MATH 151: Calculus II   Fall 2011

Section	Training Periods	Discussion Periods
1	MWF 10-10:50 EBA 347	M 11-11:50 GMCS 307
2	MWF 10-10:50 EBA 347	M 2-2:50 GMCS 328
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Important Resources:
Course resources: `http://www-rohan.sdsu.edu/~vadim/math151.htm`
Blackboard: `https://blackboard.sdsu.edu/webapps/login/`

Overview:
This course will follow the *inverted* model of instruction. In the standard model, students begin their learning in class by listening to lectures, then complete their learning at home by training on exercises. In the inverted model, students begin their learning at home via a variety of resources, then complete their learning in class by training on exercises.

The benefits of the inverted model include the following. First, students will receive expert guidance at the most critical stage of their learning, the training phase. Second, students can customize their initial learning phase to best suit their individual needs and learning style. Lastly, students get frequent and meaningful feedback on their training, which helps them take ownership of the learning process.

Course Materials:
This course has no required materials. In the 'course resources' link above are given links to a large collection of materials. They include two textbooks, lectures (for most units), and many tutorials of various lengths. Students are free to use additional materials as they like.

Students are encouraged to use whichever materials best aid their learning. As desired, they may read books, watch lectures and tutorials, work exercises, discuss with their classmates. Students are encouraged to ask (and answer!) questions on Blackboard. Students also have opportunity to ask questions in class and in office hours.

Course Mechanics:
Students are expected to come to class prepared, after completing their initial learning phase at home. Class time will be spent training the material via a sequence of exercises, under the guidance of the instructor. These exercises will be collected at the end of class (no later) and used for grading purposes. Missed training sessions cannot be made up.

Students are encouraged to work on the training exercises in small groups, in sizes of no more than 4. Students working in groups hand in a single set of solutions. Two students may not be in a group together for two consecutive class days.

Learning Objectives:
MATH 151 is the middle course in a three-course calculus sequence that is considered the standard introduction to mathematics. Unlike MATH 150 (differential and integral calculus) and MATH 252 (multivariate calculus), this course has no clear topic. Its purpose is to complete some unfinished ideas from 150, as well as to present some miscellaneous topics that are somewhat calculus-based, somewhat important, and don't fit into the other calculus courses.

Students will learn several integration techniques, including integration by parts, integration of products of trigonometric and hyperbolic functions, integration by trigonometric substitution, and integration by partial fraction decomposition.

Students will learn several applications of integration, including computing volumes of revolution, computing arc length, computing surface area of revolution, solving separable differential equations, and solving linear first-order differential equations with integrating factors.

Students will learn about several asymptotic and infinite processes, including improper integration, sequences, series, power and Taylor series. Issues of convergence will be of critical importance throughout.

Lastly, students will learn to graph curves, including conic sections, using polar coordinates.

Attendance:
Students are expected to attend class every day, and to prepare in advance. The lowest three training scores will be dropped, to account for unexpected emergencies.

Exams:
An exam will be given at the one-third point of the course, to help students with assessing their progress in the course. The final exam will be joint with all other Math 151 sections.

Grading:
The 36 training scores (after dropping three) will count as 0.5% of the course grade each. The exam will be 20% of the course grade. The final exam will be 60% of the course grade. The remaining 2% of the course grade is based on Blackboard participation.

Exam and training grades will be normalized to lie between 50% (blank but present) and 100% (perfect score). Missing grades will still be 0%. The grading policy is as follows:
A 92-100, B 82-87, C 72-77, D 62-67, $\pm$ as obvious

Important Dates:
For a day-by-day schedule, please see the course materials.
Holidays: September 5, November 11,23,25
In-Class Exam: Friday, September 30
Group Final Exam: Saturday, December 10, 8-10am