

**MCB 315: Key Concepts in Quantitative Biology**  
**Tentative Schedule – Fall 2013**

<b>Week</b>	<b>Session</b>	<b>Date</b>	<b>In-class</b>
1	1	Tue, Aug 27	Intro to course
	2	Thu, Aug 29	Estimation and working with units
	3	Fri, Aug 30	Matlab tutorials: calculation, arrays, plotting, help
2	4	Tue, Sep 3	History and diversity of life on earth
	5	Thu, Sep 5	Counting sequences
	6	Fri, Sep 6	Matlab tutorial: scripts and loops
3	7	Tue, Sep 10	Sequence alignment, clustering, and phylogenetic trees
	8	Thu, Sep 12	Guest Lecture: Michael Worobey, HIV origins
	9	Fri, Sep 13	<b>Checkpoint quiz</b>
4	10	Tue, Sep 17	Wright-Fisher model - neutral
	11	Thu, Sep 19	Wright-Fisher model - selection
	12	Fri, Sep 20	Implementing W-F model in Matlab
5	13	Tue, Sep 24	Exponential and Poisson distributions
	14	Thu, Sep 26	Stochastic simulation
	15	Fri, Sep 27	Mass action kinetics
6	16	Tue, Oct 1	Diffusion
	17	Thu, Oct 3	ODE simulation and HIV replication
	18	Fri, Oct 4	<b>Checkpoint quiz</b>
7	19	Tue, Oct 8	Macromolecular structures
	20	Thu, Oct 10	Molecular dynamics
	21	Fri, Oct 11	Biological databases
8	22	Tue, Oct 15	The cell cycle
	23	Thu, Oct 17	Transcription network modeling
	24	Fri, Oct 18	Bistability
9	25	Tue, Oct 22	Development and morphogen gradients
	26	Thu, Oct 24	Robustness
	27	Fri, Oct 25	<b>Checkpoint quiz</b>
10	28	Tue, Oct 29	Cancer incidence statistics
	29	Thu, Oct 31	Epidemiological modeling
	30	Fri, Nov 1	HIV replication and mutation
11	31	Tue, Nov 5	Hypothesis testing
	32	Thu, Nov 7	Genome-wide association studies
	33	Fri, Nov 8	Multiple testing in GWAS
12	34	Tue, Nov 12	Immune system
	35	Thu, Nov 14	T Cell repertoire
	36	Fri, Nov 15	Review

	37	Tue, Nov 19	<b>Exam</b>
13	38	Thu, Nov 21	Choose final papers
	39	Fri, Nov 22	Human population genetics
	40	Tue, Nov 26	Final paper work session
14	41	Thu, Nov 28	Thanksgiving break
	42	Fri, Nov 29	Thanksgiving break
	43	Tue, Dec 3	Final paper work session
15	44	Thu, Dec 5	<b>Final Presentations</b>
	45	Fri, Dec 6	<b>Final Presentations</b>
	46	Tue, Dec 10	Biology news speed dating
16			
		Mon, Dec 16	Final paper due
17		Wed, Dec 19	<b>Last day to turn in late work</b>