

CELL BIOLOGY (BIOL 3510)

Fall, 2026

Monday, Wednesday, and Friday, 8:00 am – 8:50 am, BLB250

INSTRUCTOR

Dr. Róisín McGarry. Dr. McGarry is a plant developmental biologist whose research uses virus-based approaches to investigate meristem dynamics and the specification of architecture in non-model plants.

Please contact me through Canvas.

OVERVIEW

This course provides a comprehensive understanding of eukaryotic cell function. We will begin with an overview of the organelles and compartments within the cell and then examine more closely the activities within these organelles, and how these individual compartments function together and dynamically in cellular processes including gene expression, secretion, signaling, cell mobility, and cell cycle control. Integral to these discussions will be understanding the techniques and tools used in cell biology.

REQUIRED READING

Essential Cell Biology, 6th edition. 2004. Alberts, B., et al. Garland Science, USA. The chapters for which you are responsible are clearly indicated in this syllabus. This text is available for purchase or rental at the UNT bookstore or other retailers; Voertman's Bookstore has copies of this textbook for \$79.99. Previous editions of this text can be used.

LECTURE MATERIALS

The lectures will be shared in Canvas. These PowerPoint presentations form the foundation for extensive and expanded discussions during class, and students are expected to use these materials to supplement extensive notetaking in lectures.

OFFICE HOURS

Wednesday 9 – 10 am and Thursday, from 12:30 – 1:30 pm or by appointment, Life Sciences Complex B326.

EXAMINATIONS

There will be five exams this semester: four unit exams and one comprehensive final exam. Unit exams address materials covered from the prior exam (see **COURSE SCHEDULE**). The comprehensive final exam, covering the full course, will be administered during Finals Week. The final exam is mandatory. Each exam is worth 20% of the final course grade. At the end of the semester, the lowest exam score – out of all five exams – will be dropped.

Make-up exams will only be given in extreme circumstances. In these rare cases, Dr. McGarry must first be alerted, not later than 24 hours after the missed exam, with the appropriate documentation to discuss the request.

ASSIGNMENTS

There will be four assignments during the semester, which will comprise 20% of the final grade. Assignments will be submitted via Canvas.

GRADING AND GRADE DISTRIBUTION

	Points Possible	Percentage of Final Grade
Your four highest-scored exams	400 points	80%
Assignments	100 points	20%
Total Points Possible	500 points	100%

Final grades: **A** = 448-500 points; **B** = 398-447 points; **C** = 348-397 points; **D** = 298-347 points; **F** = less than 298 points.

Any adjustments to grades will be made at the end of the semester at the instructor's discretion.

ACADEMIC INTEGRITY

Plagiarism and academic dishonesty will not be tolerated. Any work bearing undue similarity to that of another student will result in all parties receiving a zero grade and additional disciplinary action will be pursued. All students are urged to refer to the Code of Student Conduct (<https://vpaa.unt.edu/ss/integrity/index.html>, and links therein) for further clarification.

UNAUTHORIZED AIDS DURING EXAMINATIONS AND ASSESSMENTS

Students may use only those materials and resources that are expressly authorized by the instructor for a particular examination or assessment. Touching, holding, or accessing any unauthorized aid during the examination period constitutes a violation of the Student Code of Conduct, regardless of whether the aid is used.

Any item that may be considered an unauthorized aid must be kept out of view and in a closed container (e.g. zipped backpack, buttoned purse, etc.) during the entirety of the examination or assessment.

Unless specifically authorized in writing by the instructor, prohibited aids include, but are not limited to:

- Mobile phones and smartphones
- Smartwatches and fitness trackers with communication, recording, or internet capabilities
- Tablets, laptops, and other computing devices
- Earbuds, headphones, and other audio devices
- Smart glasses, cameras, recording devices, and wearable technology
- Artificial intelligence (AI) tools, chatbots, and other generative AI technologies
- Notes, textbooks, study guides, formula sheets, or reference materials
- Any other device, material, or resource not expressly permitted by the instructor

Students are responsible for clarifying any questions about permitted materials before the examination begins.

OFFICE OF DISABILITY ACCOMMODATION (ODA)

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. Once verified, the ODA will provide an accommodation letter to be delivered to me to begin a private discussion regarding your

specific needs in this course. You may request accommodation at any time; however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at (940) 565-4323.

COURSE SCHEDULE

The following schedule of lectures is approximate and is subject to change at the instructor's discretion. Exam dates will not be changed.

DATES	LECTURES	RELEVANT READINGS
Aug. 17-19	Introduction to Cells and Tools of the Trade	Chapter 1
Aug. 19-21	Protein Building Blocks: the Cell's Master Craftsmen	Chapter 4, 1 st half
Aug. 24-26	Protein Dynamics: Structure Means Function	Chapter 4,
Aug. 26-28	Proteins in Action and More Tools of the Trade	Chapter 4
Aug. 31	Pack it up! DNA and Chromosome Architecture	Chapter 5
Sept. 2-4	Reading the Genome: How Cells Turn DNA into Messages	Chapter 7, 1 st half
Sept. 7	Labor day – no classes	
Sept. 9	Exam 1 (covers all materials up to this point)	
Sept. 11-14	From Message to Molecule: Translating RNA into Protein	Chapter 7, 2 nd half
Sept. 16-18	Membrane Structure: Building the Cell's Protective Barrier	Chapter 11
Sept. 21-23	Crossing the Border: Moving Molecules In and Out	Chapter 12, 1 st half
Sept. 23-25	Traffic Control: Regulating Cellular Flow	Chapter 12, 2 nd half
Sept. 25	Transport in Nerve Cells	Chapter 12, neurons
Sept. 28-30	Intracellular Transport – Location, Location, Location	Chapter 15, 1 st half
Oct. 2	Exam 2 (covers all materials from Exam 1 to this point)	
Oct. 5-7	Intracellular Transport – Sorting and Shipping Cargo	Chapter 15, 2 nd half
Oct. 9-12	Fueling Life: the Chemistry of Cellular Energy	Chapter 3 & 13, 1 st half
Oct. 12-14	Powering the Cell	Chapter 13, 2 nd half
Oct. 14-16	Mitochondria – the Cell's Power Plants	Chapter 14, 1 st half
Oct. 16-19	Chloroplasts – Harvesting Light Energy	Chapter 14, 2 nd half
Oct. 21-23	How Signals are Sent and Received	Chapter 16, 1 st third
Oct. 26	Exam 3 (covers all materials from Exam 2 to this point)	
Oct. 28-30	Decoding Messages	Chapter 16, 2 nd third
Oct. 30-Nov. 2	Frameworks for Life	Chapter 17, 1 st half
Nov. 2-4	Motility and Strength: the Cytoskeleton in	Chapter 17, 2 nd half

	Action	
Nov. 4-6	Reproducing Life: the Art and Precision of Cell Division	Chapter 18
Nov. 13	How Cancer Begins	Chapter 20, 1 st half
Nov. 16	How Cancer Progresses	Chapter 20, 2 nd half
Nov. 18	Exam 4 (covers all materials from Exam 3 to this point)	
Nov. 20	Cancer and cell cycle	
NOV 23-29	Thanksgiving – no classes	
Nov. 30	Big-Picture Review: Connecting the Cellular Story	
Dec. 2	Mastering Course Themes – Final Exam Prep	
Dec. 4	Reading Day - No Class	
Saturday, Dec. 5 8 am – 10 am	FINAL EXAM (comprehensive and mandatory), in BLB 250	