Course at a Glance

Plan

The course at a glance provides a useful visual organization of the AP Biology curricular components, including:

- Sequence of units, along with approximate weighting and suggested pacing. Please note, pacing is based on 45-minute class periods, meeting five days each week for a full academic year
- Progression of topics within each unit
- Spiraling of the big ideas and science practices across units

Teach

SCIENCE PRACTICES

Science practices are spiralled throughout the course:

1 Concept Explanation
2 Visual Representations
3 Questions and Methods
4 Representing and Describing Data
5 Statistical Tests and Data Analysis
6 Argumentation

BIG IDEAS

The big ideas spiral across topics and units:

EVO Evolution
IST Information Storage and Transfer
ENE Energetics
SYI Systems Interactions

Assess

Assign the Personal Progress Checks—either as homework or in class—for each unit. Each Personal Progress Check contains formative multiple-choice and free-response questions. The feedback from the Personal Progress Checks shows students the areas where they need to focus.

UNIT 1 Chemistry of Life

~5-7 Class Periods | **8-11%** AP Exam Weighting

SYI 2	1.1 Structure of Water and Hydrogen Bonding
ENE 2	1.2 Elements of Life
SYI 2	1.3 Introduction to Biological Macromolecules
SYI 1	1.4 Properties of Biological Macromolecules
SYI 6	1.5 Structure and Function of Biological Macromolecules
IST 2	1.6 Nucleic Acids

Personal Progress Check 1

Multiple-Choice: ~20 questions
Free-Response: 2 questions

- Conceptual Analysis (partial)
- Analyze Model or Visual Representation (partial)

UNIT 2 Cell Structure and Function

~11-13 Class Periods | **10-13%** AP Exam Weighting

SYI 1	2.1 Cell Structure: Subcellular Components
SYI 6	2.2 Cell Structure and Function
ENE 5 2	2.3 Cell Size
ENE 2	2.4 Plasma Membranes
ENE 3	2.5 Membrane Permeability
ENE 3	2.6 Membrane Transport
ENE 6	2.7 Facilitated Diffusion
ENE 4	2.8 Tonicity and Osmoregulation
ENE 1	2.9 Mechanisms of Transport
ENE 6	2.10 Cell Compartmentalization
EVO 6	2.11 Origins of Cell Compartmentalization

Personal Progress Check 2

Multiple-Choice: ~30 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results (partial)
- Analyze Model or Visual Representation (partial)

NOTE: Partial versions of the free-response questions are provided to prepare students for more complex, full questions that they will encounter on the AP Exam.

UNIT 3 Cellular Energetics

~14-17 Class Periods | **12-16%** AP Exam Weighting

- ENE 1 — 3.1 Enzyme Structure
- ENE 3 — 3.2 Enzyme Catalysis
- ENE 6 — 3.3 Environmental Impacts on Enzyme Function
- ENE 6 — 3.4 Cellular Energy
- ENE 6 — 3.5 Photosynthesis
- ENE 4 — 3.6 Cellular Respiration
- SYI 6 — 3.7 Fitness

Personal Progress Check 3

Multiple-Choice: ~20 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing (partial)
- Scientific Investigation (partial)

UNIT 4 Cell Communication and Cell Cycle

~9-11 Class Periods | **10-15%** AP Exam Weighting

- IST 1 — 4.1 Cell Communication
- IST 1 — 4.2 Introduction to Signal Transduction
- IST 6 — 4.3 Signal Transduction
- IST 6 — 4.4 Changes in Signal Transduction Pathways
- ENE 6 — 4.5 Feedback
- IST 4 5 — 4.6 Cell Cycle
- IST 6 — 4.7 Regulation of Cell Cycle

Personal Progress Check 4

Multiple-Choice: ~25 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results (partial)
- Analyze Data

UNIT 5 Heredity

~9-11 Class Periods | **8-11%** AP Exam Weighting

- IST 1 — 5.1 Meiosis
- IST 3 — 5.2 Meiosis and Genetic Diversity
- EVO IST 6 5 — 5.3 Mendelian Genetics
- IST 5 — 5.4 Non-Mendelian Genetics
- SYI 1 — 5.5 Environmental Effects on Phenotype
- SYI 6 — 5.6 Chromosomal Inheritance

Personal Progress Check 5

Multiple-Choice: ~25 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing
- Conceptual Analysis

NOTE: Partial versions of the free-response questions are provided to prepare students for more complex, full questions that they will encounter on the AP Exam.

UNIT 6 Gene Expression and Regulation

~18-21 Class Periods | **12-16%** AP Exam Weighting

- IST 1 — 6.1 DNA and RNA Structure
- IST 2 — 6.2 Replication
- IST 2 — 6.3 Transcription and RNA Processing
- IST 6 2 — 6.4 Translation
- IST 6 — 6.5 Regulation of Gene Expression
- IST 6 — 6.6 Gene Expression and Cell Specialization
- IST 2 3 — 6.7 Mutations
- IST 6 — 6.8 Biotechnology

Personal Progress Check 6

Multiple-Choice: ~25 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results
- Analyze Model or Visual Representation

UNIT 7 Natural Selection

~20-23 Class Periods | **13-20%** AP Exam Weighting

- EVO 2 — 7.1 Introduction to Natural Selection
- EVO 1 — 7.2 Natural Selection
- EVO 4 — 7.3 Artificial Selection
- EVO 3 — 7.4 Population Genetics
- EVO 5 1 — 7.5 Hardy-Weinberg Equilibrium
- EVO 4 — 7.6 Evidence of Evolution
- EVO 6 — 7.7 Common Ancestry
- EVO 3 — 7.8 Continuing Evolution
- EVO 2 — 7.9 Phylogeny
- EVO 6 2 — 7.10 Speciation
- EVO 3 — 7.11 Extinction
- SYI 6 — 7.12 Variations in Populations
- SYI 3 — 7.13 Origin of Life on Earth

Personal Progress Check 7

Multiple-Choice: ~40 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing
- Analyze Data

UNIT 8 Ecology

~18-21 Class Periods | **10-15%** AP Exam Weighting

- ENE IST 3 — 8.1 Responses to the Environment
- ENE 6 — 8.2 Energy Flow Through Ecosystems
- SYI 4 — 8.3 Population Ecology
- SYI 5 — 8.4 Effect of Density of Populations
- ENE 5 — 8.5 Community Ecology
- SYI 6 — 8.6 Biodiversity
- EVO SYI 5 — 8.7 Disruptions to Ecosystems

Personal Progress Check 8

Multiple-Choice: ~20 questions
Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing
- Scientific Investigation