



# MATH 24: Ordinary Differential Equations

## Summer 2014

You can use Learning Support Services (LSS) to get some help, in addition to our office hours and sections. Go to the web site [Learning Support Services](#) or send an email to your tutor [ddang3@ucsc.edu](mailto:ddang3@ucsc.edu) .

**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](mailto:drc@ucsc.edu) for more information.



### Instructor

Professor Hirotaka Tamanoi

Office: McHenry 4180  
Hours: Monday 3:00-4:30PM  
Wednesday 1:30PM-3:00PM  
or by appointment  
Phone: (831) 459-5174

[tamanoi@ucsc.edu](mailto:tamanoi@ucsc.edu)

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### Lecture

Room: Physical Sciences 130  
MWF: 10:00AM -- 12:30PM

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### Discussion Sections

Tuesday: 10AM—11:45AM, Thimann Lab 101

Thursday: 1PM—2:45PM, Social Sciences 153

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## TA

Connor Jackmann

[cfjackma@ucsc.edu](mailto:cfjackma@ucsc.edu)

Office: McHenry 4112

Hours: Tuesday 2-3:30PM

Thursday 10AM-11:30AM

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## Textbook

### **UCSC Custom Edition:** *Elementary Differential Equations*

Tenth (10th) Edition

William E. Boyce  
and Richard C. DiPrima

John Wiley &  
Sons

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## 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

## 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 1<sup>st</sup> 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.

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## Exam Schedule

**Midterm: Wednesday August 20 , in class, Chapters 1, 2, 3.**

**Midterm [Solution](#)** (by Connor Jackman)

**Final Exam: Friday August 29, in class, cumulative.**

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## Lecture Schedule

The following is a tentative schedule.

**Week 1** (July 28, 30, Aug 1): 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6.

**Week 2** (August 4, 6, 8): 2.8, 3.1, 3.2, 3.3, 3.4, 3.5.

**Week 3** (August 11, 13, 15): 3.7, 3.8, 7.3, 7.4, 7.5.



**Week 4** (August 18, 20, 22): 7.6, 7.7, 7.8, 7.9.

**Midterm: Wednesday Aug 20** in class. Chapters 1, 2, 3.

**Week 5** (August 25, 27, 29): 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, Chapter 9.

**Final Exam: Friday August 29** in class, cumulative.

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## Assignments

Homework problems are posted at the course web site below. Problems are assigned from lectures given on Fridays, Mondays and Wednesdays. 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 1<sup>st</sup> floor of McHenry across room 1240. Solutions will be posted here soon afterwards.

**Assignment 1** (Due Aug 1, 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. **Section 2.3:** 1, 5, 7, 12. **Section 2.4:** 2, 3, 14, 15. [Solution 1](#)

**Assignment 2** (Due Aug 8, 5PM): **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. **Section 3.3:** 2, 4, 17, 19, 21. [Solution 2](#)

**Assignment 3** (Due Aug 15, 5PM): **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. **Section 3.8:** 2, 3, 6, 8, 9, 12. [Solution 3](#)

**Assignment 4** (Due Aug 22, 5PM): **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. [Solution 4](#)

**Assignment 5** (Due Wednesday Aug 27, 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](#)