

Welcome to Cell Biology! This course will explore the astonishing workings of eukaryotic cells! Knowledge acquired during this course will help you understand the myriad processes that occur within our cells, and will also help you begin to understand how cellular functions underlie and are responsible for the functions of tissues, organs and entire organisms.

THIS SYLLABUS IS NOT A CONTRACT. Dr. Adams reserves the right to revise any aspect of this syllabus at any time.

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Office Hour: Directly after class is the best time to meet with me. I do not meet with students in my office, but I will be very willing to meet with you in any public space. If your schedule does not allow meeting directly after class, please contact me in person or by email (brett.adams@usu.edu) to arrange an appointment.

Lecture time and place: **Monday, Wednesday & Friday** **11:30 AM - 12:20 PM** **in FAV 262**

Course Objective: To **acquire factual knowledge** about the structures and functions of eukaryotic cells. Be aware that cells are **extremely complex**, and it will be necessary for you to **memorize** an **enormous** amount of **factual information**.

Prerequisites: BIOL 1620 (General Biology), BIOL 3060 (Principles of Genetics), and CHEM 2300 or 2310 (Organic Chemistry). **Biochemistry** (CHEM 3700 or 5700) is **highly recommended** but is not a prerequisite.

Recommended (not required) Textbook: *Molecular Biology of the Cell*, 6th Edition (MBoC6).

Grading: Your final grade will be determined by the total number of points you score on the **seven** (7) exams, divided by the total number of possible points on those exams. Your **two** (2) lowest exam scores will be dropped and will not count toward your grade. There may be some points associated with assignments (to be determined).

PLEASE NOTE that there are NO OPPORTUNITIES for extra credit in this course.

The grading scheme used to determine final grades will be:

A	=	92.5 – 100 %
A-	=	< 92.5 to 89.5 %
B+	=	< 89.5 to 84.5 %
B	=	< 84.5 to 79.5 %
B-	=	< 79.5 to 74.5 %
C+	=	< 74.5 to 69.5 %
C	=	< 69.5 to 64.5 %
C-	=	< 64.5 to 59.5 %
D+	=	< 59.5 to 54.5 %
D	=	< 54.5 to 49.5 %
F	=	< 49.5 %

IMPORTANT INFORMATION about the grading scheme: Dr. Adams' grading scheme is considerably more generous than the USU Standard grading scheme. Additionally, his grading scheme has a **0.5% bonus** built into it. For example, the break point between a grade of B- and B occurs at 79.5% instead of at 80%. For these reasons, **DR. ADAMS WILL NOT CHANGE YOUR FINAL GRADE EVEN IF YOU ARE VERY CLOSE TO THE NEXT HIGHER GRADE.** For example, if your total percentage point score is 92.49999 %, you will get a final grade of "A-" and not "A".

Exams: There will be **seven (7) exams** worth **approximately** 60 - 80 points each. Your **two (2) lowest** exam scores will be automatically dropped by Canvas, and will **not** be used to calculate your final grade.

Each lecture will be worth **approximately 16 points** on the exam. Each exam will cover (mostly) material presented since the previous exam.

On exams, you will be responsible for all material **presented verbally** in class, **written on the whiteboard** during class, contained within **PowerPoint presentations** and/or **audio or video recordings** posted on Canvas. Exams may also cover material presented within assignments.

If you don't attend class - for whatever reason - it is **your responsibility** to obtain the material **from your classmates or from the slides and audio/video recordings posted on Canvas (if any exist)**. No make-up lectures will be given. **Audio recordings** of most lectures will be posted on Canvas. Occasionally, audio recordings are lost and not available.

Missed Exams: If you miss an exam - **for any reason** - you will receive **ZERO (0)** points as your score for the missed exam, and that exam score will become one of your two (2) dropped exam scores. **No make-up exams, early exams or special exams will be given.**

Any disputes regarding exam scores must be discussed with Dr. Adams **within three (3) working days** of the day that the contested exam score was reported to you.

Disability Resource Center (DRC): If you have a condition that requires accommodation, please contact Dr. Adams and document your situation through the DRC during the first week of classes.

Requests for an incomplete (I) grade: Must comply with current USU regulations (see Schedule of Classes).

TENTATIVE LECTURE SCHEDULE

Date	Topic	Recommended Readings in MBoC6
August 27	How to succeed in this course – Cell Membrane Structure	pp. 565 - 576
August 29	Membrane Proteins I	pp. 576 - 594
August 31	Membrane Proteins II	pp. 576 - 594
September 3	<u>NO CLASSES</u> - LABOR DAY HOLIDAY	
September 5	Principles of Cell Membrane Transport	pp. 597 - 611
September 7	Ion Channels & Membrane Electrical Properties	pp. 611 - 620
September 10	EXAM 1 (~ 80 points possible)	
September 12	Electrical Signaling by Cell Membranes	pp. 620 - 627
September 14	Chemical Synaptic Transmission I	pp. 627 - 638
September 17	Chemical Synaptic Transmission II	pp. 627 - 638
September 19	Compartmentalization of Cells	pp. 641 - 649
September 21	Transport between the Nucleus & the Cytosol	pp. 649 - 658
September 24	EXAM 2 (~ 80 points possible)	
September 26	Peroxisomes & Endoplasmic Reticulum I	pp. 666 - 691
September 28	Endoplasmic Reticulum II	pp. 669 - 691
October 1	Intracellular Membrane Traffic	pp. 695 - 710
October 3	The Golgi Apparatus	pp. 710 - 722
October 5	Lysosomes	pp. 722 - 730
October 8	EXAM 3 (~ 80 points possible)	
October 10	Endocytosis & Exocytosis	pp. 730 - 750
October 12	Principles of Cell Signaling	pp. 813 - 831

October 15	Signaling through G-protein-coupled Receptors	pp. 832 - 849
October 17	Signaling through Enzyme-coupled Receptors	PP. 850 - 863
October 19	<u>NO CLASSES</u> - FALL BREAK DAY	
October 22	EXAM 4 (~ 60 points possible)	
October 24	The Cytoskeleton	pp. 889 - 897
October 26	Actin	pp. 898 - 914
October 29	Myosin & Actin	pp 915 - 925
October 31	Microtubules	pp. 925 - 944
November 2	Intermediate Filaments	pp. 944 - 950
November 5	EXAM 5 (~ 80 points possible)	
November 7	Cell polarization & migration	pp. 951 - 960
November 9	The Cell Cycle	pp. 963 - 974
November 12	Control of Cell Division & Cell Growth	pp. 1010 - 1018
November 14	Cell Death	pp. 1021 - 1032
November 16	Stem cells	pp. 1217 - 1260
November 19	Cancer, part one	pp. 1091 - 1141
November 21	<u>NO CLASSES</u> - THANKSGIVING HOLIDAY	
November 23	<u>NO CLASSES</u> - THANKSGIVING HOLIDAY	
November 26	EXAM 6 (~ 80 points possible)	
November 28	Cancer, part two	pp. 1091 - 1141
November 30	Cancer, part three	pp. 1091 - 1141
December 3	Extracellular Matrix	pp. 1057 - 1081
December 5	Cell Junctions, part one	pp. 1035 - 1057
December 7	Cell Junctions, part two	pp. 1035 - 1057
December 10	EXAM 7 (~ 80 points possible)	11:30 AM - 1:20 PM