

Genomics Course BMB 961-Sect. 001, 2 Credits, Fall 2020

Title: Genomics and Proteomics of Complex Genetic Systems

Participating Faculty: Alison Bernstein, Dan Jones, Arjun Krishnan, John LaPres, George Mias, Rance Nault, and Timothy Zacharewski

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D2L Site: <https://d2l.msu.edu/d2l/home/1069439>

Description: Recent advancements in bacterial, fungal, plant, animal and human genome projects have elevated genetic research to a new level. In concert, emerging computational and experimental tools have led to novel strategies for the investigation of biological and biochemical processes across organisms on a genomic scale. This course, now in its seventh offering, has been developed to provide students with a current overview of developments in the areas of structural and functional genomics, as well as proteomics and metabolomics. Examples from eukaryotic (animal, plant, and fungi) and, in some cases, prokaryotic organisms will be covered.

Prerequisites: BMB 801 (or instructor approved equivalent)

Grading: Grades for BMB961-001 will be based on attendance and in class presentations. Each student will be responsible for delivering at least one journal club style presentation during "Case Studies" days listed below. The presentation will focus on recent journal articles using a technology or methodology discussed during the course that is pertinent to the student's thesis research project.

Limitation: 25 Students (others upon request)

Location and Time: ZOOM ([see below](#)) - 10:20 – 11:10 am Mondays and Wednesdays

09/02	– Class Expectations and Sequencing Approaches	JJL
09/07	– <u>NO CLASS – Labor Day</u>	
09/09	– Sequencing Approaches II	JJL
09/14	– BLAST	JJL
09/16	– Sequence Assembly	AK
09/21	– Annotation	AK
09/23	– Comparative Genomics	AK
09/28	– RNAseq (miRNAseq)	RN/TZ
09/30	– Single Cell Sequencing	RN/TZ
10/05	– Chip-Seq and ChIA-PET	RN/TZ
10/07	– Chromatin Accessibility Assays	RN/TZ
10/12	– SNP Genotyping	JJL
10/14	– DNA Methylation	AB
10/19	– Population functional genomics or large scale phenotyping (CRISPRi)	JJL
10/21	– Collaborative Cross and Mouse Phenome panel (experimental GWAS)	JJL
10/26	– <u>NO CLASS – Fall Break</u>	
10/28	– CASE STUDIES – I	JJL
11/02	– CASE STUDIES – II	JJL
11/04	– CASE STUDIES – III	JJL
11/09	– Mass Spectrometry basics and Informatics	DJ

11/11	–	Metabolic Profiling I	DJ
11/16	–	Metabolic Profiling II	DJ
11/18	–	Proteomics I	DJ
11/23	–	Proteomics II	DJ
11/25	–	System Biology and Networks I	GM
11/30	–	System Biology and Networks II	GM
12/02	–	System Biology and Networks III	GM
12/07	–	CASE STUDIES – IV	JJL
12/09	–	CASE STUDIES – V	JJL

Zoom Information:
Topic: BMB 961-001

Join Zoom Meeting

<https://msu.zoom.us/j/99847125985>

Meeting ID: 998 4712 5985

Passcode: BMB961

Time: Sep 2, 2020 10:00 AM Eastern Time (US and Canada)

Every week on Mon, Wed, until Dec 9, 2020, 29 occurrence(s)

Sep 2, 2020 10:00 AM

Sep 7, 2020 10:00 AM

Sep 9, 2020 10:00 AM

Sep 14, 2020 10:00 AM

Sep 16, 2020 10:00 AM

Sep 21, 2020 10:00 AM

Sep 23, 2020 10:00 AM

Sep 28, 2020 10:00 AM

Sep 30, 2020 10:00 AM

Oct 5, 2020 10:00 AM

Oct 7, 2020 10:00 AM

Oct 12, 2020 10:00 AM

Oct 14, 2020 10:00 AM

Oct 19, 2020 10:00 AM

Oct 21, 2020 10:00 AM

Oct 26, 2020 10:00 AM

Oct 28, 2020 10:00 AM

Nov 2, 2020 10:00 AM

Nov 4, 2020 10:00 AM

Nov 9, 2020 10:00 AM

Nov 11, 2020 10:00 AM

Nov 16, 2020 10:00 AM

Nov 18, 2020 10:00 AM

Nov 23, 2020 10:00 AM

Nov 25, 2020 10:00 AM

Nov 30, 2020 10:00 AM

Dec 2, 2020 10:00 AM

Dec 7, 2020 10:00 AM

Dec 9, 2020 10:00 AM

Please download and import the following iCalendar (.ics) files to your calendar system.

Weekly: <https://msu.zoom.us/meeting/tJ0lc-6prD4jEtFIaEaWvgQVuRCNzjFne--b/ics?icsToken=98tyKuChpj8tG9aQuRGCRox5Go-gKOVzpiVEj7d7tT7gAhdFZTLAI9BhHKh1NtbV>