

COURSE AND CONTACT INFORMATION

BMSC 8230 Molecular Basis of Human Disease

Semester: Fall 2019

Time: Mondays, Wednesdays: 10:30 AM – 12:00 noon

Location: WebEx <https://gwu.webex.com/gwu/j.php?MTID=m685c8a93ab5b5ecb7d6bcbb23e073abd>

Meeting number: 120 110 5269

Password: MBHD

COURSE DIRECTORS

Dr. Ljubica Caldovic lcaldovic@childrensnational.org

Dr. Tim McCaffrey mcc@gwu.edu

Remote office hours: based on student request

COURSE DESCRIPTION

The course objective is to provide a conceptual framework to understand human disease at the molecular level, genetic causes, diagnostic methods, treatment approaches, as well as the societal and ethical issues that arise from the use of genomic technologies in clinical practice.

A combination of didactic lectures and articles will cover selected topics in human molecular genetics, neuroscience, cancer, physiology, immunity and infectious disease. Discussion and oral presentation of current relevant publications by students will provide an opportunity to practice and acquire skills in critical thinking, study design, and professional oral presentation.

LEARNING OUTCOMES:

As a result of completing this course, students will be able to:

1. Explain the principles of genome-enabled approaches to understanding the pathophysiology of human disease.
2. Understand human molecular genetics, molecular mechanisms and disease pathogenesis for the more common human monogenic and polygenic conditions.
3. Understand experimental approaches for dissection of molecular pathogenesis, and experimental therapeutics in medicine.
4. Discuss the main societal and ethical issues linked to the practice of genomic medicine.
5. Acquire skills in scientific article analysis, study design, and oral presentation.

TEXTBOOK

Molecular Pathology: The Molecular Basis of Human Disease, 2nd Edition

Editors: William Coleman, Gregory Tsongalis

GRADING

- Midterm (30%) and final (30%) exams
- Two presentations of research articles (20% each)

CLASS POLICIES

Attendance is required to all sessions. One absence is allowed without excuse, but all other absences incur a 3% cost to the final grade. Course material (i.e. ppt) will be made available to all through Blackboard. Attendance to the exams is mandatory. In fairness to all students, no make-up exams will be provided.

CLASS SCHEDULE

	DATE	INSTRUCTOR	TOPIC
1	8/31/2020 Mon	Dr. Tim McCaffrey	An overview of molecular medicine Chapter 5-7
2	9/2/2020 Wed	Dr. Tim McCaffrey	An overview of molecular medicine Chapter 5-7
	9/7/2020 Mon	LABOR DAY	NO CLASS
3	9/9/2020 Wed	Dr. Ljubica Caldovic	Exome analysis and incidentalome Chapter 5-7
4	9/14/2020 Mon	Dr. Ljubica Caldovic	Natural variation in human population, continuum health-disease
5	9/16/2020 Wed	Dr. Ljubica Caldovic	Student presentations
6	9/21/2020 Mon	Dr. Nicholas AhMew	Inborn errors of metabolism -- diseases of intoxication Chapter 5-7
7	9/23/2020 Wed	Dr. Emmanuèle Délot	Epigenetic basis of disease Chapter 8
8	9/28/2020 Mon	Dr. Eric Vilain	Disorders of sex development
9	9/30/2020 Wed	Dr. Yi-Wen Chen	Genetics of muscle disorders Chapter 5-7
10	10/5/2020 Mon	Dr. Linda Kusner	Neuroscience - AD, PD, Huntington's, Myasthenia Gravis Chapter 29
11	10/7/2020 Wed	Dr. David Mendelowitz	Cardiovascular disorders - Neural control
12	10/12/2020 Mon	Dr. Nikki Posnack	Cardiac function and dysfunction Chapter 14
13	10/14/2020 Wed	Dr. Paul Marvar	Stress, Anxiety, and cardiovascular disease
14	10/19/2020 Mon	Dr. Brett Shook	Obesity and metabolic Disease
15	10/21/2020 Wed	MIDTERM	
16	10/26/2020 Mon	Dr. Yi-Wen Chen	Student Presentations
17	10/28/2020 Wed	Dr. Alexander Tzatsos	Pancreatic Cancer Chapter 4
18	11/2/2020 Mon	Dr. Katherine Chiappinelli	Genetics of adult cancers
19	11/4/2019 Wed	Dr. Lisa Guay-Woodford	Genetics of kidney disease Chapter 24
20	11/9/2020 Mon	Dr. Katherine Chiappinelli	Student Presentations
21	11/11/2020 Wed	Dr. Rong Li	Breast Cancer Chapter 26
22	11/16/2020 Mon	Dr. Jiyoung Lee	Breast Cancer Chapter 26

	DATE	INSTRUCTOR	TOPIC
23	11/18/2020 Wed	Dr. Shawneequa Callier	TBA
24	11/23/2020 Mon	Dr. Natalia Soriano-Sarabia	Innate immunity and HIV latency/reservoirs
	11/25/2019 Wed	THANKSGIVING	NO CLASS
25	11/30/2020 Mon	Dr. Natalia Soriano-Sarabia	Student presentations
26	12/2/2020 Wed	Dr. Sanjay Maggirwar	HIV and atherosclerosis
27	12/7/2020 Mon	Dr. Brett Shook	Tissue Inflammation
28	12/9/2020 Wed	Dr. David Diemert	Clinical trials in infectious disease and vaccine development
		READING DAYS	
29	12/14 or 12/16/2020	FINAL EXAM	

Faculty Contact Information:

INSTRUCTOR	EMAIL
Dr. Nicholas AhMew	NAhMew@childrensnational.org
Dr. Emmanuèle Délot	edelot@childrensnational.org
Dr. Eric Vilain	EVILAIN@childrensnational.org
Dr. Yi-Wen Chen	YChen@childrensnational.org
Dr. Linda Kusner	lkusner@gwu.edu
Dr. David Mendelowitz	dmendel@gwu.edu
Dr. Nikki Posnack	ngillum@gwu.edu
Dr. Paul Marvar	pmarvar@gwu.edu
Dr. Brett Shook	brettshook@gwu.edu
Dr. Alexander Tzatsos	atzatsos@email.gwu.edu
Dr. Lisa Guay-Woodford	LGuaywoo@childrensnational.org
Dr. Katherine Chiappinelli	kchiapp1@email.gwu.edu
Dr. Rong Li	rli69@email.gwu.edu
Dr. Lorenzo Rinaldi, NIH	lorenzo.rinaldi@nih.gov
Dr. Jiyoung Lee	jiyounglee@gwu.edu
Dr. Natalia Soriano-Sarabia	nataliasorsar@email.gwu.edu
Dr. Sanjay Maggirwar	smaggirwar@gwu.edu
Dr. Vicki Shanmugan	vshanmugam@gwu.edu
Dr. David Diemert	ddiemert@gwu.edu

ACADEMIC INTEGRITY

The Course Directors personally support the GW Code of Academic Integrity. It states: "Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit

for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: <http://www.gwu.edu/~ntegrity/code.html>

USE OF ELECTRONIC COURSE MATERIALS AND CLASS RECORDINGS

Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Please contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Please contact Disability Support Services at disabilitysupport.gwu.edu if you have questions or need assistance in accessing electronic course materials.

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM

Virtual academic support

A full range of academic support is offered virtually in fall 2020. See coronavirus.gwu.edu/top-faqs for updates.

Tutoring and course review sessions are offered through Academic Commons in an online format. See academiccommons.gwu.edu/tutoring

Writing and research consultations are available online. See academiccommons.gwu.edu/writing-research-help

Coaching, offered through the Office of Student Success, is available in a virtual format. See studentsuccess.gwu.edu/academic-program-support

Academic Commons offers several short videos addressing different virtual learning strategies for the unique circumstances of the fall 2020 semester. See academiccommons.gwu.edu/study-skills. They also offer a variety of live virtual workshops to equip students with the tools they need to succeed in a virtual environment. See tinyurl.com/gw-virtual-learning

Writing Center

GW's Writing Center cultivates confident writers in the University community by facilitating collaborative, critical, and inclusive conversations at all stages of the writing process. Working alongside peer mentors, writers develop strategies to write independently in academic and public settings. Appointments can be booked online. See gwu.mywconline.

Academic Commons

Academic Commons provides tutoring and other academic support resources to students in many courses. Students can schedule virtual one-on-one appointments or attend virtual drop-in sessions. Students may schedule an appointment, review the tutoring schedule, access other academic support resources, or obtain assistance at academiccommons.gwu.edu.

Disability Support Services (DSS) 202-994-8250

Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services to establish eligibility and to coordinate reasonable accommodations. disabilitysupport.gwu.edu

Counseling and Psychological Services 202-994-5300

GW's Colonial Health Center offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and

difficulties that may interfere with academic, emotional, and personal success.
healthcenter.gwu.edu/counseling-and-psychological-services

SAFETY and SECURITY

In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.