

UNIVERSITY OF DELAWARE
Mathematical Sciences Department
Math 242-011 — Analytic Geometry and Calculus B — Spring-2009

Instructor

Dr. Fioralba Cakoni,
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<http://www.math.udel.edu/~cakoni/math242.html>

Class Schedule

Lectures: 242-011 MWF, 10:10 am - 11:00 am, 303 Gore Hall

Office Hours

Mondays and Wednesdays 9:00-10:00 am and 11:10 am -12:00, or by appointments.

Text

Stewart, J., MATH 241/242/243 — University of Delaware, Thomson, 2008,
ISBN-13: 0-495-47922-5 (custom UD version).

Discussion Sections

You will meet in small groups with your TA once a week. You can ask questions about material covered in lecture or about homework. Come prepared to ask questions and work problems. Attendance will be taken. *There may be quizzes given during discussion sessions. There will be NO make up quizzes so attendance is important.*

Computer Lab

You should be able to synthesize the *Maple* commands to solve mathematical problems. Symbolic manipulation like Maple are very useful for solving certain type of problems. Maple is also used in many upper level courses University wide so it is important that you become comfortable using it. Attendance will be taken. *Maple projects will be assigned regularly in the computer lab sessions.*

Section 030

Teaching Assistant: Qiang Li
Office: Ewing 335
Tel: (302) 831-8678,
Email: liq@math.udel.edu

Discussion: Tu 12:30 pm-1:20 pm, 217 Willard Hall **Computer Lab:** Th 12:30 pm-1:20 pm, 207 Ewing Hall

Section 031

Teaching Assistant: Christy Hediger

Office: Ewing 435

Tel: (302) 831-3176,

Email: hediger@math.udel.edu

Discussion: Tu 1:30 pm-2:20 pm, 215 Willard Hall **Computer Lab:** Th 1:30 pm-2:20 pm, 207 Ewing Hall

Section 032

Teaching Assistant: Christy Hediger

Office: Ewing 435

Tel: (302) 831-3176,

Email: hediger@math.udel.edu

Discussion: Tu 2:30 pm-3:20 pm, 210 Ewing Hall **Computer Lab:** Th 2:30 pm-3:20 pm, 207 Ewing Hall

Exams

There will be three in class exams tentatively scheduled as follows:

- Exam 1: Monday, March 2
- Exam 2: Friday, March 27
- Exam 3: May 6

NO make up exams will be given If *one* in class exam is missed with a valid documented excuse the final exam score will be used in place of the score for the missed exam. You may not miss more than one exam.

Final Exam

Time and location of the final exam will be announced later.

Homework

Each homework set with the turn in date will be sent to you by e-mail and be posted on the course website. Your homework solutions should be neat and logically arranged so that the grader can easily follow your solution process. Please write on one side of the paper only, staple all the pages and show important solution steps. You may discuss problems with your class mate, ask your TA or me you must be responsible for the final write up. problems from the homework may be included in quizzes.

Quizzes

Short 10 minute quizzes will be occasionally given during the discussion sessions. No make up quizzes will be given. Any missed quiz will be scored as a zero.

Calculators

The use of calculators will not be allowed on any exams or quizzes.

Grading

- Homework 15 %
- Quizzes 5 %
- Maple Labs 10 %
- Exams (in class) 40 % (all three of them)
- Final Exam 30 %

Academic Honesty

The University has explicit rules on academic honesty that will be strictly enforced in class. See for details

<http://www.udel.edu/stuguide/08-09/code.htmlhonesty>

Course Content

See the following pages

Review

Brief review of exponential, logarithmic and hyperbolic functions

Chapter 4: Applications of Differentiation

- 4.4 Indeterminate Forms and L'Hospital's Rule
- 4.8 Newton's Method (*Use Maple procedures to implement it in Lab*)

Related Maple commands: limit, diff, solve, fsolve, proc, pointplot

Chapter 6: Applications of Integration

- 6.1 Areas between Curves
- 6.2 Volumes
- 6.3 Volumes by Cylindrical Shells
- 6.5 Average Value of a Function

Related Maple commands: int

Chapter 7: Techniques of Integration

- 7.1 Integration by Parts
- 7.2 Trigonometric Integrals (*Cover only the simple trigonometric integrals*)
- 7.3 Trigonometric Substitution (*Cover only simple trigonometric substitutions*)
- 7.4 Integration of Rational Functions by Partial Fractions (*Cover simple division and distinct linear factors only*)
- 7.7 Approximate Integration
- 7.8 Improper Integrals

Related Maple commands: parfrac

Chapter 8: Further Applications of Integration

- 8.1 Arc Length

Chapter 11: Infinite Sequences and Series

- 11.1 Sequences
- 11.2 Series
- 11.3 The Integral Test and Estimates of Sums
- 11.4 The Comparison Tests (*Emphasize the limit comparison test*)
- 11.5 Alternating Series (*Optional*)
- 11.6 Absolute Convergence and the Ratio and Root Tests (*Do not cover conditional convergence or the root test*)
- 11.8 Power Series
- 11.9 Representation of Functions as Power Series
- 11.10 Taylor and Maclaurin Series (*Ignore convergence at endpoints*)
- 11.11 Applications of Taylor Series

Related Maple commands: series, taylor, sum, abs

Chapter 10: Parametric Equations and Polar Coordinates

- 10.1 Curves Defined by Parametric Equations
- 10.2 Calculus with Parametric Curves (*Only tangent lines should be covered*)
- 10.3 Polar Coordinates
- 10.4 Areas and Lengths in Polar Coordinates (*Cover areas only*)
- 10.5 Conic Sections

Related Maple commands: plot[parametric], impliciplot, polarplot