined by the following (tentative) scale:

Homework/Quiz ~25%, Midterm ~30% Final ~45%

This grade distribution is tentative. It will be adjusted at the end of the quarter according to difficulty of exams.

All scores are available at the eCommons course site.

Exam Schedule

Midterm: Wednesday August 19, in class, Chapters 1, 2, 3.

Final Exam: Friday August 28, in class, cumulative.

Lecture Schedule

The following is a tentative schedule.

Week 1 (July 27, 29, 31): 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6.

Week 2 (August 3, 5, 7): 2.8, 3.1, 3.2, 3.3, 3.4, 3.5.

Week 3 (August 10, 12, 14): 3.7, 3.8, 7.3, 7.4, 7.5.

Week 4 (August 17, 19, 21): 7.6, 7.7, 7.8, 7.9.

Midterm: Wednesday Aug 19 in class. Chapters 1, 2, 3.

Week 5 (August 24, 26, 28): 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, Chapter 9.

Final Exam: Friday August 28 in class, cumulative.

Assignments

Homework problems are posted at the course web site below. Problems are assigned from lectures given on Fridays, Mondays and Wednesdays, and they are due on the following Friday. The list below is tentative and the after each Wednesday class, the list will be finalized depending on the materials covered during the week. The problem numbers are from the 10th edition.

Homework assignments are due every Friday by 5PM (except the last homework which is due on Wednesday). You can turn your homework in class, or you can turn it in to the math 24 homework folder in the math department filing cabinet located on the 1st floor of McHenry across room 1240. Solutions will be posted here soon afterwards.

Assignment 1 (Due July 31, 5PM): **Section 1.1:** 5, 6, 12. **Section 1.2:** 4, 5, 6. **Section 2.1:** 14, 16, 19, 24, 31. **Section 2.2:** 1, 2, 3, 7, 9, 10. [Solution 1](#)

Assignment 2 (Due Aug 7, 5PM): **Section 2.3:** 1, 5, 7, 12. **Section 2.4:** 2, 3, 14, 15. **Section 2.5:** 2, 4, 8, 10, 15, 22. **Section 2.6:** 1, 2, 10, 11, 13. **Section 2.8:** 3ac, 6ac. **Section 3.1:** 12, 13. **Section 3.2:** 3, 5, 9, 17. [Solution 2](#)

Assignment 3 (Due Aug 14, 5PM): **Section 3.3:** 2, 4, 17, 19, 21. **Section 3.4:** 2, 4, 11, 24, 26. **Section 3.5:** 2, 3, 7, 14, 19, 22, 23a, 25a. **Section 3.7:** 1, 3, 5, 11, 15, 26.

Assignment 4 (Due Aug 21, 5PM): **Section 3.8:** 2, 3, 6, 8, 9, 12. **Section 7.1:** 7ab, 10ab, 11ab. **Section 7.2:** 4, 20, 23, 26. **Section 7.3:** 17, 18. **Section 7.5:** 2, 3, 4, 8, 11, 15, 24, 26. **Section 7.6:** 2a, 3a, 5a, 10, 28. **Section 7.7:** 7, 8, 17. **Section 7.8:** 2c, 4c, 7a, 8a.

Assignment 5 (Due Wednesday Aug 26, 5PM, due to final exam. Solution will be posted on 8/27 after 5PM.): **Section 7.9:** 5, 6, 11 (Use methods of variation of parameters or the diagonalization (decoupling) of the system.)): **Section 5.1:** 1, 4, 6, 7, 15, 16. **Section 5.2:** 1, 4, 7, 20, 21. **Section 5.4:** 1, 3, 8, 11.

Final Problem Set (No need to turn in, but work on them before the final exam.)
Section 5.4: 19, 20, 22. **Section 5.5:** 1, 3, 12, 13. **Section 5.6:** 2, 6, 8, 11.

Links of Interest

[Mathematics, UCSC](#)