COURSE OUTLINE – subject to changes:

L-01 Mon 11 Jan welcome to mcs 260 – computer literacy and Python scripting
L-02 Wed 13 Jan computer architecture – first steps with Python
L-03 Fri 15 Jan the von Neumann machine – calculating in the Python shell
L-04 Wed 20 Jan numbers, variables, and assignments – writing Python scripts
L-05 Fri 22 Jan operating systems – the os module – turtle graphics
L-06 Mon 25 Jan syntax and semantics of languages – strings, lists, tuples
L-07 Wed 27 Jan mass storage, files, databases – dictionaries – anydbm
L-08 Fri 29 Jan boolean algebra – flowcharts – conditional execution

Project One due on Monday 1 February at noon
L-09 Mon 1 Feb transistors and logic gates – operations on numbers, strings
L-10 Wed 3 Feb flip-flops and registers – lists as queues and stacks
L-11 Fri 5 Feb adder circuits – loops with while and for – estimating pi
L-12 Mon 8 Feb simulations with random numbers – binary expansion – break
L-13 Wed 10 Feb top down design of programs – functions in Python
L-14 Fri 12 Feb local and global variables – arguments of functions

Project Two due on Monday 16 February at noon
L-15 Mon 15 Feb functional programming – lambda forms – list comprehensions
L-16 Wed 17 Feb organization of data on files – manipulating files
L-17 Fri 19 Feb data compression – format conversions – using buffers
L-18 Mon 22 Feb networking and internet – markup languages – urllib
L-19 Wed 24 Feb review for the first midterm on lectures 1 to 18
L-20 Fri 26 Feb first midterm exam on the first 18 lectures
L-21 Mon 29 Feb software engineering – bottom up design – modules in Python
L-22 Wed 2 Mar software development cycle and quality – modular design
L-23 Fri 4 Mar software licensing and open source – modules and packages

Project Three due on Monday 7 March at noon
L-24 Mon 7 Mar object-oriented programming – UML – classes in Python
L-25 Wed 9 Mar data and functional attributes – operator overloading
L-26 Fri 11 Mar encapsulation and inheritance – polymorphism and wrapping
L-27 Mon 14 Mar software testing, verification techniques – assert
L-28 Wed 16 Mar exceptions – defining, raising, and handling exceptions
L-29 Fri 18 Mar complexity and cost – complexity classes – timing programs
L-30 Mon 28 Mar graphical user interfaces – using Tkinter, a GUI toolkit
L-31 Wed 30 Mar expression evaluation – graphing functions – canvas widget
L-32 Fri 1 Apr entering data with a scale – development of animations

Project Four due on Monday 4 April at noon
L-33 Mon 4 Apr class hierarchies – visualization with inheritance
L-34 Wed 6 Apr cellular automata – the game of life, a Tkinter application
L-35 Fri 8 Apr processes and threads – lifecycle of a thread
L-36 Mon 11 Apr object-oriented implementation of predator-prey simulation
L-37 Wed 13 Apr review for the second midterm on lectures 21 to 36
L-38 Fri 15 Apr second midterm on lectures 21 to 36
L-39 Mon 18 Apr network programming – the socket module
L-40 Wed 28 Apr high level parallel processing – multiprocessing
L-41 Fri 22 Apr recursive algorithms – recursive images, fractals

Project Five due Monday 25 April at noon
L-42 Mon 25 Apr review of the first 18 lectures
L-43 Wed 27 Apr review of topics covered on the second midterm
L-44 Fri 29 Apr cumulative review

Tuesday 3 May: 8:00AM - 10:00AM, final exam, room to be announced.