MATH 170C
Introduction to Numerical Analysis:
Ordinary Differential Equations
TTh 11:00am - 12:20pm, HSS 1330
http://www.math.ucsd.edu/~mleok/courses/math170c/

INSTRUCTOR	**Prof. Melvin Leok** **Office:** AP&M 5763 **E-mail:** mleok@math.ucsd.edu **Office Phone:** (858)534-2126 **Office Hours:** T 3:30pm-4:30pm, or by appointment
TEACHING ASSISTANT	**Jeremy Schmitt** **Office:** AP&M 5760 **E-mail:** j2schmitt@ucsd.edu **Section:** T 7:00pm - 7:50pm, APM B412 **Section:** T 8:00pm - 8:50pm, APM B412 **Office Hours:** T 5pm-7pm, Th 9:30am-11:30am, or by appointment
PREREQUISITES	MATH 170B, and a good knowledge of MATLAB.
TEXTBOOK	*Numerical Analysis: Mathematics of Scientific Computing*, David Kincaid and Ward Cheney, Third Edition, AMS Press, 2002. ISBN: 0-8218-4788-0.
ADDITIONAL READING	**For more exercises:** R.L. Burden and J.D. Faires. *Numerical Analysis, 8th Edition.* Brooks/Cole, 2004. **For a more gentle treatment:** B. Bradie. *A Friendly Introduction to Numerical Analysis.* Prentice-Hall, 2006. **For a concise but rigorous treatment:** E. Süli and D.F. Mayers. *An Introduction to Numerical Analysis.* Cambridge University Press, 2003. **For more theory:** E. Isaacson and H. B. Keller. *Analysis of Numerical Methods.* Dover Publishing, 1994. **For more MATLAB examples:** C.B. Moler. *Numerical Computing with MATLAB.* SIAM, 2004.
COMPUTER LANGUAGE	MATLAB (MATrix LABoratory) • This software is available in computer labs around campus. • Student version can be purchased for home PC (**NOT REQUIRED).**
COURSE DESCRIPTION	Numerical solution of ordinary differential equations, including Taylor methods, Runge–Kutta methods, Multi-Step methods. Time permitting, we will also consider the numerical solution of boundary-value problems.
COURSE TOPICS	1. Numerical Solution of Ordinary Differential Equations (Chap. 8)
GRADING	**25 %** – 6 Homework assignments **15 %** – 3 Computer projects **20 %** – 1 Midterms (50 minutes, in-class, 1 cheat sheet, front and back, calculator) **40 %** – 1 Final Exam (3 hours, in-class, 2 cheat sheets, front and back, calculator) **There will be no make-up exams for this course**. If you miss the midterm exam for any reason, the final exam will constitute 60% of your weighted average.

HOMEWORK
POLICY

NO LATE homework will be accepted. Homework will be due at the **BEGINNING** of class. Please adhere to the following neatness guidelines for homework that you turn in to be graded; homework not conforming to these guidelines will not receive full credit and may not be graded at all.

- Use clean paper (graphed or lined is okay) that is not torn from a spiral notebook.
- Write your name, ID number, and course clearly on the front page of your completed assignment.
- Clearly number each solution and present them in numerical order.
- Leave at least one line of space between each problem.
- Write clearly and legibly.

COLLABORA-
TION POLICY

Homework is an essential part of advanced mathematics courses. Most students will find that some problems will require repeated and persistent effort to solve. This process is an integral component of developing a mastery of the material presented, and students who do not dedicate the necessary time and effort towards this will compromise their understand of the material in this course, and their ability to apply this material in their subsequent work.

A student may after working conscientiously on a problem for over 30 minutes, consult with other current Math 170C students to develop and clarify their approach to the problem. The written solution should however be an independent and individual effort that reflects the students understanding of the problem and its solution.

As a general guide, a student should be able to independently reproduce any solution that is submitted as homework. Copying of solutions is not permitted and is considered a violation of these guidelines, which will automatically result in zero credit for the assignment, and be reported to the graduate chair of the appropriate department.

ADDITIONAL
POLICIES

- In order to receive full credit on exams and homework you must show all work in a clear and coherent manner. Correct answers not fully supported by explanations using complete sentences, where appropriate, will not receive full credit. It is your responsibility to present your solutions in an easily understood manner.
- Please keep all your exams and homeworks; if you believe there has been an error in the recording of your grades they are the only way to validate your claim.
- If you miss an appointment for a meeting outside regular office hours without giving at least 12 hours notice by email, you loose the privilege of requesting another appointment for the rest of the quarter, and may only avail yourself of the regularly scheduled office hours.

EMAIL
POLICIES

The following guidelines may appear draconian, but are essential due to the number of students I am teaching this quarter.

- I will not respond to emails which are composed in an unprofessional manner, or which violates basic email etiquette. Think professional business letter to a potential employer, as opposed to a text message to your friend.
- Before sending an email inquiry, please carefully review the syllabus and course website to ensure that your question has not been addressed there. Questions that have been addressed in the syllabus or on the course website will receive responses that redirect you back to the appropriate resource.
- I do not offer immediate round the clock technical support, please plan ahead accordingly. I will try to respond to emails within 36 hours during the week, and within 72 hours during the weekend.
- Emailed questions should primarily be limited to clarification of the homework questions, and I will defer questions that require more substantial responses, in particular programming questions, to my office hours.