

GBS 709 – Cell | Fall Semester 2018 | Oct 30-Dec 14, 2018 | 8am-10am | BBRB 170

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GBS Vision Statement:

“Demonstrating world-class excellence in all areas of biomedical research through the achievements of our students.”

GBS Mission Statement:

“Driving biomedical discovery through interdisciplinary training and innovative research.”

GBS Core Competencies:

GBS offers a wide array of courses, seminars, journal clubs, research opportunities, and professional development that are designed to support the growth and development of our students.

Desirable competencies for our students to achieve while in this course:

- Content-Specific Conceptual Knowledge
- Critical Thinking and Data Evaluation
- Quantitative Analysis
- Research-Skill Development
- Communication Skills
- Professionalism
- Career Exploration and Preparation
- Responsible Conduct of Research
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Course Objectives:

The purpose of this course is to provide a foundation to understand the basic biological organization of eukaryotic cells in order to prepare students for graduate education and beyond. This course will equip students with a basic understanding of cellular biology. The lectures are organized to understand cellular organelles and their functions as well as basic scientific methods applied in cellular biology.

Suggested Textbook:

Molecular Biology of the Cell, 6th edition by Alberts et al; ISBN:9780815344322

Practical Applications/Problem Sets: These sessions are tied directly to the lectures. The content will be determined by the lecturers, but can include problem sets, journal article discussions or methodology applications. Once in class, the students and the lecturer will discuss the content and develop an understanding of key principles related to the field. In addition, we may showcase clinical examples and connections to illustrate how the material presented during previous lectures relates to the pathology of human disorders, and how basic science discoveries lead to therapeutic approaches. One question will be asked in every exam in relation to each of the Practical Application/Problem Sets session.

Grading:

Final grades will be based on the total points of three exams proctored over the course.

Disability Support Services: If you are registered with Disability Support Services (DSS), please make an appointment with the course manager as soon as possible to discuss accommodations that you are requesting for this course. If you have a disability but have not contacted DSS, please contact them: uab.edu/dss, 205.934.4205 or dss@uab.edu. Students who wish to request course accommodations should make an appointment with the course manager during business hours. Students must be registered with DSS and provide an accommodation request letter before receiving academic adjustments.

SCHEDULE (October 30 – December 14, 2018)

October 30	Membrane structure and function	Cathy Fuller
October 31	Practical considerations	Cathy Fuller
November 1	Cytoskeleton, cell junctions and polarity	Susan Bellis
November 2	Practical Applications/Problem Sets	Susan Bellis
November 5	Cell motility	Anita Hjelmeland
November 6	Practical Applications/Problem Sets	Anita Hjelmeland
November 7	ECM and interactions with ECM	Joanne Murphy-Ulrich
November 8	Practical Applications/Problem Sets	Joanne Murphy-Ulrich
November 9	Reading/study day	
November 12	EXAM 1	
November 13	Cell cycle	Chenbei Chang
November 14	Practical Applications/Problem Sets	Chenbei Chang
November 15	Cell division (mitosis and meiosis)	John Parant
November 16	Practical Applications/Problem Sets	John Parant
November 19	Translation, protein folding ER translocation	David Bedwell
November 20	Practical Applications/Problem Sets	David Bedwell
November 21	Thanksgiving	
November 22	Thanksgiving	
November 23	Thanksgiving	
November 26	Membrane traffic (secretion and endocytosis)	Elizabeth Sztul
November 27	Practical Applications/Problem Sets	Elizabeth Sztul
November 28	Protein degradation (Lysosomal targeting/degradation)	Jianhua Zhang
November 29	Protein degradation (ERAD and UPR)	Zsuzsa Bebok
November 30	Practical Applications/Problem Sets	Bebok, Zhang
December 3	EXAM 2	
December 4	Autophagy and apoptosis	John Shacka
December 5	Practical Applications/Problem Sets	John Shacka
December 6	Types of signaling (intro and overview)	Jianbo Wang
December 7	Receptor-mediated signaling	Cristian Faul
December 10	Practical Applications/Problem Sets	Cristian Faul
December 11	Redox signaling	Rakesh Patel
December 12	Practical Applications/Problem Sets	Rakesh Patel
December 13	Reading/study day	
December 14	EXAM 3	
