

Principles in Genetics & Epigenetics

Syllabus - Spring 2019

BSRB GSBS Small Classroom, Monday, Wednesday, Friday, 10:30 am - noon.

Date, Day	Lecture Topic	Lecturer
January 14, M	The structure of the genome	Sen
January 16, W	Chromosomes and aneuploidy	Cole
January 21, M	Holiday - No Class	-
January 23, W	Next generation DNA sequencing	Fornage/Krahe
January 28, M	Molecular basis of disease phenotype-genotype	Hixson
January 30, W	Genetic screens	Mattox
February 4, M	RNAi/CRISPR screens	Arur
February 6, W	Transgenic animals	Behringer
February 11, M	Single gene inheritance & application of Mendelian genetics to clinical care	Daiger
February 13, W	Current human genetic approaches to multifactorial disorders	Fornage
February 18, M	Holiday - No Class	-
February 20, W	Medical genetics services & clinical risk assessment	Singletary
February 25, M	Genetic basis of cancer	Huff/Krahe
February 27, W	Case study: Cancer genetics	Huff/Krahe
March 4, M	Functional validation of cancer genes	Huff
March 6, W	Gene precision therapies and stem cell therapeutics	McDonnell
March 11, M	The microbiome in human disease	Hanis
March 13, W	RNA-Seq Workshop	Liu/Behringer
March 18-22	Spring Break - No Class	-
March 25, M	RNA-Seq Workshop	Liu
March 27, W	RNA-Seq Workshop	Liu
April 1, M	RNA-Seq Workshop	Liu
April 3, W	Epigenetics & expression of the genome	Cheng
April 8, M	Epigenetics techniques: bench skills	Jain
April 10, W	Histone code (writers & erasers)	Lee
April 15, M	Histone code (readers)	Bedford
April 17, W	DNA methylation, imprinting & X inactivation	Chen
April 22, M	Epigenetics & cancer therapeutics	Bedford
April 24, W	Histone variants	Bartholomew
April 29, M	ATP-dependent chromatin remodelers	Bartholomew
May 1, W	Non-coding RNAs	Calin
May 6-10	Finals Week	

Course Description

The course is organized into three general sections: 1. Experimental Genetics, 2. Human Genetics, and 3. Epigenetics. There will also be a hands-on bioinformatics workshop to learn how to process and analyze RNA-seq data.

This course fulfills a requirement of the Genetics and Epigenetics Graduate Program.

RNA-Seq Workshop

This hands-on workshop will teach you how to process and analyze sequence data to assess and compare transcriptomes. You can use your own sequence data, use datasets in public repositories, or we will provide sequence datasets.

Course Directors

Mark Bedford

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: Science Park
Phone: 512-237-9539
Email: mtbedford@mdanderson.org

Richard Behringer

Dept. of Genetics
UTMDACC
Office: S11.8136A
Phone: 713-834-6327
Email: rrb@mdanderson.org

Myriam Fornage

Institute of Molecular Medicine
University of Texas Health Science
Center at Houston
Office: SRB 530G
Phone: 713-500-2463
Email:
Myriam.Fornage@uth.tmc.edu

Lecturers

Bartholomew, Blaine

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: Science Park
Phone: 512-237-9324
Email: bbartholomew@mdanderson.org

Calin, George

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: 3SCR4.3424
Phone: 713-792-5461
Email: @mdanderson.org

Chen, Taiping

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: Science Park
Phone: 512-237-9479
Email: tchen2@mdanderson.org

Cheng, Xiaodong

Department of Molecular & Cellular
Oncology
UTMDACC
Office: S9.8336C
Phone: 713-834-6274
Email: xcheng5@mdanderson.org

Cole, Francesca

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: Science Park
Phone: 512-237-9464
Email: fcole@mdanderson.org

Daiger, Stephen

Dept. of Epidemiology, Human
Genetics and Environmental
Sciences
University of Texas Health Science
Center at Houston
Office: RAS W-522
Phone: 713-500-9829
Email:
stephen.p.daiger@uth.tmc.edu

Hanis, Craig

Dept. of Epidemiology, Human
Genetics and Environmental
Sciences
University of Texas Health Science
Center at Houston
Office: RAS E-423
Phone: 713-500-9807
Email: craig.l.hanis@uth.tmc.edu

Hixson, James

Dept. of Epidemiology, Human
Genetics and Environmental
Sciences
University of Texas Health Science
Center at Houston
Office: RAS W-422
Phone: 713-500-9834
Email: james.e.hixson@uth.tmc.edu

Huff, Vicki

Dept. of Genetics
UTMDACC
Office: S15.8316a
Phone: 713-834-6384
Email: vhuff@mdanderson.org

Jain, Abhinav

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: S9.8136b
Phone: 713-794-6366
Email: ajain@mdanderson.org

Krahe, Ralf

Dept. of Genetics
UTMDACC
Office: S13.8316b
Phone: 713-834-6345
Email: rkrahe@mdanderson.org

Lee, Min-Gyu

Dept. of Molecular and Cellular
Oncology
UTMDACC
Office: Y7.6028
Phone: 713-792-3678
Email: mglee@mdanderson.org

Liu, Bin

Dept. of Epigenetics & Molecular
Carcinogenesis
UTMDACC
Office: Science Park
Phone: 512-237-9437

Email: bliu1@mdanderson.org

Mattox, William

GSBS
Phone 713-745-4866
Office: BSRB S3.8447
Email: William.Mattox@uth.tmc.edu

McDonnell, Timothy

Dept. of Hematopathology
UTMDACC
Office: Y5.6006a
Phone: 713-792-8925
Email: tmcdonne@mdanderson.org

Sen, Subrata

Dept. of Translational Molecular
Pathology
UTMDACC
Office: LSP9.4013
Phone: 713-834-6040
Email: ssen@mdanderson.org

Singletary, Claire

Departments of Pediatrics
and Obstetrics, Gynecology,
& Reproductive Sciences
University of Texas Health Science
Center at Houston
Office: UPB Suite 1217
Phone: 713-486-2294
Email: claire.n.singletary@uth.tmc.edu