Math 319 –Section 003 – Spring 2014
Techniques in Ordinary Differential Equations

Professor: Gerardo Hernández

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Office: 809 Van Vleck

Office Hours:
- M 11:00 am-noon
- W,F 9:00 am-9:45 am
- Or by appointment

Class schedule:
- MWF 9:55-10:45
VAN VLECK B130

Personal Website: http://www.math.wisc.edu/∼hernande/

Text: W. E. Boyce, R. C Diprima
Elementary Differential Equations and Boundary Value Problems, ninth ed.
WILEY.

Discussion sessions :

341	Tu 12:05 - 12:55	Van Vleck B129	Ashutosh Kumar
342	Thurs 12:05-12:55	Ingraham 214	Ashutosh Kumar
343	Tu 2:25 - 3:15	Van Vleck B333	Ashutosh Kumar
344	Thurs 2:25 - 3:15	Van Vleck B333	Ashutosh Kumar

Ashutosh's office hours: Tu, Thu 1:00-2:15 PM, and by appointment

Exam Schedule :

Midterm 1: February 26. 5:30 -7:00 pm. Room: B130 VV. **25% of the Final Grade**
Midterm 2: April 4. 5:30 -7:00 pm. Room: B130 VV. **25% of the Final Grade**
Final exam: May 16. 7:45 am -9:45 am. Room: B130 VV. **30% of the Final Grade**

Dates for the exams are fixed. Make plans now to be certain these dates are in your calendar. Note that travel is *not* a sufficient excuse to have an exam scheduled on a different day.

Prerequisites: The prerequisite for Math 319 is Math 222

Course content and description: This course presents techniques for solving and approximating solutions to ordinary differential equations. It is primarily for students in disciplines which emphasize methods. Math 319 is a prerequisite for Math 519, an advanced course intended for math majors and others who need a theoretical background in ordinary differential equations or a more detailed study of systems and/or behavior of solutions.

Math 320 covers linear algebra together with differential equations but it covers linear systems of differential equations and initial value problems only. Math 319 is a more extensive study of the subject.

Course outline: General topics covered in this course include:

- Introduction: definition of an ODE, basic problems (IVP and BVP), examples

- First order equations
- Second order linear equations with constant coefficients
- Series solutions of linear equations
- Laplace transform
- First order systems
- Numerical methods
- Fourier series (time permitting)
- Boundary value problems (time permitting)
- Two dimensional systems and the phase plane (time permitting)

Quizzes During Section Meetings: There will be an estimate of one quiz every two weeks, to be scheduled during section meetings on dates to be determined by the TA. Quizzes will be graded and will count for **10% of the overall grade**. The lowest quiz score will be dropped. There will be no make-up quizzes.

Weekly Problem Sets: Homework will normally be due on Wednesdays and is **due at the beginning of class**. Homework will be available online at www.math.wisc.edu/ hernande approximately one week prior to the due date. Roughly 7-10 problems will be assigned each week.

Please write your name and section number clearly on each homework set, stapled please! The TA is not responsible for loose sheets of paper that are not stapled together.

Grading of Homework: The TA and a grader will grade a subset of the homework problems given out each week (with some points also given for completeness). The homework scores will count for **10% of the grade**. The lowest homework score will be dropped.

Late Policy: Homework turned in after the beginning of class will be considered late and will be graded at 80% credit. Late homework will be accepted until 5 PM on the due date in my office VV 809 (no credit thereafter). NO EXCEPTIONS! The policy is intended to keep everyone as current as possible.

Calculators: Calculators and/or computer software may be used to help with homework problems but are not permitted during exams.

Expectations: You may find this course to be different from the mathematics courses you have taken in the past. You are expected to spend two hours working on math outside of class for each credit hour. You are expected to read the appropriate text before coming to class. In order to fully understand the material and do well in the course, it is vital that you stay on top of your reading and homework assignments.

In Class: You are required to come to class. Important announcements will be given in class. Should you miss a class, please be sure to get notes and other important information from a classmate. You must bring your book to class each day.

No cell phones, ipods, computers or other gadgets may be used in class. Texting is strictly prohibited. Please raise your hand to ask and answer questions and be quiet and respectful when others are talking.

Getting Help: Your lecturer and your TA will hold regular office hours throughout the semester. Whenever you have a question (even a homework question!) or need assistance in the course, you should see one of us right away. You should also always feel free to send email privately to me or the TA when you have a question about the course or the material. If the question cannot be answered over email, you might be instructed to come to office hours or to set up an appointment. There are also other places on campus to go for help. Other resources include:

Undergraduate Learning Center: The College of Engineering's Undergraduate Learning Center will offer tutoring this semester for Math 319. Please visit their website for more information: http://go.wisc.edu/1o78od

MathLab: Free drop-in tutoring in room B227 Van Vleck, beginning in the second week of classes. This lab does not tutor 319, but might be useful for those who need help with the background material: http://www.math.wisc.edu/∼mathlab

GUTS: Free small group, drop-in, and individual tutoring at various locations on campus: http://guts.studentorg.wisc.edu

Private Tutors: Cost varies. See the receptionist on the second floor of Van Vleck (or check the web) for a list of tutors. http://www.math.wisc.edu/tutors

Note: Any student with a documented disability should contact me as soon as possible so that we can discuss arrangements to fit your needs.

Please feel free to ask me any questions. I look forward to working with you!