GBS 709 - Basic Biological organization
2 Credit Hours | Fall 2020 | November 2 – December 11 | ZOOM (8-10 am)
Course Director: Dr. Zsuzsanna Bebok | bebok@uab.edu
Course Co-Director: Dr. Sasanka Ramanadham | sramvem@uab.edu
Course Manager: Jessica Watts | jessicawatts@uab.edu

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. Basic Biological Organization (GBS 709) is a core curriculum course required for all GBS students independent of their theme affiliation. The following list consists of desirable competencies for our students to achieve while in this course:

- Content-specific conceptual knowledge that includes, but not limited to cell structure, function, renewal, cellular organelles, cellular processes, communication between cellular organelles and cells.
- Critical thinking and data evaluation
- Research-skill development, specific to cell biology
- Communication skills such as asking questions, discussing study material
- Career exploration and preparation in relation to mentor selection
- Responsible Conduct of Research

Course Objectives:

The purpose of this course is to provide a foundational knowledge of **Cell Biology** to students as they prepare for graduate education and beyond. The lectures will introduce the structures, organelles and processes by which eukaryotic cells maintain their integrity, perform universal functions such as renewal, biogenesis and degradation of components such as proteins and lipids. We will also discuss the basics of inter-organellar, extracellular and inter-cellular communications. The course will provide a general understanding of cell biology with connections to specialized cellular functions such as epithelial, immune, neuronal and other tissue specific cells. In addition, differences between physiological and diseased cells (cancer, secretory, genetic and communication defects) will be highlighted in order to prepare students for their theme specific courses.

Recommended Textbook:

Molecular Biology of the Cell, 6th Ed. (Alberts et al) ISBN: 978081534432

Grading:

Homework (15%): Each week students will be assigned homework questions which will include experimental design and/or short answer on the topic. The questions will include material from the entire week of lectures. Students may use outside resources. Homework assignments will be due through Canvas no later than Thursday mornings at 8 am. During discussion, students can volunteer or will be chosen at random to present their findings.

Participation (10%): Students are expected to be active participants in each class. Late assignments, excessive absences, tardiness, early dismissals will impact student's participation grade. Attendance will be recorded daily through Zoom. Only one unexcused absence will be permitted. Doctor's excuses are accepted on individual bases. All confirmed COVID19-related illnesses will be excused.

Quizzes (75%): Students will complete five (5) quizzes through Zoom using LockDown Browser & Monitor. Each quiz will consist of a series of questions requiring synthesis of the material and selecting the correct answer. Quizzes will be "closed book," no external materials (electronic, paper, oral, etc.) will be allowed. The format will be multiple choice.

Instructional Method:

Remote: This class will be conducted virtually using a combination of recorded and live content through Canvas, Zoom, and other tools using the Canvas Learning Management system. Students should reserve the days and hours listed in the Class Schedule for live discussion. Students will not be attending classes on-campus.

Practical Notes:

- GBS 709 will utilize UAB's learning management system, Canvas for providing all course material, lectures, and quizzes.
- Recorded lectures will be posted to Canvas for the following week, by Friday 5PM.
- Lecture materials can be viewed asynchronously, throughout the course. Dates are assigned to lecture topics in the schedule to discuss the topic and ask questions of the lecturers and to make sure that every student listen to the lectures.
- Participation in live lecture listening and Q&A is required as it is the resource to clarify certain areas of the subjects, and answer questions.
- *Homework credit* will be given to every student who submits the assignment answers by Thursday morning 8 am. Participation in homework review and application discussions are required each week for *participation credit*.
- Quizzes will have a 90 min time limit and must be started between 8 am and 10 am CDT on each Friday during the course. Quizzes are graded by the Canvas system.
- Grading will be based on the normal letter grade method, and UAB is encouraging students to continue taking courses for a letter grade when ever possible. Letter grades will be assigned as A = 90-100% B = 80 - 89.99 % C = 79.99 or lower. To pass this course, a student is required to obtain at least a B.
- The university is providing a Pass/Fail option in case there are circumstances and/or challenges students are encountering related to the pandemic. If students are not remaining with the default letter grade method for any of their courses, they must select the Pass/Fail grading method for each course individually. Selecting Pass/Fail grading for a particular course will not be reversible regardless of performance on remaining assessments.

Course Schedule

Please note that lectures are from Monday-Wednesday and homework assignments have to be submitted before 8 AM Thursday, each week. Homework assignments and practical applications of the lecture material will be reviewed every week on Thursday 8-10 AM. We will not have classes during the week of Thanksgiving.

DATE	SESSION TOPICS/ACTIVITIES	LECTURER
11/02/2020	Introduction (Study objectives for the week). HW assignment **Visual methods to study cellular and tissue structures.**	Zsuzsa Bebok; Sasanka Ramanadham, Alexa Mattheyses
11/03/2020	**Basic cellular organization, cell membranes, cell types, tissues**	Laura Fraser
11/04/2020	**Cytoskeleton, Cell Junctions, & Polarity**	Susan Bellis
11/05/2020	Homework review; Applications & Implications	Mattheyses, Bellis, Fraser
11/06/2020	***Quiz #1***	
11/09/2020	Introduction (Study objectives for the week). HW assignment **ECM & Interactions with ECM and Cell Motility**	Zsuzsa Bebok; Sasanka Ramanadham, Anita Hjelmeland
11/10/2020	**Cell Division (mitosis/meiosis)**	Josh Stern
11/11/2020	**Cell cycle control**	Chenbei Chang
11/12/2020	Homework review; Applications & Implications	Hjelmeland, Stern, Chang
11/13/2020	***Quiz #2***	
11/16/2020	Introduction (Study objectives for the week).HW assignment. **Membrane traffic – proteins - methods**	Zsuzsa Bebok; Sasanka Ramanadham, Elizabeth Sztul
11/16/2020	**Lipid synthesis and trafficking, peroxisomes - methods**	Sasanka Ramanadham
11/17/2020	**Transport across cell membranes (ions and small molecules, methods**	Catherine Fuller
11/18/2020	Homework review; Applications & Implications	Sztul, Fuller, Ramanadham
11/20/2020	***Quiz #3***	

11/23/2020	Thanksgiving Break- No Class	
11/24/2020	Thanksgiving Break- No Class	
11/25/2020	Thanksgiving Break- No Class	
11/26/2020	Thanksgiving Break- No Class	
11/27/2020	Thanksgiving Break- No Class	
11/30/2020	Introduction (Study objectives for the week). HW assignment. **Intracellular protein degradation: Endocytosis and lysosomal degradation**	Zsuzsa Bebok; Sasanka Ramanadham, Zsuzsa Bebok
12/01/2020	**Intracellular protein degradation: Proteasomal degradation**	Zsuzsa Bebok
12/02/2020	**Autophagy** **Cell death**	Jianhua Zhang
12/03/2020	Homework review; Applications & Implications	Zhang/Bebok
12/04/2020	***Quiz #4***	
12/07/2020	Introduction (Study objectives for the week). HW assignment. **Signaling: Types of Signaling I**	Sasanka Ramanadham Christian Faul
12/08/2020	**Types of Signaling II**	Christian Faul
12/09/2020	**Receptormediated Signaling**	Christian Faul
12/10/2020	Homework review; Applications & Implications	Faul/Ramanadham
12/11/2020	***Quiz #5***	

Disability Support Services:

UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services (DSS) for information on accommodations, registration and required procedures. Requests for reasonable accommodations involve an interactive process and consists of a collaborative effort among the student, DSS, faculty and staff.

To Register for Disability Support Services - Contact DSS at (205) 934-4205 (voice) or (205) 934-4248 (TDD). You must present documentation verifying your disability status and the need for accommodations. After DSS receives your completed documentation, you will meet individually with a member of the DSS staff to discuss your accommodations. It is best to register with DSS when you apply to UAB, as it may take 2-3 weeks to review your request and complete the process. For more information about Disability Support Services or to make an appointment, please feel free to contact the office directly at the Hill Student Center, 1400 University Boulevard,

Suite 409, Birmingham, AL 35294; via email: dss@uab.edu; or visit their website for more information.

If you are registered with Disability Support Services, **it is the student's responsibility to contact the course instructor**to discuss the accommodations that may be necessary in this course. Students with disabilities must be registered with DSS and provide an accommodation request letter before receiving academic adjustments. Reasonable and timely notification of accommodations for the course is encouraged and provided to the course instructor so that the accommodations can be arranged. Additional information about the process is available on the UAB website.

Title IX:

The University of Alabama at Birmingham is committed to providing an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual discrimination, harassment, misconduct, or assault we encourage you to report the incident. UAB provides several avenues for reporting. For more information about Title IX, policy, reporting, protections, resources and supports, please visit UAB's Title IX Policy and UAB's Equal Opportunity and Anti-Harassment Policy.

COVID-19 Adjustments for Students:

- Considering that the course is 100% virtual, attendance (as stated above) will be a part of your grade in this course. Every student will be permitted one unexcused absence. Doctor's excuses are accepted on individual bases following discussion with course directors (we are here to help you). All absences for COVID-19-related illnesses will be excused, but will require discussion with course directors concerning repeating the course or doing exams at different times.
- Students concerned about their attendance as a result of COVID-19 should register with Disability Support Services.
- UAB Disability Support Services (DSS) has established a process for UAB students to request temporary adjustments based on the impact of COVID-19. The process is similar to the traditional DSS registration procedures for accommodations based on disability. However, these requests will be referred to as "COVID-19 Related Temporary Adjustments". On the DSS website, there is a section (next to the traditional DSS application process) titled "Request COVID-19 Temporary Adjustments" where students can read the process and click to complete an application.
    - On the application, the student must complete an attestation and identify which of the following category(s) applies to their situation. For this course we accept the following reasons are accepted:
        - I have tested positive for COVID-19
        - I am requesting adjustments for another reason
        - I am a care giver for an individual with COVID-19

Any questions regarding this process should be referred directly to dss@uab.edu. For qualifying students, DSS staff will create a Notification of Temporary Adjustment Letter (PDF format) which will be provided to students. Students will share this letter, as needed, with instructors to request adjustments.