

# AP / DC BIOLOGY

Course Syllabus • 2026–2027

Central High School

|            |                                                                                          |
|------------|------------------------------------------------------------------------------------------|
| Instructor | Shamone Minzenmayer                                                                      |
| Room       | Tucker 117                                                                               |
| Email      | shamone.minzenmayer@saisd.org                                                            |
| Tutorials  | Tuesdays & Thursdays in Tucker 117 — before school, after school, or during Bobcat Block |

## About Your Teacher

This year I teach Anatomy & Physiology, AP Environmental Science, and AP/DC Biology. I've been teaching for 33 years, primarily in public schools — 20 years of Biology 1 (grade-level and PreAP), 25 years of AP/DC Biology, 13 years of AP Environmental Science, and four years teaching at Angelo State University and Texas A&M University.

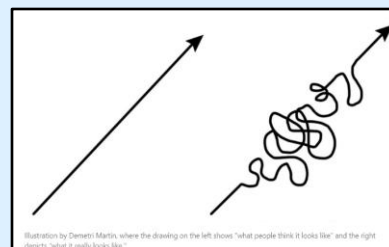
I hold a Bachelor of Science and a Master's degree in Biology from Angelo State University, plus additional graduate hours from Texas A&M University. I currently write test items for AP Biology for the College Board, and for the past 22 years I've served as a reader, table leader, question leader, and exam leader at the AP Biology reading each summer.



I love what I do, and seeing students grow and learn is awesome! I have two adult children who graduated from CHS — Kevin (32), who studies computer science, and Kelsey (28), a professional dancer and Academy Director at the San Diego Academy of Ballet. My husband Brian and I have been married for 41 years.

### The most important thing: I want students to LEARN and GROW.

Both require using feedback to learn from mistakes. It's normal to worry about grades — but that worry shouldn't come at the expense of learning. Trust the process: if you do the work, the grades will follow.



# Course Overview

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This is a college-level course taught in high school. At the end of the year, students take a standardized AP Exam that determines eligibility for college credit. The course demands exceptional organizational skills and follows the curriculum framework established by the College Board.

- Students conduct at least two inquiry-based lab activities per Big Idea in the curriculum framework.
- Lab products may be a formal lab report, a mini-poster presentation, or a group presentation.
- All students in the course are considered AP students. Some may also register for Dual Credit through Angelo State University (ASU).

## Angelo State University Dual Credit Courses

| Course                                                     | Description                                                                                                                                                                                                                                          |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BIOL 1306 / 1106</b><br><b>Principles of Biology I</b>  | Introduction to the unifying principles of biology, with emphasis on biological chemistry, energetics and homeostasis, cell structure and function, gene expression, and patterns of inheritance. Students must register for BIOL 1106 concurrently. |
| <b>BIOL 1307 / 1107</b><br><b>Principles of Biology II</b> | Introduction to the unifying principles of biology, with emphasis on biological diversity, evolution, and ecology. Students must register for BIOL 1107 concurrently.                                                                                |

## Grading

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Grades are broken into two categories:

| Category         | Component                   | Weight                 |
|------------------|-----------------------------|------------------------|
| <b>Major 70%</b> | Cumulative Unit Exams       | 80% of the Major grade |
|                  | Labs & Projects             | 20% of the Major grade |
| <b>Minor 30%</b> | Homework & minor activities | 10% of this category   |
|                  | Quizzes & FRQs              | 20% of this category   |

### Semester Exams

- All students take the fall semester exam — there are no exemptions. It's great review for the AP Exam.
  - There is no spring semester exam (i.e., you're exempt), if you register for, prepare for, and take the AP Exam in May.
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## Homework, Late Work & Makeup Policy

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### Minor Category — Late Penalties

| How Late     | Penalty |
|--------------|---------|
| 1 day late   | -10%    |
| 2 days late  | -20%    |
| 3 days late  | -30%    |
| 4+ days late | -50%    |

Weekly homework cannot be submitted after 1 week. The Schoology assignment will be closed the day the next week's homework is due.

All work for a unit must be turned in before the Summative Unit Exam for that unit. Need more time? Submit an Extension Request through this [Google Form](#). Unless arrangements are made in advance, you may only request extensions one time per month.

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### AP/DC Grading Guidelines

- Assignments are on time if turned in by the beginning of class (paper) or by 11:59 pm on the due date (digital).
- Only submit **COMPLETED** assignments — partially completed work will be returned for you to finish.
- **Unexpected absence**: online work is still due on time, unless you're too sick to work. Message me on Schoology, and we'll make a plan.
- **Planned absence** (school trip, college visit, etc.): all assignments are due on or before the day you leave.
- **Missed a lab day?** Get the data from your group, then complete the pre-lab, data analysis, and finish product on your own — on time.
- I reserve the right to decline any late assignment. Labs and projects, in general, are accepted on time only.
- Study groups are fine — but all answers and notes must be your own.

## Independent Learning (Homework)

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The full-year calendar, including due dates, is posted in Schoology. Day-to-day work may shift slightly, but independent learning deadlines will not.

- **Independent learning includes** textbook notes, video notes, Mastering Biology, and formative AP Classroom assignments.
- Most independent work is submitted through Schoology — see me in advance if you're having submission trouble.
- Points accumulate throughout the grading period for work completed on time, with appropriate effort and evidence of learning.
- Though a small share of your average, **this work is the most essential part of your learning** — it's the foundation for quizzes, labs, projects, and tests.
- **You can't skip this work and still expect an A or B.** Class time is spent clearing up misconceptions and applying what you've already learned — if you arrive unprepared, you'll be lost.

## Lab and Project Expectations

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- Try to **attend every Lab in person**. Labs can't be made up, and missing one makes the material harder to understand. You're still responsible for turning in all lab assignments, regardless of attendance.
- Unless other arrangements are made in advance, **Labs and Projects are only accepted on time**.
- You'll **work in groups** throughout the year, just like real scientists do. At some point, you'll fill out a peer evaluation to reflect on how your group worked together.
- **Group work isn't always fair or equal**. If you feel like you're carrying the whole team, use it as a chance to practice delegating. If you feel like you're not contributing much, use it as a chance to practice speaking up. Either way, working with others—messiness included—is part of the experience.
- You are expected to **practice safety in the lab**. This includes dressing appropriately (closed-toe shoes; hair pulled back).

## Quizzes & Unit Exams

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### Quizzes

- **Generally held each Wednesday**, covering that week's readings, videos, and AP Classroom assignments — plus review questions from prior weeks.
- Format varies: short-answer, multiple-choice, or free-response.
- **Expected absence**: arrange to take the quiz BEFORE you leave.
- **Unexpected absence**: take it when you return (before school or during Bobcat Block), in a different format, unless other arrangements are made in advance. Use this [Google Form](#) to schedule a makeup time.

### Unit Exams

- Study a little each day — cramming doesn't work for long-term retention on Unit Exams or the AP Exam.
- **Exams mirror the AP format**: expect unfamiliar data and experiments that require applying, not just memorizing, what you've learned.
- **Exams are comprehensive** — mostly current-unit material, but often with questions from earlier units.
- **Exams are timed** like the AP Exam and completed in one sitting, unless you have approved extended time.
- Every exam is analyzed the next school day — try to be present for both the test and the analysis; it's an important learning tool.
- Do your best to be **PRESENT** in class on Exam Days!
- **Absent on exam day?**
  - You are expected to **make it up before class starts the following day** if possible—message me and make arrangements.
  - Know about it in advance (trip, appointment, etc.)? Arrange to test BEFORE you leave.

**Questions or confusion about something? Please ask! 😊**

## Textbook & Materials

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### Textbook

Urry, Lisa A. (2024). Biology in Focus, 4th Edition. Benjamin Cummings — includes Mastering Biology access. You'll get instructions for accessing the book during the first week of school.

## Materials

| Required                          |                                                                                                                      |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Five-subject spiral notebook      | Bring it every day. One section is your lab notebook. We'll set up the organization system the first week of school. |
| School-issued Chromebook, charged | Bring it every day. Please leave personal devices at home.                                                           |
| Nice to Have                      |                                                                                                                      |
| Optional supplies                 | Colored pencils, highlighters, fine-line markers, scissors, tape or glue                                             |

## Classroom Expectations & Procedures

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- Bring your charged, school-issued Chromebook and your spiral notebook every day.
- State law prohibits cell phones at school — phones should never be out or on in the classroom, and since phones are off, earbuds/headphones are off too.
- When you enter class, sit in your assigned seat and look at the screen to prep — we start class as soon as the bell rings.

### Food & Drink

- Never in the lab
- No smelly food
- Non-messy snacks are fine — not entire meals

### Hall Pass

- Passes can be made after the first 20 minutes of class, before the last 10 minutes, and at other appropriate times — check with me.
- We will discuss the procedure during class.

## AI, Plagiarism & Academic Integrity

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### Artificial Intelligence

- Unless directed otherwise, work is done without AI.
- There may be times we use AI for specific, approved assignments.
- When in doubt, ask!

### Plagiarism

- It's not always obvious what counts as plagiarism — here is a [helpful resource](#). When in doubt, ask!

### Academic Dishonesty (Specific to Angelo State University Dual Credit Students—applies to AP Students as well)

- Consistent with ASU's **Core Value of Integrity**, all ASU students are expected to exhibit complete honesty and integrity in their academic work. Students found responsible for academic dishonesty are subject to disciplinary action and sanctions by ASU.
- ASU's Student Handbook details behaviors that constitute academic misconduct, including cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, violating published professional ethics or standards, or any act designed to give an unfair academic advantage.

## Important Links

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- [Schoology](#)
- [Clever](#)
- [District Cell Phone Policy / State Law](#)
- [Course and Exam Description](#)
- [District Grading Policy](#)

## A Letter to AP/DC Biology Students and Parents

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This syllabus is meant to help you get familiar with the AP Program and AP/DC Biology, and to understand what it takes to succeed. Here's the full picture:

### About the AP Program

The AP Program® allows high school students to earn college credit and/or advanced placement through exams. The AP Exam is given each May to over 320,000 students globally and scored on a 1–5 scale. A score of 3 is usually acceptable to most colleges and universities, and at CHS roughly 85%+ of our students who take the exam score a 3 or better.

Most exam questions are content-based, but critical thinking is essential — much of the exam consists of lab-based questions that require experimental design, graphing, data analysis, and prediction. We'll build these skills all year.

#### 2027 AP Exam

Date: May 3, 2027   Fee: approximately \$40   ·   All students take the exam, even if registered for dual credit.

### Why This Course Is Demanding

This is a college-level course taught to high school students, and universities expect it to match the course taken by a freshman Biology major. Score requirements for credit vary by university and major — if you're concerned, contact the biology department at the university you plan to attend.

- Students read and learn material outside class that may not be covered in class, including current scientific literature.
- A typical college science course involves about 7 contact hours per week; with ~49-minute class periods, we get about 4. To cover the same material, much of the learning happens independently, outside of class.

### Attendance Matters

Material moves quickly and in much more depth than Biology I. Lab work is hard to make up and shows up on quizzes and unit tests — missing a lab day can mean not understanding a concept well enough to answer related questions later.

- If you're absent, contact your absence partners for help with what you missed, and arrange a time to connect with me.
- I'll do my best to schedule major labs and tests around most students' extracurricular commitments.
- You'll get a detailed calendar and access to the first unit's assignments on day one — look ahead and get ahead if you know you'll be busy.
- Time management is one of the most valuable skills you can build before college.

# How to Be Successful in AP/DC Biology

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## Engage & take ownership

- Ask and answer questions in class — it's okay to be wrong!
- Be curious and know that you're capable of success.

## Produce quality work

- Strive for excellence, but don't let perfection cause procrastination.
- Struggling? Find and ask for help — from classmates or from me.

## Think like a college student

- Find a **time-management system** that works for you — write down what you need to do instead of relying on memory.
- **Work ahead.** Waiting until the day before is a high school habit that won't hold up here — start assignments early and set your own earlier deadlines.
- You'll do independent learning at home and tackle the hard material together in class — **doing the homework is what makes class work.**
- **Cramming doesn't work.** Review something every day; the night before a test is for polishing one or two tricky concepts, not learning everything.
- Aim to **UNDERSTAND and apply** concepts to new scenarios, not just memorize them.

## Be prepared

- Complete independent learning on time.
- Bring your charged Chromebook every day.
- Review and study a little each day ahead of quizzes and tests.

## Embrace mistakes

- Growth requires pushing past what's comfortable — breezing through everything means you're not being challenged.
- Expect to make mistakes — grappling with hard material is how you learn.
- Be persistent. Struggling is a sign you're on the right track.
- Focus on learning over grades — do your part, and the grade follows.

## Ask questions & seek help

- Ask questions — someone else almost certainly has the same one.
- Form a study group; explaining material to someone else is one of the best ways to learn it.
- Ask me!

## Maintain integrity

- Only submit completed work that's your own.
- Copying or googling answers robs you of the chance to learn and to catch your own misconceptions.

**Trust the process — every assignment has a purpose, and every student has the potential to succeed by trusting me and doing their part.**

## Course Sequence & Textbook Correlation

This table maps each unit's topics to the corresponding chapters in Biology in Focus. The full year calendar with due dates lives in Schoology.

| Unit | Unit Name                        | Topic                                        | Ch.        | Chapter Name                                                                  |
|------|----------------------------------|----------------------------------------------|------------|-------------------------------------------------------------------------------|
| 0/1  | Nature of Science & Biochemistry | 0.0 Experimental Design                      | 1          | Introduction / Nature of Science                                              |
|      |                                  | 8.1 Responses to the Environment             | 39.3–6     | Animal Behavior                                                               |
|      |                                  | 1.1 Structure of Water & Hydrogen Bonding    | 2.5        | Chemistry of Life                                                             |
|      |                                  | 1.2 Elements of Life                         | 2.1–4      | Chemistry of Life                                                             |
|      |                                  | 1.3 Intro to Biological Molecules            | 3          | Carbon & Molecular Diversity of Life                                          |
|      |                                  | 1.4 Carbohydrates                            | 3          | Carbon & Molecular Diversity of Life                                          |
|      |                                  | 1.5 Lipids                                   | 3          | Carbon & Molecular Diversity of Life                                          |
|      |                                  | 1.6 Nucleic Acids                            | 3          | Carbon & Molecular Diversity of Life                                          |
|      |                                  | 1.7 Proteins                                 | 3          | Carbon & Molecular Diversity of Life                                          |
|      |                                  | 8.2b Energy Flow Through Ecosystems          | 42.4       | Biogeochemical Cycles                                                         |
| 2    | Cell Structure & Function        | 2.1 Cell Structure and Function              | 4          | A Tour of the Cell                                                            |
|      |                                  | 2.2 Cell Size                                | 4          | A Tour of the Cell                                                            |
|      |                                  | 2.3 Plasma Membrane                          | 5.1        | Cell Membranes                                                                |
|      |                                  | 2.4 Membrane Permeability                    | 5.2        | Selective Permeability                                                        |
|      |                                  | 2.5 Membrane Transport                       | 5.3–5      | Passive/Active/Bulk Transport                                                 |
|      |                                  | 2.6 Facilitated Diffusion                    | 5.3        | Passive Transport                                                             |
|      |                                  | 2.7 Tonicity and Osmoregulation              | 5.3, 32.4  | Passive Transport; Osmoregulation & Excretion                                 |
|      |                                  | 2.8 Mechanisms of Transport                  | 5.3–5      | Passive/Active/Bulk Transport                                                 |
|      |                                  | 2.9 Cell Compartmentalization                | 4.2–5      | Internal Membranes, Nucleus, Endomembrane System, Mitochondria & Chloroplasts |
|      |                                  | 2.10 Origins of Cell Compartmentalization    | 24.1, 25.1 | Early Earth Conditions; Endosymbiosis                                         |
| 3    | Energetics                       | 3.1 Enzyme Structure                         | 3.5        | Protein Structure and Function                                                |
|      |                                  | 3.3 Environmental Impacts on Enzyme Function | 6          | Metabolism Introduction                                                       |
|      |                                  | 3.4 Cellular Energy                          | 6          | Metabolism Introduction                                                       |
|      |                                  | 3.6 Cellular Respiration                     | 7          | Cellular Respiration & Fermentation                                           |
|      |                                  | 3.5 Photosynthesis                           | 8          | Photosynthesis                                                                |
|      |                                  | 8.2 Energy Flow through Ecosystems           | 42         | Ecosystems                                                                    |

| Unit | Unit Name                         | Topic                                       | Ch.                      | Chapter Name                                                             |
|------|-----------------------------------|---------------------------------------------|--------------------------|--------------------------------------------------------------------------|
| 4    | Cell Communication and Cell Cycle | 4.1 Cell Communication                      | 5.6, 31                  | Cell Signaling; Plant Responses                                          |
|      |                                   | 4.2 Intro to Signal Transduction            | 5.6, 32.2                | Cell Signaling; Endocrine Signals & Homeostasis                          |
|      |                                   | 4.3 Signal Transduction Pathways            | 5.6, 37                  | Cell Signaling; Neurons, Synapses & Signaling                            |
|      |                                   | 4.5 Feedback                                | 32.1–2                   | Endocrine Signals and Feedback Control                                   |
|      |                                   | 4.6–4.7 Cell Cycle & Regulation             | 9, 16.3                  | Cell Cycle; Cancer                                                       |
|      |                                   | 6.2 Replication                             | 13.1–3                   | DNA is the Genetic Material; Replication & Chromosome Structure          |
|      |                                   | 6.8 Biotechnology — Restriction Enzymes     | 13.4<br>18.1             | Genetic Engineering<br>DNA Sequencing                                    |
| 5    | Heredity                          | 5.1 Meiosis                                 | 10                       | Meiosis & Sexual Life Cycles                                             |
|      |                                   | 5.2 Meiosis & Genetic Diversity             | 10, 12                   | Meiosis & Sexual Life Cycles                                             |
|      |                                   | 5.3 Mendelian Genetics                      | 11.1–2                   | Laws of Inheritance & Probability                                        |
|      |                                   | 5.4 Non-Mendelian Genetics                  | 11.3–4                   | Complex Inheritance & Human Traits                                       |
|      |                                   | 5.5 Environmental Effects on Phenotype      | 11.3                     | Complex Inheritance                                                      |
| 6    | Gene Expression & Regulation      | 6.1 DNA & RNA Structure                     | 14                       | Gene Expression: From Gene to Protein                                    |
|      |                                   | 6.3 Transcription & RNA Processing          | 14                       | Gene Expression: From Gene to Protein                                    |
|      |                                   | 6.4 Translation                             | 14                       | Gene Expression: From Gene to Protein                                    |
|      |                                   | 6.5 Regulation of Gene Expression           | 15                       | Regulation of Gene Expression                                            |
|      |                                   | 6.6 Gene Expression and Cell Specialization | 16.1<br>18.5             | Differential Gene Expression<br>Duplication and rearrangement of genomes |
|      |                                   | 6.7 Mutations                               | 14.5                     | Mutations and Protein Structure                                          |
|      |                                   | 6.8 Biotechnology — Transformation          | 16.1-2<br>17.1-2<br>18.4 | Development, Stem Cells, Viruses<br>Noncoding DNA and Multigene families |
| 7    | Evolution                         | 7.1 Intro to Natural Selection              | 19                       | Descent with Modification                                                |
|      |                                   | 7.11 Variations in Populations              | 19                       | Descent with Modification                                                |
|      |                                   | 7.6 Evidence of Evolution                   | 19                       | Descent with Modification                                                |
|      |                                   | 7.2 Natural Selection                       | 19                       | Descent with Modification                                                |
|      |                                   | 7.3 Artificial Selection                    | 19                       | Descent with Modification                                                |
|      |                                   | 7.4 Population Genetics                     | 21                       | Population Genetics                                                      |
|      |                                   | 7.5 Hardy-Weinberg Equilibrium              | 21                       | Population Genetics                                                      |

| Unit | Unit Name | Topic                            | Ch.                | Chapter Name                                                  |
|------|-----------|----------------------------------|--------------------|---------------------------------------------------------------|
|      |           | 7.9 Phylogeny                    | 20<br>18.2<br>18.6 | Phylogenetics<br>Bioinformatics<br>Comparing genome sequences |
|      |           | 7.7 Common Ancestry              | 20                 | Phylogenetics                                                 |
|      |           | 7.8 Continuing Evolution         | 20                 | Phylogenetics                                                 |
|      |           | 7.10 Speciation                  | 22                 | Speciation                                                    |
|      |           | 7.12 Origin of Life on Earth     | 23                 | Patterns of Evolution                                         |
|      |           |                                  |                    |                                                               |
| 8    | Ecology   | 8.3 Population Ecology           | 40                 | Population Ecology & Distribution of Organisms                |
|      |           | 8.4 Effect of Population Density | 40                 | Population Ecology & Distribution of Organisms                |
|      |           | 8.5 Community Ecology            | 41                 | Species Interactions                                          |
|      |           | 8.6 Biodiversity                 | 43                 | Global Ecology & Conservation Biology                         |
|      |           | 8.7 Disruptions to Ecosystems    | 43                 | Global Ecology & Conservation Biology                         |