

**Instructor:** Dr. Tom Kieft      **Website:** <https://nmt.edu/academics/biology/faculty/tkieft.php>

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**Office hours:** Mondays and Wednesdays 10-11, 1-2. I'm often available at other times, too. These are virtual office hours. Please email me or call me *any time* and we'll set up a confidential one-on-one Zoom meeting. I'll be happy to talk with you about the material, the expectations of the course, how to study, career plans, on-line access issues, COVID-19, news of the world, anything!

**Mode of Instruction:** This is a "hybrid" course, meaning that some students will attend class in a traditional, face-to-face way (Section 01) and others will attend simultaneously on-line (Section 02D, D is for "Distance."). Efforts will be made to insure that the two sections of students will experience the course in as much the same way as possible. The on-line delivery will be "synchronous," meaning that students are expected to attend the class during class hours, in this case MWF 11:00-11:50, so that they can participate in class exercises, ask questions, take quizzes, and take tests all at the same time. The  
n the learning process to the greatest extent

possible. There's a danger, especially for students participating online, not to be fully engaged. Speak up, ask questions, participate in discussions, etc. Please let me know if you have internet access problems so that we can try to resolve them.

**Learning Outcomes:** At the end of the course, it is expected that students will be able to:

1. Apply the scientific method to develop and evaluate hypotheses and propose an experiment to test a scientific hypothesis related to cell biology and molecular biology.
2. Describe the distinguishing characteristics of various biological molecules (water, carbohydrates, lipids, proteins, and nucleic acids). (HED Area 3, Competency 3)
3. Compare and contrast the basic features of cells and how prokaryotic cells differ from eukaryotic cells. (HED Area 3, Competency 3)
4. Understand how organisms maintain homeostasis in a dynamic environment.
5. Describe how biological molecules are acquired and how they are subsequently used to meet the metabolic needs of organisms. (HED Area 3, Competency 3)
6. Describe membrane structure and function.
7. Describe and analyze the nature of bioenergetic transformations and metabolism within the cell.
8. Describe the processes of cellular respiration and photosynthesis.
9. Analyze with specific detail the processes of DNA replication, transcription, and translation.
10. Analyze with specific detail the types, mechanisms, and regulation of cellular division.
11. Assess important applications of cell and molecular biology to energy use, medicine, and other day-today processes. (HED Area 3, Competency 1,3,4,5)

**Textbook.** The required text is *Life, The Science of Biology, Vol. 1*, 11th Edition, by Sadava et al. The 10<sup>th</sup> edition of Sadava et al. Vol. 1 is acceptable, too. So are recent editions of the full version of *Life, The Science of Biology* (textbook for both Biol 2110 and Biol 2610). If you use a different edition, then you're responsible for figuring out which chapters to read. This shouldn't be difficult. We will cover the chapters listed below in numerical order. You are responsible for keeping up with the reading.

**Online resources: Course materials on the web:** Many course materials will be made available via Canvas (<https://nmt.instructure.com/>). Zoom will be used extensively for online presentation and participation. The course is taught in a Zoom Room, which is intended to facilitate participation of students who are attending online.

**Course outline (short version. See Course Schedule, too.)**

<b><u>Topic</u></b>	<b><u>Reading in Sadava et al.</u></b>
Introduction	Ch. 1
Chemistry of macromolecules	Chs. 2-4
Cell biology	Chs. 5-6
Energy and metabolism	Chs. 8-10
Cell cycle	Ch. 11
Genetics and molecular biology	Chs. 12-14

**Exams and grading**

Your grade will be based on your scores on five midterm exams, counting 12% each; one final exam, counting 20%; and quizzes and homework assignments, counting a total of 20%.

**Tentative exam schedule:**

	<b>Date</b>
First exam:	Friday, September 4
Second exam:	Friay, september 25
Third exam:	Wednesday, October 14
Fourth exam:	Friday, November 6
Fifth exam:	Friday, November 20
Final exam, comprehensive, 2-hour):	Finals week

(Final exams will be scheduled by the Registrar later in the semester.)

Course grades will be based on the following scale: 90-100% A, 80-89% B, 70-79% C, 60-69% D, 59% F. If necessary, the scale will be shifted down (curved) until the top 10% of students receive an A.

No make-up exams will be given. If a student misses one exam due to a bona fide illness or family emergency (must be documented via the Dean of Students), then the student's grade will be computed using the remaining exams. No extra-credit or alternative assignments will be given.

Exams will cover any and all material from lectures and reading assignments. The final exam will be comprehensive.

**Academic Honesty:** New Mexico Tech's Academic Honesty Policy for undergraduate and graduate students is found in the student handbook, which can be found a

**Respect Statement:** New Mexico Tech supports freedom of expression within the parameters of a respectful learning environment. As stated in the New Mexico Tech Guide to Conduct and Citizenship: “New Mexico Tech’s primary purpose is education, which includes teaching, research, discussion, learning, and service. An atmosphere of free and open inquiry is essential to the pursuit of education. Tech seeks to protect academic freedom and build on individual responsibility to create and maintain an academic atmosphere that is a purposeful, just, open, disciplined, and caring community.”

**COVID-19 Safety Issues for Face-to-Face Instruction:** Students must follow campus-wide safety protocols, including mandatory use of face coverings and maintaining a minimum of 6 ft social distance from other students and faculty. **Students should not enter the classroom earlier than 10 minutes prior to start of class, and should exit the classroom within 10 minutes of the end of class.** Students who fail to comply are subject to disciplinary procedures.

**Title IX Reporting:**

Sexual misconduct, sexual violence and other forms of sexual misconduct and gender-based discrimination are contrary to the University’s mission and core values, violate university policies, and may also violate state and federal law (Title IX). Faculty members are considered “Responsible Employees” and are required to report incidents of these prohibited behaviors. Any such reports should be directed to Tech’s Title IX Coordinator (Dr. Peter Phaiyah, 20D Brown Hall, 575-835-5187, [titleixcoordinator@nmt.edu](mailto:titleixcoordinator@nmt.edu) ). Please visit Tech’s Title IX Website ([www.nmt.edu/titleix](http://www.nmt.edu/titleix)) for additional information and resources.

**Read the textbook.**

**Attend class.**

**Take notes.**

**Ask questions.**