Math 19 tentative topic schedule Fall 2014

This schedule may be revised (especially units 2 and 3), but it should give an idea of the pace and topic coverage of the course. Check the website for updates and additional notes/readings.

Unit 1: Integration and applications; vectors and polar coordinates.

W 9/03 Integration by parts. (Strang §7.1)

F 9/05 Trigonometric integrals. (Strang §7.2)

M 9/08 Trigonometric subsitutions. (Strang §7.3)

W 9/10 More trigonometric integrals and substitutions. (Strang §7.2-7.3)

F 9/12 Force, work, and energy. (Strang §8.6) ....PSet 1 due.

M 9/15 Vectors and the dot product. (Strang §11.1)

W 9/17 Position, velocity, and acceleration vectors. (Strang §12.1)

F 9/19 Paths and motion, continued. ....PSet 2 due.

M 9/22 Polar coordinates. (Strang §9.1)

W 9/24 Polar equations and graphs. (Strang §9.2)

F 9/26 Calculus with polar coordinates. (Strang §9.3) ....PSet 3 due.

M 9/29 Complex numbers I. (Strang §9.4)

W 10/01 Complex numbers II. (Strang §9.4)

F 10/03 Linear differential equations I. ....PSet 4 due.

M 10/06 Linear differential equations II.

W 10/08 Review.

F 10/10 **Midterm 1.**

No class on M 10/13 (University holiday).

Unit 2: Differential equations and infinite series

W 10/15 Initial value problems.

F 10/17 Separable differential equations. ....PSet 5 due.

M 10/20 Non-homogeneous linear differential equations.

W 10/22 Improper integrals (Strang §7.5)

No class on F 10/24 (I will be at a conference) ....PSet 6 due (to mailbox)

M 10/27 Geometric series and variations. (Strang §10.1)

W 10/29 Convergence of series: integral test. (Strang §10.2)

F 10/31 Convergence of series: comparison test. (Strang §10.2) ....PSet 7 due.

M 11/03 Convergence of series: ratio test. (Strang §10.2)

W 11/05 Convergence of series: nth term and alternating series test. (Strang §10.3)

F 11/07 Linear and Quadratic approximation. (online notes) ....PSet 8 due.

M 11/10 Taylor approximation and Taylor series (Strang §10.4, 10.5)

W 11/12 Review.

F 11/14 **Midterm 2.**

     Unit 3: Fourier series

M 11/17 Taylor series, cont. (Strang §10.4, 10.5)

W 11/19 Taylor series, cont. (Strang §10.4, 10.5)

F 11/21 Fourier series I. (Stewart excerpt, online)

M 11/24 Fourier series II. (Stewart excerpt, online) ....PSet 9 due.

     No class on W 11/26 or F 11/28 (University holiday)

M 12/01 Complex Fourier series (reading TBA).

W 12/03 Fourier series and differential equations (reading TBA).

F 12/05 Fourier series wrap-up (reading TBA).

M 12/08 Review. ....PSet 10 due.

W 12/10 Review.

     Final exam Sunday 12/14, 9am-noon.