

# 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:

- |                                 |  |
|---------------------------------|--|
| <b>1</b> Concept Explanation    | <b>4</b> Representing and Describing Data    |
| <b>2</b> Visual Representations | <b>5</b> Statistical Tests and Data Analysis |
| <b>3</b> Questions and Methods  | <b>6</b> Argumentation                       |

### BIG IDEAS

The big ideas spiral across topics and units:

- |   |                                 |
|---|---------------------------------|
| <b>EVO</b> Evolution                        | <b>ENE</b> Energetics           |
| <b>IST</b> Information Storage and Transfer | <b>SYI</b> 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

<b>SYI</b> 2	1.1 Structure of Water and Hydrogen Bonding
<b>ENE</b> 2	1.2 Elements of Life
<b>SYI</b> 2	1.3 Introduction to Biological Macromolecules
<b>SYI</b> 1	1.4 Properties of Biological Macromolecules
<b>SYI</b> 6	1.5 Structure and Function of Biological Macromolecules
<b>IST</b> 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

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

**UNIT  
3**

**Cellular Energetics**

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

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

**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

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

**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

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

**Personal Progress Check 5**

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

- Interpreting and Evaluating Experimental Results with Graphing
- Conceptual Analysis

# 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