Week (Monday date)		Lab Exercises	Lab Manual Section	Class topic (may change slightly at times)	Assignments due/Quizzes
	Tues	Pipetting	Lab 1 Additional info "working in the lab" sections E, F, G	Intro	Pre-class quiz - Syllabus
Week 1		Dilutions			pre-class quiz on AGE & review dilutions
				Dilutions	
01-Apr		Calibrating pipets		AGE	
	Thurs	Agarose gel electrophoresis on two DNA samples of unknown size and concentration (estimating using standard curve)	Experiment 1, 1A-1D	WIYOV, AGE analysis, intro promoter project, some mol bio review	
Week 2	**Tues**	**Computer Lab**		Plasmid extraction	pre-class quiz: plasmid extraction
08-Apr		Image Studio Lite Analysis of Agarose Gel	Appendix A	AGE report	
		Graphing	Appendix B, C	Start PCR	Writing in your own voice due Wed 11:59pm
		Set-up liquid cultures of RFP and control promoter	Starting Experiment 2, 2A		
		Extract plasmids		Finish PCR, planning PCR experiment + plasmid maps/restriction enzymes, AGE report	
	Thurs				Pre-class quiz: PCR
		Check plasmids with AGE & nanodrop	2B		Quiz in Lab: dilutions, AGE, gene structure
		Quiz in lab			

Week 3		Design and set up RFP PCR experiment		Restriction enzymes/what's happening in lab + discuss peer-review (Qs to ask, how to assess - practice)	
	Tues		Sub-experiment 2-1. 2C		Pre-class quiz on restriction enzymes, lab protocols
15-Apr		**Start computer lab - plasmid map, restriction enzymes, designing primers**	Appendix D		AGE draft due Wed 11:59pm
	Thurs	Run gel of PCRs, repeat if needed	Finish 2C	Ligation + Plan ligation experiment/experimetnal design	pre-class quiz on predictions re: digestions and variables tested with ligations, ligation basics
		Clean up PCR plasmid and RFP PCR product	2D 2E		Peer-Review due end of Thursday lab
		Finish Appendix D computer lab if needed			
		Peer-review of AGE report			Final AGE report due Sunday 11:59pm

Week 4	**Tues**	Clean stuffer from Pro1 - heat inactivate PCR digest	2F	Mutagenesis: consider experimental options & designing primers	pre-class quiz on SDM bascis, ligation protocol & transformation protocol
22-Apr		Run gel of digest	2F		
		Plan ligations	Sub-experiment 2-2: part of 2G	How SDM PCR works	
	Thurs	Set-up ligations & transform bacteria with ligations	2H	Planning how to analyze ligation data including statistical analysis	no pre-class quiz
		Computer Lab: Design mutagenesis primers	2K	PCR report	

Week 5				**no class - use time to work on PCR report (I will be available in my office to help if have questions!)*	QUIZ in lab: plasmids, PCR, restriction enzyme digestion,ligations
29-Apr	**Tues**	Count colonies	2I		
		Plan how to analyze ligation data	start 2I		
		Pick red colony from plate and start liquid culture	2I		PCR mini report draft due Wed, 11:59pm
	Thurs	Purify recombinant Pro1-RFP plasmid and run gel	2J	troubleshoot ligation data	
		Set up mutagenesis PCR	2L	start CRISPR	Peer-reivew PCR reports due Thursday
		Peer-review PCR report		what's happening in next lab	Pre-class quiz: mutageneiss PCR results, KLD
		Computer lab: analyze ligation data	plan previously developed		PCR mini report due Sunday, 11:59pm

Week 6	**Tues**	Gel of PCR mutagenesis, repeat PCR if needed	2M	CRISPR Journal article + what we are doing in lab	Pre-class quiz: review of journal article we started
06-May		Kinase/ligase/dpn treatment	2N		
		Transform cells	2N		
	Thurs	Check transformations (repeat PCRs, KLD and transform if needed)		what's happening in lab + Intro genbank + reporter genes/intro FRET	no pre-class quiz
		Start working on ligation report	2O Appendix F	Ligation report	

	Tues				
		Analyze SDM transformations	2O	Discuss any transformation results + FRET paper discussion	pre-class quiz: FRET paper (e.g. hypothesis and basics of how being tested) + introduce what we're doing in lab
Week 7		Set-up liquid cultures: three colonies from mutagenesis	2O	Start sequencing	QUIZ In lab: analyzing data, CRISPR, SDM protocols & interpreting results
		Computer lab: Bioinformatics Intro to GenBank		Other reporter gene applications if time	Ligation mini report draft due Wed 11:59pm
13-May					
	Thurs	Streak cultures to maintain	2P	Finish sequencing + sequence analysis	pre-class quiz re: seq. analysis and RFP data
		Purify plasmids from 3 cultures a	2Q	Info about annotat	Peer-review Ligation report due Thursday end of Lab
		Check plasmids using AGE & send for sequencing	2Q	Start RNAi	
		Peer-review ligation report			Final Ligation report due Sunday 11:59pm

Week 8 **20-May**	**Tues**	**Computer lab: analyze sequencing results** Use streaked bacteria to measure RFP Plan how to analyze RFP data or complete in lab next week)	2R 2S start 2T (will do in class)	RFP analysis Finish RNAi, sid-1 paper	pre-class quiz: RNAi in lab and sid-1 paper **Annotated bibliography due Wed, 11:59pm**
	Thurs	Observe *C.elegans* and induce RNAi **Computer Lab: Analzye RFP data**	Experiment 3. 3A 2T	finish sid-1 paper RT-qPCR	pre-class quiz RNA extraction & qPCR

	Tues	Observe worm phenotypes	3B	qPCR analysis	Pre-class quiz: PTC and data analysis
Week 9		Extract RNA and set up RT-qPCR			QUIZ in lab: Genbank, sequencing, data analsysis, reporter genes, FRET, RNAi
			3C	PTC project	
27-May					Mutageneiss report draft due Wed, 11:59pm
day is Memorial	**Thurs**			PTC analysis + some review if time	
		PTC extraction & PCR	Experiment 4. 4A		
		Computer Lab: Analyze qPCR data			Peer-review due end of lab Friday
		Peer-review SDM report	Brief instructions at end of Exp. 3.		
					Final SDM report due Sunday, 11:59pm
Week 10	**Tues**	Digest PTC PCRs, check with agarose gel, PTC taste-test (phenotyping)	4B	Class = office hours for exam Q&A	No pre-class quizzes this week
03-Jun		Pool genotype/phenotype data			RNAi assignment due Tues, 11:59pm
		Computer Lab: Analyze PTC data	4B		
		Lab clean-up			
	Thurs	Final exam in lab			