COURSE OUTLINE – subject to changes:

L-01 Mon 27 Aug welcome to mcs 320, introduction to computer algebra
L-02 Wed 29 Aug Sage as a calculator – getting started and getting help
L-03 Fri 31 Aug exact and floating-point numbers
   Mon 3 Sep Labor Day holiday. No classes.
L-04 Wed 5 Sep complex and algebraic numbers
L-05 Fri 7 Sep symbols, variables, and references
L-06 Mon 10 Sep data types and data structures
L-07 Wed 12 Sep evaluation and execution
L-08 Fri 14 Sep input/output formats – saving data to file
L-09 Mon 17 Sep code generation
L-10 Wed 19 Sep univariate and multivariate polynomials
L-11 Fri 21 Sep rational functions and conversions
L-12 Mon 24 Sep representation of expressions
L-13 Wed 26 Sep substitution, expansion, and factorization

Project One due on Friday 28 September at 1PM

L-14 Fri 28 Sep normalizing expressions
L-15 Mon 1 Oct review of the first 14 lectures
L-16 Wed 3 Oct first midterm exam on the first 14 lectures
L-17 Fri 5 Oct defining mathematical functions
L-18 Mon 8 Oct recursive functions
L-19 Wed 10 Oct working with functions
L-20 Fri 12 Oct symbolic and automatic differentiation
L-21 Mon 15 Oct integration and summation
L-22 Wed 17 Oct series, approximations, and limits
L-23 Fri 19 Oct symbolic-numeric computation
L-24 Mon 22 Oct two dimensional plots
L-25 Wed 24 Oct plotting in three dimensions and beyond
L-26 Fri 26 Oct making animations
L-27 Mon 29 Oct solving equations
L-28 Wed 31 Oct linear algebra
L-29 Fri 2 Nov differential equations

Project Two due on Monday 5 November at 1PM

L-30 Mon 5 Nov linear programming and polyhedra
L-31 Wed 7 Nov review of lectures 17 to 30
L-32 Fri 9 Nov second midterm exam on lectures 17 to 30
L-33 Mon 12 Nov building interactive web pages
L-34 Wed 14 Nov an application of interact
L-35 Fri 16 Nov symbolic computation with sympy
L-36 Mon 19 Nov numerical computation with mumpy and scipy
L-37 Wed 21 Nov computational group theory with GAP
   Fri 23 Nov Thanksgiving Holiday. No classes.
L-38 Mon 26 Nov higher arithmetic with PARI/GP

Project Three due Wednesday 28 November at 1PM

L-39 Wed 28 Nov computing with polynomials in Singular
L-40 Fri 30 Nov statistical computing with R
L-41 Mon 3 Dec review of topics covered on the first midterm
L-42 Wed 5 Dec review of topics covered on the second midterm
L-43 Fri 7 Dec cumulative review

Monday 10 December : 1:00PM - 3:00PM, final exam, room to be announced.