Math 242 Mathematics for Engineering and the Sciences III

SECTION: 001 **QUARTER: FALL 2011** **CLASSROOM:** GTM 123 (11 - 12:15 MWF)

INSTRUCTOR: Dr. Brian Barron **OFFICE NUMBER**: GTM 310

OFFICE HOURS: 8:00 - 9:30 MWF and 8:00 - 11:00 TR

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PREREQUISITE: Math 241 **COREQUISITES**: PHYS 201 and ENGR 122

COURSE GOALS: To investigate topics in integration of single variable functions, approximations, and introductory probability and statistics.

TEXTBOOKS: Calculus—Early Transcendentals (6^{th} Ed.), 2008 Thomson Brooks/Cole, by James Stewart, and Single Variable Calculus with Precalculus (2^{nd} Ed.) by B. Schröder. (Optional Auxiliary Text: Statics and Mechanics of Materials by Riley, Sturges, and Morris.)

COURSE OUTLINE: To be covered are: Stewart 4.8, 5.5, 6.1-6.4, 7.1-7.8, and 8.3, and Schröder 15.5, 16.1, 17.1-17.6, and 18.1-18.3.

ATTENDANCE REGULATIONS: Class attendance is regarded as an obligation as well as a privilege. All students are expected to attend regularly and punctually; failure to do so may jeopardize a student's scholastic standing and may lead to suspension from the university. For additional requirements see the University Bulletin.

HOMEWORK POLICY: Homework will be done in the WEBWORK software. webwork.latech.edu is the web site and your LA Tech email user name and password are the means to access the course.

CALCULATOR/COMPUTER POLICY: Calculators with symbolic capabilities generally will not be allowed on tests unless the instructor expressly makes an exception. Access to Mathcad and/or Excel may be required for the course.

EXAMINATIONS: Four tests and a comprehensive final examination will be given. Short written assignments and/or projects (variable number of points each) may also be given. Points may also be awarded for completion of WeBWorK assignments. NO CELL PHONES, PAGERS, PDAs, CD PLAYERS, RADIOS, OR OTHER SUCH DEVICES MAY BE USED DURING ANY TEST OR EXAM.

GRADE DETERMINATION PROCEDURE: A grading scale with the usual ten point cut-offs will be used: A=90%-100%, B=80%-89%, C=70%-79%, D=60%-69%, F=59% and below. Your grade will be computed by dividing the total number of points you earn (tests, exams, written assignments, projects) by the total number of possible points.

EXAMS MISSED: For EXCUSED absences, the instructor may (at his or her discretion) allow a makeup test or replace the missed test grade by the grade from the final exam.

STUDENTS NEEDING SPECIAL ACCOMMODATIONS & RETENTION OF GRADED MATERIALS: Students needing testing accommodations or classroom accommodations based on a disability are encouraged to discuss the need with me as soon as possible. In the event of a question regarding an exam grade or final grade, it will be the responsibility of the student to retain and present graded materials which have been returned for student possession during the quarter.

HONOR CODE AND ACADEMIC MISCONDUCT: Honor Code Statement "Being a student of a higher standard, I pledge to embody the principles of academic integrity." For details on the honor code, please refer to: http://www.latech.edu/documents/honor-code.pdf .

NOTE: This class is a part of the MATH 240 series and the Cumulative Mathematics GPA Policy for engineering programs. If you are an engineering major, please read the policy at http://www.latech.edu/coes/assets/engr_math_policy.pdf and see your program's curriculum check sheet for more details."

EMERGENCY NOTIFICATION SYSTEM: All Louisiana Tech students are strongly encouraged to enroll and update their contact information in the Emergency Notification System. It takes just a few seconds to ensure you're able to receive important text and voice alerts in the event of a campus emergency. For more information on the Emergency Notification System, please visit http://www.latech.edu/administration/ens.html

MATH 242 Outline

Day	Book-page	Section	Suggested Assignment
1	Stew 406	5.5 The Substitution Rule	1-65, every other odd
2	Stew 420	6.1 Areas between Curves	1,3,5,7,13,21,27,45
3	Stew 430	6.2 Volumes	1,3,5,9,13,19,31,53
4	Stew 436	6.3 Volumes by Cylindrical Shells	3,5,9,11,15,19,21,25
5	Stew 441	6.4 Work	1,7,13,15,21
7	Stew 457	7.1 Integration by Parts	3,7,9,13,21,25,33,51
8	Stew 465	7.2 Trigonometric Integrals	1-61, every other odd
9	Stew 472	7.3 Trigonometric Substitution	1,3,7,15,19,23
11	Stew 481	7.4 Integration of Rat. Functions by Partial Fractions	1,3,5,7,11,13,17,25,29,35,39,45,53
12	Stew 488 Stew 491	7.5 Strategy for Integration 7.6 Integration Using Tables and CAS	1-77, every other odd 1,9,11,21,23, 39
13	Stew 515	7.8 Improper Integrals	1-41, every other odd, 49,57,67,71
14	Stew 505	7.7 Approximate Integration	1,3,5,7,15,19,29,33
15	Schröder 527	16.1 Higher Order Approximations (Taylor Polynomials) (mention linear approximation, also)	1a,c,e,g, 2a,c,f,j, 3a,c, 4a,c, 5a,c
16	Stew 338	4.8 Newton's Method	1,5,9,11,13,15,27,29,37
17	Schröder 553	17.1 (formerly DST.1), Fundamentals on Probability Function	17.1: 1a,b,c, 2a,b, 4a,b, 5a,b,c, 6a
19	Schröder 557 Schröder 565	17.2 (formerly DST.2), Continuous Random Variables 17.3 (formerly DST.3), Some Widely Used Density Functions	17.2: 2, 3, 4a,c,d,j, 5, 6 17.3: 1, 2, 5, 6, 8, 10
20	Schröder 565	17.3 (formerly DST.3), Some Widely Used Density Functions	17.3: 13, 17, 18, 20, 21, 23, 27
21	Schröder 569	17.4 (formerly DST.4), Cumulative Distribution Functions	17.4: 1, 2, 3, 5, 6, 9, 11, 13, 14
23	Schröder 515	15.5 (formerly API.5): Centers of Mass of Linear Densities	15.5: 1a,b,c, 3a,b (Optional: RSM (Engr 220 text) 5.7: 5-89)
24	Schröder 575	17.5 (formerly DST.5), Mean and Variance	17.5: 2, 3d,h,i, 5a, 6, 7
25	Schröder 578 Schröder 582 Schröder 589	17.6 (formerly DST.6), Questions to Ask When Solving Statistics Problems 18.1 (formerly SAM.1), Some Sample Statistics 18.2 (formerly SAM.2 or SAM.3 in older printings) Statistical Behavior of the Sample Mean (only large samples)	17.6: 1, 2, 3, 4, 6, 9 18.1: 1, 4 18.2: 1, 2, 5, 9
26	Schröder 589	18.2 (formerly SAM.2 or SAM.3 in older printings) Statistical Behavior of the Sample Mean (only large samples)	18.2: 8, 10, 11, 13, 17, 21
28	Schröder 596	18.3 (formerly SAM.3 of SAM.6 in older printings) Confidence Intervals	18.3: 2, 3, 4, 5