

2019 Syllabus

Lecture days are in black; [discussion days are in blue](#); [exam days are in red](#).

Classrooms

All [lectures](#) are in [North Lecture Hall \(NLH\) in Med Sci II](#). Please see the separate document for [discussion](#) assignments and rooms. [Exams](#) are take-home.

Date	Module / Leader	Topic
Wed, Sep 04	1 - Introduction	Introduction: From Mendel to molecules
Fri, Sep 06	Tom Wilson	Nucleic acids and the central dogma
Mon, Sep 09		Recombinant DNA technology
Wed, Sep 11		Strategies for success in HG541
Fri, Sep 13	Discussion	Baltimore, Nature 226:1209-11 (1970)
Mon, Sep 16	2 - Meiosis & Recombination	Meiosis and homologous recombination
Wed, Sep 18	Martin Arlt	Illegitimate recombination
Fri, Sep 20	Discussion	Prakash et al., Gen & Dev 23:67-79 (2009)
Mon, Sep 23	3 - Replication & Mutagenesis	Replication fidelity mechanisms
Wed, Sep 25	Tom Wilson	DNA damage and repair
Fri, Sep 27	Discussion	Merrick et al., JBC 279:20067-75 (2004)
Mon, Sep 30	4 - Transposable Elements	DNA transposons and LTR retrotransposons
Wed, Oct 02	John Moran	Poly(A) retrotransposons (SINEs and LINEs)
Fri, Oct 04	Discussion	Ivics et al., Cell 91:501-510 (1997)
Mon, Oct 07	5 - Genomes & Chromosomes	Structure of the genome
Wed, Oct 09	Jacob Mueller	Comparative genomics
Fri, Oct 11	EXAM 1 (due Fri)	see Canvas
Mon, Oct 14	FALL BREAK	FALL BREAK
Wed, Oct 16		Chromosomes
Fri, Oct 18	Discussion	
Mon, Oct 21	6 - Genes & Transcription	Genes and basal transcriptional machinery
Wed, Oct 23	Jacob Mueller	Gene promoters, enhancers and silencers
Fri, Oct 25		Transcription factors and transcriptional control
Mon, Oct 28	Discussion	
Wed, Oct 30	7 - RNA Processing	Splicing
Fri, Nov 01	Sue Hammoud	Polyadenylation/post-transcriptional regulation
Mon, Nov 04		Translation
Wed, Nov 06	Discussion	
Fri, Nov 08	8 - Epigenetics: Chromatin	Epigenetic inheritance / DNA methylation
Mon, Nov 11	Sundeep Kalantry	Histone modifications
Wed, Nov 13	EXAM 2 (due Thurs)	see Canvas
Fri, Nov 15		Long non-coding RNAs
Mon, Nov 18	Discussion	
Wed, Nov 20	9 - Epigenetics: Small RNAs	RNA interference
Fri, Nov 22	Sundeep Kalantry	microRNAs and post-transcriptional silencing

HG541
Molecular Genetics

Fall Term
9:00-9:50 MWF

Mon, Nov 25		piRNAs and endo-siRNAs in gene silencing
Wed, Nov 27	Discussion	
Fri, Nov 29	THANKSGIVING	THANKSGIVING
Mon, Dec 02	10 - Integrative Genomics	Chromatin architecture
Wed, Dec 04	Alan Boyle	Transcriptome and proteome
Fri, Dec 06		ENCODE and modENCODE
Mon, Dec 09	Discussion	
Wed, Dec 11	EXAM 3 (due Thurs)	see Canvas