

Honors Biology 2026-2027

Monday and Wednesday 3:05 pm - 4:25 pm

Teacher: Mr. Lance Heinemann Email: lheinemann@guhsd.net Textbook: Concepts of Biology (OpenStax, free online textbook)	Grade Level: 9th Grades: Jupiter Website: Google Classroom
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Course Description:

Honors biology is a rigorous, fast-paced high school course designed to thoroughly prepare students for college-level biology. It integrates lecture content and laboratory experiences to build a strong foundation in key biological concepts, including biochemistry, cell biology, molecular biology, genetics, evolution, ecology, and plant biology. Students will gain a deep understanding of the scientific process, develop critical thinking skills and confidently approach complex biological concepts. By the end of this course, students will feel well prepared to succeed in advanced high school science and college-level biology courses. Units of study are at the end of this syllabus.

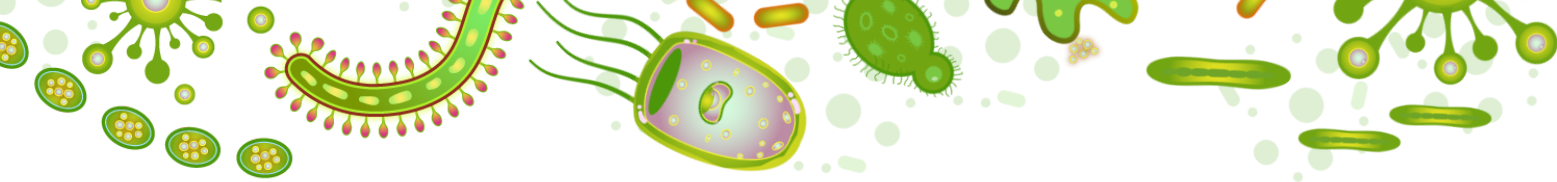
Class Materials:

- Concepts of Biology (OpenStax, free online textbook)
- 3-Ring Binder with Lined Paper or Notebook
- Colored pens or pencils for diagrams and annotations
- Laptop or tablet

Grading Categories:

The grading categories for this class reflect the skills that students are expected to gain through this course. Percentages represent the weight of each category towards the final grade.

- Knowing and Understanding (Tests and Exams) – 25%
- Inquiring and Design (Labs and Reports) – 35%
- Processing and Evaluating (Homework) – 15%
- Reflecting on the Impacts of Science (Group Work and Projects) – 15%
- Miscellaneous/Participation – 10%



Specific rubrics for each category will always be provided. [Example Rubric.](#)

- Exams will assess understanding of lecture material and scientific reasoning through multiple choice, true/false, short answer, modeling, and essay questions.
- Homework will include notes, review questions, real-world application, research, and long-term projects.
- Labs include a pre-lab setup, notebook data entries, digital experimental reporting (graphs), and post-lab analysis.
- Participating includes attendance, involvement in classroom discussions, and contributions to group work.

Late Work:

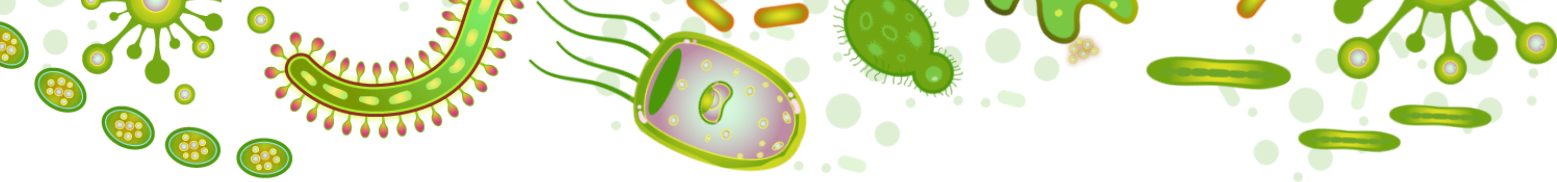
The expectation is that assignments are turned in on time as it becomes difficult to keep up if you are not up-to-date. However, late work will be accepted with an academic penalty. Students must turn in late work by the assessment we are currently working on. These dates will be highlighted in the agenda, but it is also the students responsibility to keep track. Please send Mr. Heinemann a friendly reminder if late work has not been graded in a timely manner (sometimes I'll forget).

Academic Honesty & Artificial Intelligence (AI) Policy

Students are expected to practice honest, responsible behavior and submit original work. Academic dishonesty—including traditional cheating, unauthorized collaboration, and AI misuse—will not be tolerated.

What Constitutes Academic Dishonesty?

- **Plagiarism & AI Misuse:** Using Artificial Intelligence tools (e.g., ChatGPT, Gemini, etc.) to generate work and submit it as one's own; copying text, data, or ideas from internet sources or another student without proper citations.
- **Unauthorized Collaboration:** Sharing work, notes, or answers without explicit teacher permission.
- **Cheating & Fabrication:** Copying during tests/assessments, or inventing dates, sources, or citations.



Classroom and Lab Safety:

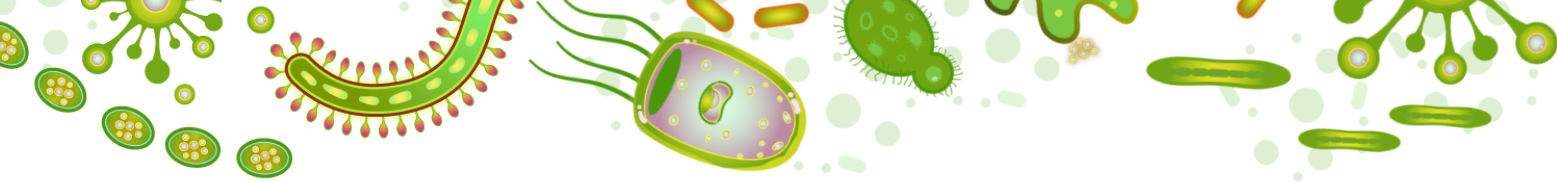
- Carefully read all instructions and safety guidelines before working on any lab.
- Do not touch any lab equipment or materials without teacher permission.
- No horseplay, nothing is a toy. Violations of this rule may result in a zero and/or referral.
- No food or drinks in the classroom during a lab. If you really need to, ask Mr. Heinemann for permission to eat outside.
- Always wash your hands after a lab and keep your lab station clean. A messy station may result in lost credit.
- Always report injuries or accidents to a teacher immediately.
- Dress appropriately for labs, you may have to tie up long hair and tuck away dangling jewelry. Goggles must be worn at all times when necessary.
- If you are not sure how something works (such as where to dispose of a chemical), ask questions, I am happy to help!

Student Support:

When possible, I am happy to remain after class and offer any support students may need. Other than that, I am always available by email and generally respond within a day. If required, I can also set up Zoom meetings.

Units of Study (Specific topics and labs are subject to change):

- Unit 1 - Chemistry of Life
 - Atoms, molecules, properties of water, macromolecules
 - Labs: Iodine starch staining, denaturation of proteins
- Unit 2 - Cell Structure and Function
 - Prokaryotic vs eukaryotic cells, organelles, membrane functions, osmosis
 - Labs: Microscopy, cell staining
- Unit 3 - Energy and Metabolism
 - ATP, anaerobic and aerobic respiration, mitochondria structure
 - Labs: Fermentation with yeast



- **Unit 4 - Cell Division and DNA**
 - Mitosis, meiosis, DNA structure and replication
 - Labs: DNA modeling, DNA extraction
- **Unit 5 - Genetics and Inheritance**
 - Mendelian genetics, patterns of inheritance, pheno/genotypes
 - Simulated offspring
- **Unit 6 - Molecular Biology and Protein Synthesis**
 - Central dogma, codons, transcription and translation
 - Labs: Protein synthesis modeling
- **Unit 7 - Photosynthesis and Plant Biology**
 - Chloroplast structure, independent and depending light reactions, leaf structure
 - Lab: Floating leaves photosynthesis visualization
- **Unit 8 - Evolution and Natural Selection**
 - Natural selection, adaptations, genetic variations
 - Lab: beak adaptations, biomimicry
- **Unit 9 - Diversity of Life and Taxonomy**
 - Domains, kingdoms, classification systems
 - Lab: iNaturalist exploration, dichotomous keys
- **Unit 10 - Ecology and Environmental Science**
 - Ecosystems, energy flow, cycles of matter, human impacts
 - iNaturalist food web design, ecosystem construction