

# **BCH 5413 – Syllabus and Class Schedule -- Fall 2020**

## **Eukaryotic Molecular Biology and Genetics**

Drs. Melike Caglayan, Nancy Denslow, Lauren Douma, Michelle Gumz, Jana Jenquin, Deborah Smith, Mingyi Xie, and Jianrong Lu (Course Coordinator)

This course is designed for graduate or advanced undergraduate students desiring a higher-level survey course in molecular biology that is beyond an introductory course. Lectures and discussions will emphasize modern molecular, biochemical, and genetic approaches to solving problems of current interest in molecular biology. Students should have a working knowledge of introductory molecular biology such as that covered in Lehninger's Principles of Biochemistry; or Mathews & Van Holde, Biochemistry, etc. *We do not recommend this course for students who have not had an introductory course in molecular biology* (e.g., BCH 4024 or its equivalent). **BCH 5413 is a prerequisite for BCH 6415, Advanced Cellular & Molecular Biology.**

Lectures will be held 7th period, 1:55 PM - 2:45 PM on Mondays, Wednesdays and Fridays. Lectures will be taught using zoom.

**TEXTBOOK:** *Molecular Biology*, by R.F. Weaver, 5th Edition, 2012. Reading assignments refer to this edition of the textbook. All lecture slides and supplemental instructional material will be posted on the UF Canvas website under BCH 5413 at the Academic Technology web site (<http://iss.at.ufl.edu/>).

**COURSE INSTRUCTORS:** Help is available by appointment with each instructor.

**Dr. Melike Caglayan**, [caglayanm@ufl.edu](mailto:caglayanm@ufl.edu)

**Dr. Nancy Denslow**, Bldg 471 Mowry Road, 294-4642; [ndenslow@ufl.edu](mailto:ndenslow@ufl.edu)

**Dr. Lauren Douma**, 294-5486; [lauren.douma@medicine.ufl.edu](mailto:lauren.douma@medicine.ufl.edu)

**Dr. Michelle Gumz**, CG-92B, 273-6887; [michelle.gumz@medicine.ufl.edu](mailto:michelle.gumz@medicine.ufl.edu)

**Dr. Jana Jenquin**, [jjenquin@ufl.edu](mailto:jjenquin@ufl.edu)

**Dr. Jianrong Lu**, Cancer/Genetics Building, Room 357, 273-8200; [jrlu@ufl.edu](mailto:jrlu@ufl.edu)

**Dr. Debbie Smith**, [dzies@ufl.edu](mailto:dzies@ufl.edu)

**Dr. Mingyi Xie**, Cancer/Genetics Building, [mingyi.xie@ufl.edu](mailto:mingyi.xie@ufl.edu)

Please use the email address [jrlu@ufl.edu](mailto:jrlu@ufl.edu) for general class matters.

**EXAMS & GRADING:** Grades for this course will be determined by **three (3) examinations**. The three examination periods are scheduled during the semester. The final exam is **not** cumulative. All exams are 2 hrs. in length. A review session has been scheduled before each exam (see lecture schedule). Please arrange your schedules to enable you to attend these exam sessions. **There will be no make-up exams.**

<u>DATE</u>	<u>DAY</u>	<u>TOPIC</u>	<u>INSTRUCTOR</u>
Aug. 31	Mon	DNA/RNA Structure	Dr. Smith
Sep. 2	Wed	Chromatin Structure; DNA-Prot Interacts.	Dr. Smith
4	Fri	DNA/RNA Blotting	Dr. Gumz
7	Mon	<b>NO CLASS – LABOR DAY</b>	
9	Wed	PCR; Arrays	Dr. Gumz
11	Fri	Cloning I – Vectors, cDNA	Dr. Gumz
14	Mon	Cloning II – Genomic	Dr. Gumz
16	Wed	DNA Sequencing	Dr. Smith
18	Fri	Site-directed mutagenesis	Dr. Douma
21	Mon	Recombinant Protein Expression	Dr. Gumz
23	Wed	Genome Manipulation, Transgenics, Cloning I	Dr. Smith
25	Fri	Genome Manipulation, Cloning II	Dr. Smith
28	Mon	Prokaryotic Transcription I	Dr. Jenquin
30	Wed	Prokaryotic Transcription II	Dr. Jenquin
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Oct. 2	Fri	<b>NO CLASS - HOMECOMING</b>	
5	Mon	Eukaryotic Transcription I	Dr. Jenquin
5	Mon	<b>REVIEW SESSION for EXAM #1; 5-6 PM</b>	
7	Wed	Eukaryotic Transcription II	Dr. Jenquin
8	Thu	<b><i>EXAM #1; 6-8 PM; Lectures through Sep. 30</i></b>	
9	Fri	Eukaryotic Transcription III	Dr. Jenquin
12	Mon	Epigenetics I	Dr. Lu
14	Wed	Epigenetics II	Dr. Lu
16	Fri	RNA Processing I	Dr. Xie
19	Mon	RNA Processing II	Dr. Xie
21	Wed	Translation I	Dr. Denslow
23	Fri	Translation II	Dr. Denslow
26	Mon	Translation III	Dr. Denslow
28	Wed	Protein Transport/Modifications	Dr. Denslow
30	Fri	RNA-mediated Gene Regulation	Dr. Gumz
Nov. 2	Mon	DNA Replication I	Dr. Xie
4	Wed	DNA Replication II	Dr. Xie
6	Fri	DNA Replication III	Dr. Xie
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9	Mon	DNA Repair I	Dr. Caglayan
9	Mon	<b>REVIEW SESSION for EXAM #2; 5-6 PM</b>	
11	Wed	<b>NO CLASS – VETERAN’S DAY</b>	
12	Thu	<b><i>EXAM #2; 6-8 PM; Lectures through Nov. 6</i></b>	
13	Fri	DNA Repair II	Dr. Caglayan
16	Mon	DNA DSB Repair and recombination	Dr. Lu
18	Wed	Cancer – Cell Cycle I	Dr. Lu
20	Fri	Cancer – Cell Cycle II	Dr. Lu
23	Mon	Cancer – Signal Transduction I	Dr. Lu
25, 27	Wed/Fri	<b>NO CLASS – THANKSGIVING HOLIDAY</b>	
30	Mon	Cancer – Signal Transduction II	Dr. Lu
Dec. 2	Wed	Cancer – Tumor Viruses & Oncogenes	Dr. Lu
4	Fri	Cancer – Tumor Suppressors	Dr. Lu
7	Mon	Cancer – Chromosomal Abnormalities	Dr. Lu
9	Wed	Cancer – Cancer Hallmarks	Dr. Lu
	<b>TBD</b>	<b><i>Review Session &amp; EXAM #3 (FINAL)</i></b>	