Physiology of Cellular and Molecular Systems

Last Updated: Thu, 01/15/2026

Course prefix: BMED

Course number: 3600

Section: C

CRN (you may add up to five):
27650

Instructor First Name: Marian

Instructor Last Name: Ackun-Farmmer

Semester: Spring

Academic year: 2026

Course description:

The goal of this course is to prepare you to understand cell and molecular biological technologies and apply them to real-world problems in a respectful and welcoming classroom environment. To do this, you will need to understand the basics of cell biology for both single cells and groups of cells. More specifically, we will discuss the building blocks of cells, gene expression and genetic engineering, the organization and function of organelles, cell signaling, the cytoskeleton, the cell cycle, and the extracellular matrix.

Course learning outcomes:

Learning objectives. At the end of the class, students should be able to:

1. Demonstrate knowledge of cellular systems, including gene expression, organelles, cell signaling, the cytoskeleton, cell cycle, and the extracellular matrix.

2. Understand what proteins do, why gene expression matters, how DNA is organized, what chromosomes are, how DNA is copied, and how it is maintained.

3. Understand enzymes and how they interact with their substrates

4. Apply knowledge gained in the course to interrogate or solve cell biological problems.

5. Read and analyze relevant scientific literature.

6. Design rational experimental approaches toward treating a disease.

7. Communicate clearly about cell biology in written and oral formats in technical and non-technical language in concise and detailed formats.

Required course materials:

Essential Cell Biology, 6th Edition, Alberts et al.

Grading policy:

Final Grade Table *(in POINTS not %)*		Team Component				
		A (≥55)	B (≥45)	C (≥35)	D (≥20)	F (<20)
Individual Component	A (≥126)	A	A	A	B	B
	B (≥112)	A	B	B	C	C
	C (≥98)	B	B	C	C	D
	D (≥84)	C	C	C	D	D
	F (<70)	D	D	D	F	F

No extra credit will be given on an individual basis.

Attendance policy:

Attendance is expected and appreciated in the lecture section. This is an opportunity to work with your colleagues in class and to ask me questions; some I will answer immediately, and others I will follow up on if I don't know the answer. I expect lectures to be engaging and will accept student recommendations if a lecture fails to stimulate interest, to improve the content, and make it more enjoyable. *If you are unwell, please refrain from attending class.* Please note that you are responsible for any material missed during an absence, as lectures will not be recorded.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.