

AP Biology



Dominican International School

Course Syllabus

School Year 2026–27



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COURSE DESCRIPTION

The students engage with the course material and learn both fundamental facts about biology and develop a series of skills that allow them to successfully interpret a biological phenomenon or a scientific study. The course uses a mix of direct instructions, self study, and practices inside and outside the laboratory, including analyzing real-world data and problems. Ideally, hands-on laboratory experiences comprise at least 25% of the course where they can train the six required science practices (see below).

Students are required to compile a laboratory notebook where they record their testable questions, observations and background information, hypothesis and rationale, experimental design (with variables, constants and controls), record of data (graphs, tables, and statistics as appropriate), and conclusions and discussion. All summarized into an abstract.

COURSE OBJECTIVES

The course covers the required topics as laid out in the AP Biology course and exam description:

Unit 1: Chemistry of Life

Unit 2: Cells

Unit 3: Cellular Energetics

Unit 4: Cell Communication and Cell Cycle

Unit 5: Heredity

Unit 6: Gene Expression and Regulation

Unit 7: Natural Selection

Unit 8: Ecology

Throughout the course students practice the following required skills:

- 1. Concept Explanation:** Explain biological concepts, processes, and models presented in written format.
- 2. Visual Representations:** Analyze visual representations of biological concepts and processes (e.g., diagrams, models, flowcharts).
- 3. Questions and Methods:** Determine scientific questions and methods for investigating biological phenomena.
- 4. Representing and Describing Data:** Represent and describe data using tables, graphs, charts, and mathematical representations.
- 5. Statistical Tests and Data Analysis:** Perform statistical tests and mathematical calculations to analyze and interpret biological data.

6. Argumentation: Develop and justify scientific arguments using evidence, reasoning, and biological concepts.

COURSE RESOURCES

- Primary textbook: Morris J, Castignetti D, Lepri J, Relyea R. 2022. *Biology for the AP® course*. 1st ed. New York (NY): W. H. Freeman and Company. (available in physical copy and online).
- Practice book: Wuerth M. 2026. *AP biology premium, 2027*. New York (NY): Barron's Educational Series.
- Online AP Classroom daily videos and question bank.
- Online material provided by the teacher (practices, videos, simulations, lecture slides, articles, instructional websites ...).

GRADING SYSTEM/ASSESSMENT

Students' understanding and mastery levels are assessed through the course with low stakes quizzes and practices, and evaluated with quizzes and end of unit tests, in addition to the quarter exams. The grade for each evaluation may be adjusted depending on the provided time constraint. Assignments and classwork is usually graded for completion and timeliness.

According to the schoolwide policy, grading follows this system:

Category	No. Per Quarter	Weight
Tests and Quizzes	5	30%
Homework/seatwork/projects	10	30%
Quarter Exam	1	30%
Department	-	10%

ACADEMIC DISHONESTY

Academic Dishonesty means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at DIS.

Academic dishonesty includes but is not limited to the following:

- Purposely incorporating the ideas, words of sentences, paragraphs, or parts thereof without appropriate acknowledgment and representing the product as one's work;
- Representing another's intellectual work, such as photographs, paintings, drawings, sculpture, research, or the like, as one's own, including failure to attribute content to an AI.
- Employing a tutor, using Artificial Intelligence without acknowledgment, getting a parent to write a paper or do an assignment, and paying for an essay to be written by someone else and presented as the student's work.
- Committing any act that a reasonable person would conclude, when informed of the evidence, to be a dishonest means of obtaining or attempting to obtain credit for academic work.

Any act of academic dishonesty will result in an automatic zero on the entire assignment/learning task.

WEEKLY SCHEDULE

First Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 Aug 10 - 14	Monday Class Preparation ~ Student Holiday Tuesday Morning Assembly Friday Opening Mass & Assumption of Our Lady 8:00 (5) Introduction to the course UNIT 1: Chemistry of Life • Topic 1.1: Structure of Water and Hydrogen Bonding • Topic 1.2: Elements of Life
Week 2 Aug 17 - 21	(7) Laboratory Investigation (Surface Tension) - Big Idea 4: Systems Interactions Introduction to Statistics • Topic 1.3: Introduction to Macromolecules
Week 3 Aug 24 - 28	(7) • Topic 1.4: Carbohydrates • Topic 1.5: Lipids • Topic 1.6: Nucleic Acids
Week 4 Aug 31 - Sep 4	(7) • Topic 1.7: Proteins Unit 1 Test UNIT 2: Cell Structure and Function • Topic 2.1: Cell Structure and Function
Week 5 Sep 7 - 11	(7) • Topic 2.2: Cell Size • Topic 2.3: Plasma Membrane • Topic 2.4: Membrane Permeability • Topic 2.5: Membrane Transport
Week 6 Sep 14 - 18	(7) • Topic 2.6: Facilitated Diffusion • Topic 2.7: Tonicity and Osmoregulation Laboratory Investigation (Diffusion in Agar or Osmosis) - Big Idea 2: Energetics Introduction to the Scientific Method
Week 7 Sep 21 - 25	T-W-Th Pre-Exam Days Friday Moon Festival ~ Public Holiday (5) • Topic 2.8: Mechanisms of Transport • Topic 2.9: Cell Compartmentalization • Topic 2.10: Origins of Cell Compartmentalization Unit 2 Test
Week 8	Monday Confucius' Birthday ~ Public Holiday

Sep 28 - Oct 2	Thursday Major Exams Day 1 Friday Major Exams Day 2 (3) Review; Q1 exam
Week 9 Oct 5 - 9	Monday Record Day ~ Student Holiday T-W-Th Teachers Conference ~ Student Holiday Friday Double 10 Day ~ Public Holiday

Second Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (10) Oct 12 - 16	(7) UNIT 3: Cellular Energetics • Topic 3.1: Enzymes • Topic 3.2: Environmental Impacts on Enzyme Function • Topic 3.3: Cellular Energy
Week 2 (11) Oct 19 - 23	(7) Laboratory Investigation (Plasmolysis) - Big Idea 2: Energetics • Topic 3.4: Photosynthesis
Week 3 (12) Oct 26 - 30	Monday Retrocession Day ~ Public Holiday (5) • Topic 3.5: Cellular Respiration Unit 3 Test
Week 4 (13) Nov 2 - 6	(7) UNIT 4: Cell Communication and Cell Cycle • Topic 4.1: Cell Communication • Topic 4.2: Introduction to Signal Transduction • Topic 4.3: Signal Transduction Pathways
Week 5 (14) Nov 9 - 13	(7) Laboratory Investigation (Photosynthesis or mitosis inhibition) - Big Idea 2: Energetics or Big Idea 3: Information Storage and Transmission • Topic 4.4: Feedback • Topic 4.5: Cell Cycle
Week 6 (15) Nov 16 - 20	(7) • Topic 4.6: Regulation of Cell Cycle Unit 4 Test UNIT 5: Heredity • Topic 5.1: Meiosis
Week 7 (16) Nov 23 - 27	T-W-Th Pre-Exam Days Friday Grade 12 Exams (7) • Topic 5.2: Meiosis and Genetic Diversity • Topic 5.3: Mendelian Genetics • Topic 5.4: Non-Mendelian Genetics
Week 8 (17) Nov 30 - Dec 4	Monday Grade 12 Exams (7) • Topic 5.5: Environmental Effects on Phenotype Unit 5 Test

Week 9 (18) Dec 7 - Dec 11	Monday TBD Tuesday Foundation Day Mass 9:00, Cutting of the Cake Ceremony, Christmas Fair, (Whole day) Wednesday TBD Thursday Major Final Exams half day Friday Major Final Exams half day (2) Review; Q2 exam
<i>Dec 14 to Jan 1 Christmas Break</i>	

Third Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (19) Jan 4 - Jan 8	Monday Record Day ~ Student Holiday Friday New Year Mass at 8:00 (5) UNIT 6: Gene Expression and Regulation • Topic 6.1: DNA and RNA Structure • Topic 6.2: DNA Replication Laboratory Investigation (Transpiration or Energy Flow, or...) - Big Idea 4: Systems Interactions
Week 2 (20) Jan 11 - Jan 15	(7) • Topic 6.3: Transcription and RNA Processing • Topic 6.4: Translation • Topic 6.5: Regulation of Gene Expression
Week 3 (21) Jan 18 - Jan 22	(7) • Topic 6.6: Gene Expression and Cell Specialization • Topic 6.7: Mutations • Topic 6.8: Biotechnology Unit 6 Test
Week 4 (22) Jan 25 - Jan 29	(7) UNIT 7: Natural Selection • Topic 7.1: Introduction to Natural Selection • Topic 7.2: Natural Selection • Topic 7.3: Artificial Selection • Topic 7.4: Population Genetics
Week 5 (23) Feb 1 - Feb 5	Thursday Little New Year's Eve ~ Public Holiday Friday Lunar New Year ~ Public Holiday (5) • Topic 7.5: Hardy–Weinberg Equilibrium • Topic 7.6: Evidence of Evolution • Topic 7.7: Common Ancestry
<i>February 8 to 12 Chinese New Year Holiday</i>	
Week 6 (24) Feb 15 - Feb 19	(7) Laboratory Investigation (Peroxidase) - Big Idea 4: Systems Interactions • Topic 7.8: Continuing Evolution • Topic 7.9: Phylogeny
Week 7 (25) Feb 22 - Feb 26	22-26 IOWA Assessments (7) • Topic 7.10: Speciation • Topic 7.11: Variations in Populations • Topic 7.12: Origins of Life on Earth

Week 8 (26) Mar 1 - Mar 5	Monday Memorial Day ~ Public Holiday T-W-Th Pre-Exam Days (5) Unit 7 Test UNIT 8: Ecology • Topic 8.1: Responses to the Environment
Week 9 (27) Mar 8 - Mar 12	(7) Topic 8.2: Energy Flow Through Ecosystems • Topic 8.3: Population Ecology • Topic 8.4: Effect of Density on Populations • Topic 8.5: Community Ecology
Week 10 (28) Mar 15 - Mar 19	(7) • Topic 8.6: Biodiversity • Topic 8.7: Disruptions in Ecosystems Unit 8 Test
Week 11 (29) Mar 22- Mar 26	Tuesday Major Final Exams half day Wednesday Major Final Exams half day Thurs - Fri Easter Break (Spring Break) ~ Public Holiday Review; Q3 exam
March 25 to April 2 Easter & Spring Break	

Fourth Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (30) Apr 5 - Apr 9	Monday Tomb Sweeping Day ~ Public Holiday Tuesday Children's Day ~ Public Holiday (4) Review and Practice Exams.
Week 2 (31) Apr 12 - Apr 16	(7) Laboratory Investigation (BLAST and Evolution) - Big Idea 1: Evolution Review and Practice Exams.
Week 3 (32) Apr 19 - Apr 23	19 - 23 AP Mock Exams (5) Review; Mock Exam - Q4 exam
Week 4 (33) Apr 26 - Apr 30	T-W-Th Pre-Exam Days Friday Labor Day ~ Public Holiday (5) Review and Practice Exams.
Week 5 (34) May 3 - May 7	3 - 7 Final Exams (K, Gr. 5, 8, & 12 Only) 3 - 14 AP Exams AP Official Exam.
Week 6 (35) May 10 - May 14	3 - 14 AP Exams Wednesday Major Final Exams Undergraduates half day Thursday Major Final Exams Undergraduates half day Friday Record Day ~ Student Holiday
Week 7 (36) May 17 - May 21	Monday Gr. 12 Recollection (Morning) Monday Baccalaureate Mass (Afternoon, Schoolwide) Wednesday House Sports Day Thursday High School Field Trip Friday House Culminating Activity All Week Student Clearance Days & Special Events
Week 8 (37) May 24 - May 28	Monday Middle & High School Sports Day Monday LS Field Trip Tuesday Kindergarten Graduation/Gr. 5 Promotion Wednesday Gr. 8 Graduation and Gr. 12 Graduation Thursday Pre-Kindergarten & Gr. 1 - 4, 6 & 7, 9-11 Recognition Friday Last Day of School for Students