COURSE OUTLINE – subject to changes :

L-1	Mon 11 Jan	welcome to mcs 260 – computer literacy and Python programming
L-2	Wed 13 Jan	computer architecture – first steps with Python – using Sage
L-3	Fri 15 Jan	the von Neumann machine – calculating in the Python shell
	Mon 18 Jan	**Martin Luther King, Jr., Day – no classes**
L-4	Wed 20 Jan	numbers, variables, and assignments – developing Python programs
L-5	Fri 22 Jan	operating systems – the os module – turtle graphics
L-6	Mon 25 Jan	syntax and semantics of languages – strings, lists, and tuples
L-7	Wed 27 Jan	mass storage, files and databases – dictionaries in Python – anydbm
L-8	Fri 29 Jan	boolean algebra – flowcharts – conditional constructs in Python
Project One due on Monday 1 February by noon		
L-9	Mon 1 Feb	transistors and logic gates – intrinsic operations on numbers and strings
L-10	Wed 3 Feb	flip-flops and registers – intrinsic operations on lists: queues and stacks
L-11	Fri 5 Feb	adder circuits – loop constructs: the while and for – estimating π
L-12	Mon 8 Feb	simulation using random numbers – binary expansion with repeat until: 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 – functions using functions
Project Two due on Monday 15 February by noon		
L-15	Mon 15 Feb	functional programming – lambda forms – list comprehensions
L-16	Wed 17 Feb	organization of data on files – manipulating files with Python
L-17	Fri 19 Feb	data compression – format conversions – using buffers to process files
L-18	Mon 22 Feb	networking and the internet – markup languages – using the urllib module
L-19	Wed 24 Feb	review for first midterm on lectures 1 to 18
L-20	Fri 26 Feb	**first midterm exam on the first 18 lectures**
L-21	Mon 1 Mar	software engineering – bottom up design of programs – modules in Python
L-22	Wed 3 Mar	the software development cycle and quality – modular design with Python
L-23	Fri 5 Mar	software licensing and open source – modules and packages – NumPy/SciPy
Project three due on Monday 8 March by noon		
L-24	Mon 8 Mar	object-oriented programming – unified modeling language – classes in Python
L-25	Wed 10 Mar	data and functional attributes of classes – operator overloading
L-26	Fri 12 Mar	encapsulation, inheritance, polymorphism – wrapping and delegation
L-27	Mon 15 Mar	software testing, verification techniques – pre- and postconditions with assert
L-28	Wed 17 Mar	exception handling – defining, raising, and handling exceptions in Python
L-29	Fri 19 Mar	complexity and cost – complexity classes – timing Python programs
L-30	Mon 29 Mar	graphical user interfaces – using Tkinter, a GUI toolkit for Python
L-31	Wed 31 Mar	expression evaluation – graphing functions – using the Canvas widget
L-32	Fri 2 Apr	entering data with a scale – the development of animations
Project four due on Monday 5 April by noon		
L-33	Mon 5 Apr	cellular automata – the game of life – a Tkinter application
L-34	Wed 7 Apr	an object-oriented implementation of a predator-prey simulation
L-35	Fri 9 Apr	computer aided design – object-oriented graphics
L-36	Mon 12 Apr	dynamic web pages – introduction to CGI: running Python code on the web
L-37	Wed 14 Apr	review for second midterm on lectures 21 to 36
L-38	Fri 16 Apr	**second midterm exam on lectures 21 to 36**
L-39	Mon 19 Apr	Tkinter animations and video game development
L-40	Wed 21 Apr	processes and threads – lifecycle of a thread – multithreaded programming
L-41	Fri 23 Apr	event-driven programming – creating our own video games
L-42	Mon 26 Apr	review of the first 18 lectures
Project five due on Wednesday 28 April by noon		
L-43	Wed 28 Apr	review of topics covered by second midterm
L-44	Fri 30 Apr	cumulative review

Tuesday 4 May, 8:00AM - 10:00 AM : final exam, room to be announced.