

AP BIOLOGY

Co-requisite: Honors Biology 11

The key concepts and related content that define the revised AP Biology course are organized around a few underlying principles:

Big Idea 1: The process of evolution drives the diversity and unity of life.

Enduring understanding 1.A: Change in the genetic makeup of a population over time is evolution.

Enduring understanding 1.B: Organisms are linked by lines of descent from common ancestry.

Enduring understanding 1.C: Life continues to evolve within a changing environment

Enduring understanding 1.D: The origin of living systems is explained by natural processes.

Bid Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.

Enduring understanding 2.A: Growth, reproduction and maintenance of the organization of living systems require free energy and matter.

Enduring understanding 2.B: Growth, reproduction and dynamic homeostasis require that cells create and maintain internal environment that are different from their external environments.

Enduring understanding 2.C: Organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis.

Enduring understanding 2.D: Growth and dynamic homeostasis of biological systems are influenced by changes in the system's environment.

Enduring understanding 2.E: Many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.

Bid Idea 3: Living systems store, retrieve, transmit and respond to information essential to life processes.

Enduring understanding 3.A: Heritable information provides for continuity of life.

Enduring understanding 3.B: Expression of genetic information involves cellular and molecular mechanisms.

Enduring understanding 3.C: The procession of genetic information is imperfect and is a source of genetic variation.

Enduring understanding 3.D: Cells communicate by generating, transmitting and receiving chemical signals.

Enduring understanding 3.E: Transmission of information results in changes within and between biological systems.

Bid Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.

Enduring understanding 4.A: Interactions within biological systems lead to complex properties.

Enduring understanding 4.B: Competition and cooperation are important aspects of biological systems.

Enduring understanding 4.C: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

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AP CALCULUS AB

Pre-requisite: Pre-Calculus 12

Calculus AB is primarily concerned with developing the students' understanding of the concepts of calculus and providing experience with its methods and applications. The course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. The connections among these representations also are important

- Students should be able to work with functions represented in a variety of ways: graphical, numerical, analytical, or verbal. They should understand the connections among these representations.
- Students should understand the meaning of the derivative in terms of a rate of change and local linear approximation, and should be able to use derivatives to solve a variety of problems.
- Students should understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change, and should be able to use integrals to solve a variety of problems.
- Students should understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.
- Students should be able to communicate mathematics and explain solutions to problems both verbally and in written sentences.
- Students should be able to model a written description of a physical situation with a function, a differential equation, or an integral.
- Students should be able to use technology to help solve problems, experiment, interpret results, and support conclusions.
- Students should be able to determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.
- Students should develop an appreciation of calculus as a coherent body of knowledge and as a human accomplishment.

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AP PSYCHOLOGY

The AP Psychology course is designed to introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals. Students are exposed to the psychological facts, principles, and phenomena associated with each of the major subfields within psychology. They also learn about the ethics and methods psychologists use in their science and practice. Topics include:

- I. History and Approaches
- II. Research Methods
- III. Biological Bases of Behavior
- IV. Sensation and Perception
- V. States of Consciousness
- VI. Learning
- VII. Cognition
- VIII. Motivation and Emotion
- IX. Developmental Psychology
- X. Personality
- XI. Testing and Individual Differences
- XII. Abnormal Behavior
- XIII. Treatment of Abnormal Behavior
- XIV. Social Psychology

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AP STATISTICS

Pre-requisites: This course is open to strong academic students in Grade 10 and up.

The purpose of the AP course in statistics is to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data.

Students are exposed to four broad conceptual themes:

- I. Exploring Data: Describing patterns and departures from patterns
 - A. Constructing and interpreting graphical displays of distributions of univariate data (dotplot, stemplot, histogram, cumulative frequency plot)
 - B. Summarizing distributions of univariate data
 - C. Comparing distributions of univariate data (dotplots, back-to-back stemplots, parallel boxplots)
 - D. Exploring bivariate data
 - E. Exploring categorical data
- II. Sampling and Experimentation: Planning and conducting a study
 - A. Overview of methods of data collection
 - B. Planning and conducting surveys
 - C. Planning and conducting experiments
 - D. Generalizability of results and types of conclusions that can be drawn from observational studies, experiments and surveys
- III. Anticipating Patterns: Exploring random phenomena using probability and simulation
 - A. Probability
 - B. Combining independent random variables
 - C. The normal distribution
 - D. Sampling distributions
- IV. Statistical Inference: Estimating population parameters and testing hypotheses
 - A. Estimation (point estimators and confidence intervals)
 - B. Tests of significance

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AP HUMAN GEOGRAPHY

Pre-requisites: This course is open to strong academic students in Grade 10 and up.

The purpose of the AP Human Geography course is to introduce students to the systematic study of patterns and processes that have shaped human understanding, use, and alteration of Earth's surface. Students learn to employ spatial concepts and landscape analysis to examine human socioeconomic organization and its environmental consequences. They also learn about the methods and tools geographers use in their research and applications.

The particular topics studied in an AP Human Geography course should be judged in light of the following five college-level goals that build on the National Geography Standards developed in 1994 and revised in 2012. On successful completion of the course, students should have developed skills that enable them to:

- *Interpret maps and analyze geospatial data.*
- *Understand and explain the implications of associations and networks among phenomena in places.*
- *Recognize and interpret the relationships among patterns and processes at different scales of analysis.*
- *Define regions and evaluate the regionalization process.*
- *Characterize and analyze changing interconnections among places.*

Topics include:

- I. Geography: Its Nature and Perspectives
- III. Cultural Patterns and Processes
- IV. Political Organization of Space .
- V. Agriculture, Food Production, and Rural Land Use
- VI. Industrialization and Economic Development
- VII. Cities and Urban Land Use

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AP 2D Design Portfolio

The AP Studio Art portfolios are designed for students who are seriously interested in the practical experience of art. AP Studio Art is not based on a written exam; instead, students submit portfolios for evaluation at the end of the school year. The AP Studio Art Program consists of three portfolios — 2-D Design, 3-D Design and Drawing — corresponding to the most common college foundation courses.

The instructional goals of the AP Studio Art program can be described as follows:

- Encourage creative and systematic investigation of formal and conceptual issues.
- Emphasize making art as an ongoing process that involves the student in informed and critical decision making.
- Help students develop technical skills and familiarize them with the functions of the visual elements.
- Encourage students to become independent thinkers who will contribute inventively and critically to their culture through the making of art.

- **Portfolios**

The portfolios share a basic, three-section structure, which requires the student to show a fundamental competence and range of understanding of visual concerns (and methods). Each of the portfolios asks the student to demonstrate a depth of investigation and process of discovery through the **Concentration** section, the **Breadth** section and the **Quality**.

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AP CHINESE LANGUAGE & CULTURE

Pre-requisites: Mandarin 12 or a placement interview, English 10

This is an advanced-level Mandarin Chinese course, intended for students who are in their fourth or fifth year of language study, or students with equivalent experience with the Chinese language. Students will develop their Chinese proficiency across the three communicative modes (Interpersonal, Interpretive, and Presentational) and the five goal areas (Communication, Cultures, Connections, Comparisons, and Communities), which align with the Standards for Foreign Language Learning by the ACTFL (American Council on the Teaching of Foreign Languages). Chinese culture and social issues are explored in greater depth. Topics include:

I Interpersonal Mode:

- Ability to comprehend, draw inferences from, and respond to spoken and written Chinese in a variety of personal, social, and cultural contexts.
- Ability to interact in a variety of situations in cultural contexts.
- Ability to use critical thinking skills (e.g., analyzing, comparing, synthesizing, and evaluating) to derive meaning from context.

II Interpretive Mode:

- Ability to comprehend and interpret spoken Chinese in a variety of social and cultural contexts that pertain to daily life.
- Ability to comprehend and interpret a variety of nontechnical written Chinese texts that pertain to daily life.

III Presentation Mode:

- Ability to provide information about events in immediate environment (including family, school, community, and country) and to demonstrate some degree of spontaneous application of language
- Ability to describe an event or activity in a cohesive and coherent manner with linguistic accuracy.
- Ability to demonstrate cultural appropriateness through spoken and written discourse.
- Ability to compare and contrast phenomena and explain one's preference.

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AP MICRO ECONOMICS

The purpose of the AP course in microeconomics is to give students a thorough understanding of the principles of economics that apply to the functions of individual decision makers, both consumers and producers, within the economic system. It places primary emphasis on the nature and functions of product markets and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy. The following is a brief discussion of these topics and some aspects of them that a teacher may choose to explore.

I. Basic Economic Concepts

- A. Scarcity, choice, and opportunity cost
- B. Production possibilities curve
- C. Comparative advantage, absolute advantage, specialization, and trade
- D. Economic systems
- E. Property rights and the role of incentives
- F. Marginal analysis

II. The Nature and Functions of Product Markets

- A. Supply and demand
- B. Theory of consumer choice
- C. Production and costs
- D. Firm behavior and market structure

III. Factor Markets

- A. Derived factor demand
- B. Marginal revenue product
- C. Hiring decisions in the markets for labor and capital
- D. Market distribution of income

IV. Market Failure and the Role of Government

- A. Externalities
- B. Public goods
- C. Public policy to promote competition
- D. Income distribution

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AP MACRO ECONOMICS

The AP Macroeconomics course provides students with a thorough understanding of the principles of economics and how economists use those principles to examine aggregate economic behavior. Students learn how the measures of economic performance, such as gross domestic product (GDP), inflation, and unemployment are constructed and how to apply them to evaluate the macroeconomic conditions of an economy. The course recognizes the global nature of economics and provides ample opportunities to examine the impact of international trade and finance on national economies. Various economic schools of thought are introduced as students consider solutions to economic problems.

Topic Outline for AP Macroeconomics

I. Basic Economic Concepts

II. Measurement of Economic Performance

- a. National income accounts
- b. Inflation measurement and adjustment
- c. Unemployment

III. National Income and Price Determination

- a. Aggregate demand
- b. Aggregate supply
- c. Macroeconomics equilibrium

IV. Financial Sector

- a. Money, banking, and Financial markets
- b. Loanable funds market
- c. Central bank and control of the money supply

V. Stabilization Policies

- a. Fiscal and monetary policies
- b. The Phillips curve

VI. Economic Growth

- a. Definition of economic growth
- b. Determinants of economic growth
- c. Growth policy

VII. Open Economy: International Trade and Finance

- a. Balance of payments accounts
- b. Foreign exchange market
- c. Imports, exports, and financial capital flows
- d. Relationships between international and domestic financial and goods markets

http://apcentral.collegeboard.com/apc/public/courses/teachers_corner/2120.html

AP ENGLISH LITERATURE

An AP English Literature and Composition course engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style and themes, as well as such smaller-scale elements as the use of figurative language, imagery, symbolism and tone. Throughout the course, emphasis is placed on helping students develop stylistic maturity, which, for AP English, is characterized by the following:

- a wide-ranging vocabulary used with denotative accuracy and connotative resourcefulness;
- a variety of sentence structures, including appropriate use of subordinate and coordinate constructions;
- a logical organization, enhanced by specific techniques of coherence such as repetition, transitions and emphasis;
- a balance of generalization with specific illustrative detail; and
- an effective use of rhetoric, including controlling tone, maintaining a consistent voice, and achieving emphasis through parallelism and antithesis.

Representative Authors

There is no recommended or required reading list for the AP English

Literature and Composition course. The following authors are provided simply to suggest the range and quality of reading expected in the course. Teachers may select authors from the names below or may choose others of comparable quality and complexity.

Poetry

W. H. Auden; Elizabeth Bishop; William Blake; Anne Bradstreet; Edward Kamau Brathwaite; Gwendolyn Brooks; Robert Browning; George Gordon, Lord Byron; Lorna Dee Cervantes; Geoffrey Chaucer; Lucille Clifton; Samuel Taylor Coleridge; Billy Collins; H. D. (Hilda Doolittle); Emily Dickinson; John Donne; Rita Dove; Paul Laurence Dunbar; T. S. Eliot; Robert Frost; Joy Harjo; Seamus Heaney; George Herbert; Garrett Hongo; Gerard Manley Hopkins; Langston Hughes; Ben Jonson; John Keats; Philip Larkin; Robert Lowell; Andrew Marvell; John Milton; Marianne Moore; Sylvia Plath; Edgar Allan Poe; Alexander Pope; Adrienne Rich; Anne Sexton; William Shakespeare; Percy Bysshe Shelley; Leslie Marmon Silko; Cathy Song; Wallace Stevens; Alfred, Lord Tennyson; Derek Walcott; Walt Whitman; Richard Wilbur; William Carlos Williams; William Wordsworth; William Butler Yeats

Drama

Aeschylus; Edward Albee; Amiri Baraka; Samuel Beckett; Anton Chekhov; Caryl Churchill; William Congreve; Athol Fugard; Lorraine Hansberry; Lillian Hellman; David Henry Hwang; Henrik Ibsen; Ben Jonson; David Mamet; Arthur Miller; Molière; Marsha Norman; Sean O'Casey; Eugene O'Neill; Suzan-Lori Parks; Harold Pinter; Luigi Pirandello; William Shakespeare; George Bernard Shaw; Sam Shepard; Sophocles; Tom Stoppard; Luis Valdez; Oscar Wilde; Tennessee Williams; August Wilson

Fiction (Novel and Short Story)

Chinua Achebe; Sherman Alexie; Isabel Allende; Rudolfo Anaya; Margaret Atwood; Jane Austen; James Baldwin; Saul Bellow; Charlotte Brontë; Emily Brontë; Raymond Carver; Willa Cather; John Cheever; Kate Chopin; Sandra Cisneros; Joseph Conrad; Edwidge Danticat; Daniel Defoe; Anita Desai; Charles Dickens; Fyodor Dostoevsky; George Eliot; Ralph Ellison; Louise Erdrich; William Faulkner; Henry Fielding; F. Scott Fitzgerald; E. M. Forster; Thomas Hardy; Nathaniel Hawthorne; Ernest Hemingway; Zora Neale Hurston; Kazuo Ishiguro; Henry James; Ha Jin; Edward P. Jones; James Joyce; Maxine Hong Kingston; Joy Kogawa; Jhumpa Lahiri; Margaret Laurence; D. H. Lawrence; Chang-rae Lee; Bernard Malamud; Gabriel García Márquez; Cormac McCarthy; Ian McEwan; Herman Melville; Toni Morrison; Bharati Mukherjee; Vladimir Nabokov; Flannery O'Connor; Orhan Pamuk; Katherine Anne Porter; Marilynne Robinson; Jonathan Swift; Mark Twain; John Updike; Alice Walker; Evelyn Waugh; Eudora Welty; Edith Wharton; John Edgar Wideman; Virginia Woolf; Richard Wright

Expository Prose

Joseph Addison; Gloria Anzaldúa; Matthew Arnold; James Baldwin; James Boswell; Jesús Colón; Joan Didion; Frederick Douglass; W. E. B. Du Bois; Ralph Waldo Emerson; William Hazlitt; bell hooks; Samuel Johnson; Charles Lamb; Thomas Macaulay; Mary McCarthy; John Stuart Mill; George Orwell; Michael Pollan; Richard Rodriguez; Edward Said; Lewis Thomas; Henry David Thoreau; E. B. White; Virginia Woolf

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AP FRENCH LANGUAGE & CULTURE

The AP French Language and Culture course emphasizes communication (understanding and being understood by others) by applying interpersonal, interpretive, and presentational skills in real-life situations. This includes vocabulary usage, language control, communication strategies, and cultural awareness. The AP French Language and Culture course strives not to overemphasize grammatical accuracy at the expense of communication. To best facilitate the study of language and culture, the course is taught almost exclusively in French. The AP French Language and Culture course engages students in an exploration of culture in both contemporary and historical contexts. The course develops students' awareness and appreciation of cultural products (e.g., tools, books, music, laws, conventions, institutions); practices (patterns of social interactions within a culture); and perspectives (values, attitudes, and assumptions).

Course themes

The AP French Language and Culture course is structured around six themes:

- Beauty and Aesthetics
- Contemporary Life
- Families and Communities
- Global Challenges
- Personal and Public Identities
- Science and Technology

Themes facilitate the integration of language, content, and culture and promote the use of the language in a variety of contexts. The themes may be combined, as they are interrelated. World Languages and Cultures Learning Objectives The AP French Language and Culture course provides students with opportunities to demonstrate their proficiency at the Intermediate to Pre-Advanced range in each of the three modes of communication described in the ACTFL Performance Descriptors for Language Learners.

Students are expected to:

- Engage in spoken interpersonal communication;
- Engage in written interpersonal communication;
- Synthesize information from a variety of authentic audio, visual, and audiovisual resources;
- Synthesize information from a variety of authentic written and print resources;
- Plan, produce, and present spoken presentational communications; and
- Plan and produce written presentational communication

<https://apstudent.collegeboard.org/apcourse/ap-french-language-and-culture>