

SYLLABUS

SM122 Integral Calculus --- Spring Semester 2011

Textbook: Calculus (Early Transcendentals 6E) – James Stewart

| Module | Day/Date | | Reading Assignment | PROBLEMS | NOTES |
|---|----------|------------------|--------------------|---|--|
| Techniques of Integration Areas Volumes Work | 1 | Tue | 1/11 | 5.3 Review Fund Thm of Calc | p.387: 3,7,19,24,26,29,31,38,41 FTC applet |
| | 2 | Wed | 1/12 | 5.5 The Substitution Rule | p.406: 3,5,7,9,15,19,23 |
| | 3 | Fri | 1/14 | 5.5 The Substitution Rule (continued) | p.407: 26,28,29,37,48,51,54,58 |
| | H | Mon | 1/17 | Martin Luther King Day | |
| | 4 | Tue | 1/18 | 6.1 Areas between Curves | p.420: 1,4,5,9,11,12 |
| | 5 | Wed | 1/19 | 6.1 Areas between Curves (continued) | p.420: 14,16,20,23,43,45 |
| | 6 | Fri | 1/21 | 6.2 Volumes (Disks & Washers) | p.430: 1,3,5,9,11,17,29 Wing Lab |
| | 7 | Mon | 1/24 | 6.4 Work | p.441: 1,7,10,13,15 |
| | 8 | Tue | 1/25 | 6.4 Work (continued) | p.441: 19,20,21,23 Add Deadline |
| | 9 | Wed | 1/26 | 6.4 Work (continued) | |
| | 10 | Fri | 1/28 | 6.5 Average Value of a Function | p.445: 1,5,10,15,16,17 |
| | | 11 | Mon | 1/31 | Review |
| | 12 | Tue | 2/1 | Review | Prereg 2,3/C |
| | 13 | Wed | 2/2 | Test 1 | |
| More Techniques of Integration Hydro. Force Center of Mass | 14 | Fri | 2/4 | 7.1 Integration by Parts | p.457: 1,3,4,7,9,10,19 Prereg 2,3/C |
| | 15 | Mon | 2/7 | 7.1 Integration by Parts (continued); 7.4 Partial Fractions | p.457: 23,25,48,52; p.481: 1,7,9 Prereg 2,3/C |
| | 16 | Tue | 2/8 | 7.4 Partial Fractions (continued) | p.482: 11,12,14,17,24,25 Prereg 2,3/C |
| | 17 | Wed | 2/9 | 7.7 Approximate Integration (no error bounds) | p.505: 1,2,8,30,35 |
| | 18 | Fri | 2/11 | 7.8 Improper Integrals | p.515: 2,6,8,11,13,15,28,31 |
| | 19 | Mon | 2/14 | 8.3 Hydrostatic Force | p.547: 1,3,7,9 |
| | 20 | Tue | 2/15 | 8.3 Hydrostatic Force (Continued) | |
| | 21 | Wed | 2/16 | 8.3 Center of Mass | p.548: 21,23,25,27,35,36,40 Ac Res |
| Introduction to Differential Equations | 22 | Fri | 2/18 | 9.1 Modeling with Differential Eqs | p.571: 1,3,4,5,9,14 Ac Res |
| | H | Mon | 2/21 | Washington's Birthday | |
| | 23 | Tue | 2/22 | 9.2 Direction Fields | p.578: 1,3,4,7,8,11 Ac Res |
| | 24 | Wed | 2/23 | 9.2 Euler's Method | p.579: 20,21,23,28 Ac Res |
| | 25 | Fri | 2/25 | 9.3 Separable Differential Eqs | p.586: 1,3,10,11,12,15 |
| | 26 | Mon | 2/28 | 9.3 Separable (continued) | p.586: 34; 6 Wk Grades |
| | 27 | Tue | 3/1 | 3.8 Exponential Growth & Decay | p.239: 3,9,11,13 |
| | 28 | Wed | 3/2 | HO Electric Circuits: DC | Exercises A – 1,4,6,9 |
| | 29 | Fri | 3/4 | Review | |
| | 30 | Mon | 3/7 | Test 2 | |
| Polar Coordinates | 31 | Tue | 3/8 | 10.3 Polar Coordinates (Polar Graph Paper) | p.647: 1,3,6,10,15,25 |
| | 32 | Wed | 3/9 | 10.3 Polar Coordinates (continued) 10.4 Areas in Polar Coordinates (Area Only) | p.648: 29,31,34,37,47,49,50 p.653: 1,2,5,17,27 Declare Maj |
| | 33 | Fri | 3/11 | Review | Declare Maj |
| Sequences and Series | H | 3/12-3/19 | | Spring Break | |
| | 34 | Mon | 3/21 | 11.1 Sequences | p.684: 5,9,14,15,17,18,26,28 Declare Maj |
| | 35 | Tue | 3/22 | 11.2 Series | p.694: 11-16,21,22,34,41,42 |
| | 36 | Wed | 3/23 | 11.5 Alternating Series | p.713: 2,3,5,7,11,23 Prereg 4/C |
| | 37 | Fri | 3/25 | 11.6 Ratio Test | p.719: 1,2,3,7,8,27 Prereg 4/C |
| | 38 | Mon | 3/28 | 11.8 Power Series | p.727: 3,7,9,15,30: rad of conv only Prereg 4/C |
| | 39 | Tue | 3/29 | 11.9 Functions as Power Series | p.733: 3,4,9,15,27 Prereg 4/C |
| | 40 | Wed | 3/30 | 11.10 Maclaurin Series | p.746: 5,6,10,30,31,42 |
| | 41 | Fri | 4/1 | 11.10 Taylor Series | p.746: 2,13,16,17,51 |
| | 34 | Mon | 4/4 | Review | |
| | 42 | Tue | 4/5 | Test 3 | Ac Res |

| Module | Day/Date | | Reading Assignment | PROBLEMS | NOTES | |
|-------------------------|----------|-----|--------------------|--------------------------------------|--------------------------------------|----------------------|
| Introduction to Vectors | 44 | Wed | 4/6 | 12.1 Three-Dimensional Coordinates | p.769: 4,5,7,10,11,12,27,31 | Ac Res |
| | 45 | Fri | 4/8 | 12.2 Vectors | p.777: 1,5,7,9,11,13,15,19,23 | Ac Res |
| | 46 | Mon | 4/11 | 12.2 Vectors (continued) | p.777: 24,25,28,29,30 | Ac Res |
| | 47 | Tue | 4/12 | 12.3 The Dot Product | p784: 1,2,3,5,7,9 | |
| | 48 | Wed | 4/13 | 12.3 The Dot Product (continued) | p.784: 15,17,23,25,35,37,45,47 | 12 wk grade |
| | 49 | Fri | 4/15 | 12.4 The Cross Product | p.792: 1,3,5,13,14,16 | |
| | 50 | Mon | 4/18 | 12.4 The Cross Product (continued) | p.792: 17,19,29,39,40,41 | Drop Course Deadline |
| Vector Functions | 51 | Tue | 4/19 | 12.5 Equations of Lines | p.802: 2,3,4,7,10,11,16 | |
| | 52 | Wed | 4/20 | 12.5 Equations of Planes | p.802: 1,23,25,27,31,39,46,49 | |
| | 53 | Fri | 4/22 | 12.5 Lines and Planes | p.803: 59,67,69,71,74 | |
| | 54 | Mon | 4/25 | 13.1 Vector Functions & Space Curves | p.822: 1,6,7-14,15,19-24,41 | |
| | 55 | Tue | 4/26 | 13.2 Derivs. & Integrals of Vect Fns | p.828: 1,3,5,9,19,21,29,31, 33,39 | |
| | 56 | Wed | 4/27 | Review | | |
| | 57 | Fri | 4/29 | Review | | |
| | 58 | Mon | 5/2 | Test 4 | | |
| | 59 | Tue | 5/3 | Review | | |
| | R | Wed | 5/4 | Reading Day | | |
| | E | Fri | 5/6 | Final Exam @ 1330 (Rooms TBD) | | |

NOTES

- You can find an electronic copy of this syllabus on the Math Dept web page <http://www.usna.edu/MathDept/website/local/> Follow the "Courses" link. You can also find a lot of helpful information such as practice exams, etc.
- The value you get out of this course is proportional to the effort you put into it. Keep in mind that the primary goal (and your responsibility) is not just doing the problems, but rather understanding the material. Exercises that ask for verbal explanations should be answered in complete sentences.
- If you would like help in this course, you should contact your instructor for EI. If your instructor is not available, try the Math Lab in CH 130. It is staffed all six class periods every class day with instructors who should be able to answer your questions. There is also the Midshipmen Group Study Program (MGSP) available in the evenings provided by upper classmen. See links at: <http://www.usna.edu/MathDept/website/local/resources.htm>
- Classes on Tuesday, 11 Jan will follow a Monday schedule. The last day of classes is Tuesday 3 May. There's a Review & Study day scheduled for Wednesday 4 May. There are 59 class days in both the MWRF and in the MTWF schedule. The Final Exam period is 5 May - 12 May.
- The 3 web labs in the syllabus can be found at http://www.usna.edu/MathDept/website/local/courses/calc_labs/labs.html
- All students in this course are expected to have a calculator like the Voyage 200 with the capabilities to do symbolic calculations. There will be assignments that use such a calculator as well as questions on the common final exam on which it is expected that the student has such a calculator. The latest version of the Voyage 200 guidebook in PDF format is at http://education.ti.com/guidebooks/graphing/89ti/Voyage200Guidebook_Part2_EN.pdf
- There will be a "gateway" quiz on integration. For a sample and explanation see: <http://www.usna.edu/MathDept/website/local/courses/gateways/gateways.html>