Welcome to Sections 513, 514, 515 of Math 152, Engineering Calculus II
Fall, 2014, MWF 11:30 am – 12:20 pm, HELD 111

About your instructor:
Name: Tamás Erdélyi
Office: Blocker 623c
Phone: no phone in the office, sorry
E-mail: terdelyi@math.tamu.edu
Web Page: http://www.math.tamu.edu/~terdelyi/

Office Hours (in Blocker 623c):
Tuesday 10:20 – 11:50 am, Thursday 10:20 – 11:50 am, and by appointment.

Weekly Recitations and Computer Labs (conducted by Daniel Creamer):
• Section 513: Tuesday 08:00 – 08:50 am (CE 136), Thursday 08:00 – 08:50 am (BLOC 126)
• Section 514: Tuesday 09:35 – 10:25 am (CE 136), Thursday 09:35 – 10:25 am (BLOC 126)
• Section 515: Tuesday 12:45 – 01:35 pm (BLOC 148), Thursday 12:45 – 01:35 pm (BLOC 123)

Textbook (Required Purchase):
• Calculus: Early Vectors, by Stewart et al; published by Brooks/Cole.
• MATLAB: An Introduction with Applications, fifth edition, by Amos Gilat, published by Wiley. You will also benefit from the assistance of our MATLAB help session staff.

Web Page for Math 152:
• http://calclab.math.tamu.edu/docs/math152/

Help Session and Weekly Review Session Schedule:
• http://www.math.tamu.edu/courses/helpsessions.html
• http://www.math.tamu.edu/courses/weekinreview.html

Course Description:
• Credit 4. The course will cover techniques of integration and applications of integration, such as area, volume, arc length, work, and center of mass. The course also covers analytic geometry, vectors, improper integrals, approximate integration, sequences, series, Taylor series, and computer algebra. The course meets three times a week in lecture with your professor and twice a week in recitation with your lab instructor/teaching assistant (TA). One of your recitation meetings is designed to discuss questions over homework or lecture. The other recitation meets in the computer
laboratory using the computer package MATLAB. The goal of the computer labora-
tory portion of the course is to show how problems that are too difficult to solve by
hand, can be solved with the help of the computer. The prerequisite for this course
is Math 151 or equivalent.

Concerning Tests:

 Exam I: Thursday, October 02, 07:30 – 09:30 pm
 Exam II: Thursday, October 30, 07:30 – 09:30 pm
 Exam III: Tuesday, December 02, 07:30 – 09:30 pm
 Final Exam: Wednesday, December 17, 10:30 – 12:30 pm

• Exams I, II, and III will be common to all 152 students. Rooms will be announced
later on the web page for Math 152. The final examination (not a common exam) will
be given in this class-room (HELD 111).

Sample Exams:
• Common exams given in earlier semesters are available on the web page for Math
152. These may give you a hint about the level of difficulty of the common exams you
can expect this semester.

Grading Scheme:
• Exams I, II, and III will be worth 50% of the course grade altogether. The final will
account for 25%. Laboratory grades will make up the remaining 25%. Short quizzes
may be given in lecture several times throughout the semester and hence attendance
may play a role in deciding border-line grades. The final will be a “no calculator
exam” containing problems very similar to those your instructor has worked out in
his lectures. The increased weight of the final exams reflects the cumulative nature
of the course. The laboratory grade will be determined by quizzes/homework (40%),
computer assignments (40%), and on-line homework (20%).
• The standard grade scale is the following: $[90, \infty) \rightarrow A$, $[80,90) \rightarrow B$, $[70,80) \rightarrow C$,
$[60,70) \rightarrow D$, $[0,60) \rightarrow F$.

Weekly Quizzes:
• Weekly quizzes will be administered, which cover the previous week’s material, as
your recitation instructor schedules it. It is imperative that you stay caught up with
the suggested homework.

Weekly MATLAB Assignments:
• Each week, starting week 2, a MATLAB assignment will be due. Any questions
about these assignments should be addressed to your recitation instructor. Visit the
link below for the schedule:
• http://www.math.tamu.edu/courses/math152/matlabsched.html
Homework:
• A weekly course schedule, a suggested computer lab schedule for MATLAB, and a list of suggested homework problems may be found at the web page for Math 152.
• The instructor will do his best to keep the weekly schedule in his lectures. Every week students are supposed to write the solutions down to the homework problems related to the topics covered by the instructor in his lectures that week. It will help you prepare for the examinations and will reflect your understanding of the material. Your solutions to the homework problems will not be collected and graded by your lab instructor, but the quiz questions must be quite similar to some of the questions on the list of suggested homework problems.
• On-line homework is required in all math 152 classes. These on-line homework assignments can be accessed anytime of day or night, from any computer with a connection to the internet and a web browser. Any technical questions about on-line homework should be addressed to your recitation instructor. All information regarding online homework can be found at
  • http://www.math.tamu.edu/courses/eHomework/

Make-ups:
• Make-ups for exams and quizzes will only be given with documented University-approved excuses (see University Regulations).

Attendance:
• Attendance of both lectures and labs is important. If you must miss class or lab on days something is to be turned in, please contact your TA as soon as you know. I suggest you find a study partner or two to get notes on days you have to miss. I encourage you to have read the material and stepped through the examples before class. This practice should help you to follow the lectures more easily.

Scholastic dishonesty will not be tolerated:
• Any instance of scholastic dishonesty will be handled as consistent with University Regulations.

Copyright Statement:
• Please, note that all written and web materials for this course are protected by copyright laws. You can xerox (or download) one copy for your own use, but multiple copies are forbidden.

Americans with Disabilities Act (ADA) Policy Statement:
• The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact
the Department of Student Life, Services for Students with Disabilities, in Room 126 of the Koldus Building or call 845-1637.

Academic Integrity Statement:
- http://www.tamu.edu/aggiehonor
- http://www.tamu.edu/aggiehonor
Learning Outcomes: This course is focused on quantitative literacy in mathematics as applied to Engineering and Physics. Upon successful completion of this course, students will be able to:

- Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications.
- Use substitution, integration by parts, trigonometric substitution, and partial fractions to evaluate definite and indefinite integrals.
- Apply the concepts of limits, convergence, and divergence to evaluate different types of improper integrals.
- Determine convergence or divergence of sequences and series.
- Use Taylor and Maclaurin series to represent functions.
- Use Taylor or Maclaurin series to integrate functions not integrable by conventional methods.
- Understand and apply vector operations such as dot and cross product in three dimensions.
- Use Computer Algebra Systems such as Matlab to solve non-routine problems.

Course Objectives:

Critical Thinking: The following critical thinking skills will be assessed on in-class quizzes and exams:

- Students will use graphs and visual skills to formulate and evaluate definite integrals to calculate areas, volumes, work, and surface areas of revolution.
- Students will analyze definite and indefinite integrals to determine and apply appropriate methods of evaluation of these integrals.
- Students will apply logical reasoning to determine the convergence or divergence of improper integrals and evaluate convergent improper integrals where appropriate.
- Students will apply logical reasoning to determine the convergence or divergence of sequences and series and evaluate convergent sequences and series where appropriate.
- Students will use Taylor and Maclaurin series to represent functions which cannot be integrated conventionally.
- Students will apply appropriate error estimates to determine the accuracy of integration using Taylor and Maclaurin series.

Integrative Learning: The following integrative learning skill will be assessed on computer lab assignments:

- Students will apply mathematical and logical reasoning skills to use Computer Algebra Systems such as Matlab to solve problems in Physics and a variety of Engineering fields.

Problem Solving: The following problem solving skills will be assessed on in-class quizzes and exams:

- Students will formulate and evaluate definite integrals to solve practical problems involving work and average value of a function.
• Students will use geometric series to model and solve numerical and practical problems.
• Students will apply operations of vectors in three dimensions to applications such as work and torque.

Communication: The following written communication skills will be assessed on in-class quizzes and exams:
• Students will clearly explain problem-solving strategies and analysis used to answer questions concerning topics discussed in class.
• Students will use appropriate theorems to present clear written arguments in support of the convergence or divergence of improper integrals, sequences, and series.

Quantitative Literacy: The following quantitative literacy skills will be assessed on in-class quizzes and exams:
• Students will interpret a given integral as the area of an appropriate 2-dimensional region, volume of an appropriate solid, or area of an appropriate 3-dimensional surface.
• Students will use appropriate calculations to analyze the convergence or divergence of series.