

UCD Summer 2023 Bioinformatics Workshop
DRAFT timetable: Monday 24 July – Friday 4 August

GCC – Gavin Conant, North Carolina State University
 RG – Rafael Guerrero, North Carolina State University

Day	Lecturer	Time	Topic
Monday 24 th	GCC	9-9:45	Intro, connection to VCL
		10-12	DNA sequencing, FASTQ files and sequencing errors
		1:30-4:30	Finish script, Assembly (Annotation)
Tuesday 25 th	GCC	9-10:30	Homology, sequence alignment, BLAST
		10:30-12	Orthologs, paralogs, gene duplication, measures of selective constraint
		1:30-4:30	Phylogenetics, tree-thinking
Wednesday 26 th	GCC	9-10:30	Biological networks
		10:30-12:00	Databases
		1:30-2:30	Modeling metabolism
		2:30-4:30	Flux-balance analysis
Thursday 27 th	GCC	9-10:30	Metagenomics
		10:30-12	Multiple test corrections
		1:30-3:00	Computing, scripts, packages, compilers
		3:00-4:30	Parallel computing
Friday 28 th	GCC	9:30-12	Topics arising/Catchup OR Protein structure prediction
	GCC/RG	1:30-4:30	GCC: Genetic drift in python

Monday 31 st	RG	9:00-12:00	Populations: Read mapping, variant calling
		1:30-4:30	Demography: SFS, PSMC
Tuesday 1 st	RG	9:00-12:00	Population structure: PCA, Fst, ADMIXTURE
		1:30-4:30	Population structure (contd.)
Wednesday 2 nd	RG	9:00-12:00	GWAS: Basics, imputation
		1:30-4:30	GWAS (contd): Genomic inflation, plots
Thursday 3 rd	RG	9:00-12:00	RNA-Seq: Mapping, quantification
		1:30-4:30	RNA-Seq: exploratory data analysis, differential gene expression
Friday 4 th	RG	9:00-12:00	Q&A, data troubleshooting, principles of data visualization
		Afternoon	EXAM (two hours)