Project		Week	Day	Date	Module	Topic
Describe your previous research, areas of research interest in bioinformatics / computational-biology, type of project that best fits your interests. Post this description in a profile that lets your classmates know you. **Project profile due Wed, Jan 15**.		Week 01	Day 01	Mon, Jan 06	Introduction, Overview, and Refreshers	Course overview + Getting started in computational biology
			Day 02	Wed, Jan 08		Refresher 1: Concepts in statistics & probability
			Day 03	Fri, Jan 10		Refresher 2: Concepts in computational science & applied math
Discuss with Arjun (and any other PI) and read recent papers. Briefly describe project ideas. **Project topic due Fri, Jan 31**.	Phase 1	Week 02	Day 04	Mon, Jan 13	Genome assembly & annotation	Assembly with de Bruijin graphs
			Day 05	Wed, Jan 15		Gene prediction with Hidden Markov models
			Day 06	Fri, Jan 17		Paper discussion; HMM continued
		Week 03		Mon, Jan 20	No Class; Need an extra hour (or two 30-minute slots) to compensate	
			Day 07	Wed, Jan 22	Sequence alignment & pattern finding	Dynamic programming; Substitution matrices
			Day 08	Fri, Jan 24		BLAST; Paper discussion
Prepare a two-page pre-proposal (Page1: text; Page2: figures & references). **Project pre-proposal due Fri, Feb 07**.		Week 04	Day 09	Mon, Jan 27	Comparative genomics; Phylogenomics	Whole genome alignment; Suffix trees
			Day 10	Wed, Jan 29		Molecular evolution; Tree construction
			Day 11	Fri, Jan 31		Paper discussion
Write 5-page proposal describing project goals, division of work, milestones, datasets, and challenges. **Project proposal due Wed, Feb 19**.		Week 05	Day 12	Mon, Feb 03	Genetic variation & quantitative genetics	GWAS, Regularized linear regression
			Day 13	Wed, Feb 05		Polygenic risk score; Statistical inference, Multiple testing
			Day 14	Fri, Feb 07		Paper discussion
Review proposals. **Reviews due Fri, Feb 28**.		Week 06	Day 15	Mon, Feb 10	Regulatory genomics	Gibbs sampling
			Day 16	Wed, Feb 12		Expectation-Maximization
			Day 17	Fri, Feb 14		Paper discussion
Address peer evaluations, revise aims, scope, and list of final goals & deliverables. Meet with Arjun about reviews, revised plan, and progress.		Week 07	Day 18	Mon, Feb 17	Functional genomics	Differential expression; Functional enrichment analysis
			Day 19	Wed, Feb 19		Intro to unsupervised and supervised learning
			Day 20	Fri, Feb 21		Paper discussion + **Check-in**
Continue making substantial progress on proposed milestones. Write mid-course project report. **Mid-course project report due Fri, Mar 27**.	Phase 2	Week 08	Day 21	Mon, Feb 24	Conducting a Bioinfo / CompBio Project: A Practical Primer in 3-parts	Organizing and managing a CompBio project
			Day 22	Wed, Feb 26		Kickstarting and getting help in a CompBio project
			Day 23	Fri, Feb 28		Presenting data and results in a CompBio project
Complete milestones, finalize results, figures, write-up in conference publication format. As part of the report, comment on your overall project experience. **Final project report due Fri, Apr 26**.				Mon, Mar 02	Spring break	
				Wed, Mar 04		
				Fri, Mar 06		
		Week 09	Day 24	Mon, Mar 09	Bioinformatics & Computational Biology Co-work Sessions	10a–12:15p
			Day 25	Wed, Mar 11		
			Day 26	Fri, Mar 13		
		Week 10	Day 27	Mon, Mar 16	Mid-course project presentations	Lightning talks
			Day 28	Wed, Mar 18		
			Day 29	Fri, Mar 20		
	Phase 3	Week 11	Day 30	Mon, Mar 23	Single-cell genomics	Missing value imputation; Dimensionality reduction
			Day 31	Wed, Mar 25		Trajectory inference; Spatial reconstruction
			Day 32	Fri, Mar 27		Paper discussion
		Week 12	Day 33	Mon, Mar 30	Molecular dynamics; Structure prediction	Molecular simulation
			Day 34	Wed, Apr 01		Maximum entropy modeling
			Day 35	Fri, Apr 03		Paper discussion
		Week 13	Day 36	Mon, Apr 06	Modeling cellular pathways	Dynamical simulation, State Space, Bifurcation
			Day 37	Wed, Apr 08		Discrete/Boolean modeling
			Day 38	Fri, Apr 10		Paper discussion
		Week 14	Day 39	Mon, Apr 13	Whole-cell models; Digital evolution	Genome-scale metabolic models; Constraint-based modeling
			Day 40	Wed, Apr 15		Artificial life and other whole-cell models
			Day 41	Fri, Apr 17		Paper discussion
		Week 15	Day 42	Mon, Apr 20	Biological networks	Measuring associations; Network inference
			Day 43	Wed, Apr 22		Graph theory, Label propagation
			Day 44	Fri, Apr 24		Paper discussion
Final exams		Week 16	Day 45	Thu, Apr 30	Final project poster presentations	Poster presentations