

2020-21

**BAYAAN ACADEMY HIGH SCHOOL**  
Core Courses Outline



## ALGEBRA I

Algebra I builds students' command of linear, quadratic, and exponential relationships. Students learn through discovery and application, developing the skills they need to break down complex challenges and demonstrate their knowledge in new situations.

UNIT 1: FOUNDATIONS OF ALGEBRA

UNIT 2: SOLVING EQUATIONS AND INEQUALITIES

UNIT 3: FUNCTIONS

UNIT 4: LINEAR EQUATIONS

UNIT 5: SYSTEMS OF LINEAR EQUATIONS

UNIT 6: EXPONENTS AND EXPONENTIAL FUNCTIONS

UNIT 7: SEQUENCES AND FUNCTIONS

UNIT 8: SEMESTER 1 EXAM

UNIT 9: POLYNOMIALS

UNIT 10: FACTORING POLYNOMIALS

UNIT 11: QUADRATIC EQUATIONS AND FUNCTIONS

UNIT 12: UNDOING FUNCTIONS AND MOVING THEM AROUND

UNIT 13: DESCRIPTIVE STATISTICS

UNIT 14: DATA AND MATHEMATICAL MODELING

UNIT 15: SEMESTER 2 EXAM

**ENGLISH 9**

The English 9 course is an overview of exemplar selections of literature in fiction and nonfiction genres. Students read short stories, poems, a full-length novel, and a full-length Shakespeare play, analyzing the use of elements of literature in developing character, plot, and theme. For example, in selected stories, students compare the effect of setting on tone and character development. Likewise, in the poetry unit, students analyze how artists and writers draw from and interpret source material.

UNIT 1: THE SHORT STORY, PART 1

UNIT 2: THE SHORT STORY, PART 2

UNIT 3: POETRY

UNIT 4: THE NOVELLA: FRANZ KAFKA'S THE METAMORPHOSIS

UNIT 5: SEMESTER WRAP-UP

UNIT 6: DRAMA: SHAKESPEARE'S MACBETH

UNIT 7: THE RHETORIC OF ARGUMENT

UNIT 8: THE RHETORIC OF SPEECHES

UNIT 9: REINTERPRETING FICTION

UNIT 10: SEMESTER WRAP-UP

## PHYSICAL SCIENCE

Physical Science offers a focused curriculum designed around the understanding of critical physical science concepts, including the nature and structure of matter, the characteristics of energy, and the mastery of critical scientific skills.

This course is built to state standards.

UNIT 1: SCIENCE AND ENGINEERING

UNIT 2: ENERGY

UNIT 3: FORCES

UNIT 4: ELECTROMAGNETS

UNIT 5: SEMESTER WRAP-UP

UNIT 6: WAVES

UNIT 7: STRUCTURE AND PROPERTIES OF MATTER

UNIT 8: CHEMICAL REACTIONS

UNIT 9: NUCLEAR REACTIONS

UNIT 10: SEMESTER WRAP-UP

## U.S. HISTORY

U.S. History traces the nation's history from the pre-colonial period to the present. Students learn about the Native American, European, and African people who lived in America before it became the United States. They examine the beliefs and philosophies that informed the American Revolution and the subsequent formation of the government and political system. Students investigate the economic, cultural, and social motives for the nation's expansion, as well as the conflicting notions of liberty that eventually resulted in civil war. The course describes the emergence of the United States as an industrial nation and then focuses on its role in modern world affairs.

This course is built to state standards and informed by the National Council for History Education, the National Center for History in the Schools, and the National Council for Social Studies.

UNIT 1: FIRST CONTACTS

UNIT 2: BECOMING AMERICAN

UNIT 3: AMERICA IN THE AGE OF JACKSON

UNIT 4: NORTH-SOUTH CONFLICT

UNIT 5: POST-CIVIL WAR AMERICA

UNIT 6: INDUSTRIAL AMERICA

UNIT 7: U.S. HISTORY SEM 1 REVIEW AND EXAM

UNIT 8: POPULISM AND PROGRESSIVISM

UNIT 9: THE AGE OF IMPERIALISM

UNIT 10: PROGRESS AND CHALLENGES

UNIT 11: THE COLD WAR BEGINS

UNIT 12: CHANGE IS IN THE AIR

UNIT 13: CONTEMPORARY ISSUES

UNIT 14: U.S. HISTORY SEM 2 REVIEW AND EXAM

## GEOMETRY

Geometry builds upon students' command of geometric relationships and formulating mathematical arguments. Students learn through discovery and application, developing the skills they need to break down complex challenges and demonstrate their knowledge in new situations.

This course is built to Maryland state standards.

UNIT 1: FOUNDATIONS OF GEOMETRY

UNIT 2: CONSTRUCTIONS AND TRANSFORMATIONS

UNIT 3: TRIANGLES

UNIT 4: QUADRILATERALS AND OTHER POLYGONS

UNIT 5: SEMESTER 1 EXAM

UNIT 6: RIGHT TRIANGLES

UNIT 7: COORDINATE GEOMETRY

UNIT 8: THREE-DIMENSIONAL SOLIDS

UNIT 9: CIRCLES

UNIT 8: THREE-DIMENSIONAL SOLIDS

UNIT 9: CIRCLES

UNIT 10: SEMESTER 2 EXAM

**ENGLISH 10**

The focus of the English 10 course is the writing process. Three writing applications guide the curriculum: persuasive, expository, and narrative writing. Each lesson culminates in a written assignment that lets students demonstrate their developing skill in one of these applications.

UNIT 1: THE WRITTEN WORD

UNIT 2: THE STORY

UNIT 3: LITERARY CRITICISM

UNIT 4: THE RESEARCH PAPER

UNIT 5: WRAP UP

UNIT 6: PRACTICAL DOCUMENTS

UNIT 7: PERSUASIVE TEXTS

UNIT 8: THE SPEECH

UNIT 9: RESEARCHED ARGUMENTATION

UNIT 10: WRAP UP

## **BIOLOGY**

Biology focuses on the mastery of basic biological concepts and models while building scientific inquiry skills and exploring the connections between living things and their environment.

The course begins with an introduction to the nature of science and biology, including the major themes of structure and function, matter and energy flow, systems, and the interconnectedness of life. Students then apply those themes to the structure and function of the cell, cellular metabolism, and biogeochemical cycles. Building on this foundation, students explore the connections and interactions between living things by studying genetics, ecosystems and natural selection, and evolution. The course ends with an applied look at human biology.

This course is built to state standards and informed by the National Science Education Standards (NSES).

UNIT 1: INTRODUCTION TO BIOLOGY

UNIT 2: THE CHEMISTRY OF BIOLOGY

UNIT 3: CELLS

UNIT 4: ENERGY TRANSFER

UNIT 5: EARTH'S RESOURCES

UNIT 6: SEMESTER 1 REVIEW AND EXAM

UNIT 7: DNA AND HEREDITY

UNIT 8: DNA TO PROTEIN

UNIT 9: ECOSYSTEMS AND NATURAL SELECTION

UNIT 10: EVOLUTION AND CLASSIFICATION

UNIT 11: HUMAN BIOLOGY

UNIT 12: SEMESTER 2 REVIEW AND EXAM



## WORLD HISTORY

In World History, students learn to see the world today as a product of a process that began thousands of years ago when humans became a speaking, travelling, and trading species. Through historical analysis grounded in primary sources, case studies, and research, students investigate the continuity and change of human culture, governments, economic systems, and social structures.

This course is built to state standards.

UNIT 1: WELCOME TO WORLD HISTORY

UNIT 2: THE RISE OF AGRICULTURE AND EARLY CIVILIZATIONS

UNIT 3: CLASSICAL ERA CIVILIZATIONS AND WORLD RELIGIONS

UNIT 4: REGIONAL AND TRANSREGIONAL INTERACTIONS

UNIT 5: THE RISE OF THE WORLD'S FIRST GLOBAL AGE

UNIT 6: SEMESTER WRAP-UP

UNIT 7: WORLD HISTORY: 1750 TO THE PRESENT

UNIT 8: REVOLUTIONS IN SCIENCE AND INDUSTRY

UNIT 9: IMPERIALISM, NATIONALISM, AND POLITICAL REVOLUTIONS

UNIT 10: GLOBAL CONFLICTS AND RECOVERIES

UNIT 11: GLOBALIZATION AND THE WORLD TODAY

UNIT 12: SEMESTER WRAP-UP

## ALGEBRA II

Algebra II introduces students to advanced functions, with a focus on developing a strong conceptual grasp of the expressions that define those functions. Students learn through discovery and application, developing the skills they need to break down complex challenges and demonstrate their knowledge in new situations. This course is built to state standards.

UNIT 1: EXPRESSIONS, EQUATIONS, AND INEQUALITIES

UNIT 2: FUNCTIONS AND RELATIONS

UNIT 3: QUADRATIC FUNCTIONS

UNIT 4: SYSTEMS OF EQUATIONS AND INEQUALITIES

UNIT 5: POLYNOMIAL FUNCTIONS

UNIT 6: SEMESTER 1 EXAM

UNIT 7: RATIONAL EXPRESSIONS AND FUNCTIONS

UNIT 8: RADICAL EXPRESSIONS AND FUNCTIONS

UNIT 9: EXPONENTIAL AND LOGARITHMIC FUNCTIONS

UNIT 10: STATISTICAL ANALYSIS

UNIT 11: TRIGONOMETRY

UNIT 12: SEMESTER 2 REVIEW AND EXAM

## **ENGLISH 11**

In the English 11 course, students examine the belief systems, events, and literature that have shaped the United States.

UNIT 1: THE AMERICAN REVOLUTION

UNIT 2: ROMANTICISM AND TRANSCENDENTALISM

UNIT 3: THE AMERICAN NARRATIVE

UNIT 4: MODERNISM AND THE AMERICAN DREAM

UNIT 5: SEMESTER WRAP-UP

UNIT 6: MODERNISM AND LANGUAGE

UNIT 7: REDEFINING HOME

UNIT 8: FRACTURED IDENTITIES

UNIT 9: THE INFLUENCE OF SCIENCE AND TECHNOLOGY

UNIT 10: SEMESTER WRAP-UP

## CHEMISTRY

Chemistry offers a curriculum that emphasizes students' understanding of fundamental chemistry concepts while helping them acquire tools to be conversant in a society highly influenced by science and technology. This course is built to state standards.

UNIT 1: CHEMISTRY AND SOCIETY

UNIT 2: ATOMIC STRUCTURE

UNIT 3: BONDING IN MATTER

UNIT 4: CHEMICAL REACTIONS

UNIT 5: CHEMISTRY AT WORK

UNIT 6: SEMESTER 1 REVIEW AND EXAM

UNIT 7: ENERGY IN MATTER

UNIT 8: EQUILIBRIUM AND KINETICS

UNIT 9: TRANSFERRING ENERGY

UNIT 10: QUANTUM AND NUCLEAR CHEMISTRY

UNIT 11: ENERGY IN ORGANIC MOLECULES

UNIT 12: SEMESTER 2 REVIEW AND EXAM

## **GEOGRAPHY AND WORLD CULTURES**

Geography and World Cultures offers a tightly focused and scaffolded curriculum that enables students to explore how geographic features, human relationships, political and social structures, economics, science and technology, and the arts have developed and influenced life in countries around the world. Along the way, students are given rigorous instruction on how to read maps, charts, and graphs, and how to create them.

Geography and World Cultures is built to state standards and informed by standards from the National Council for History Education, the National Center for History in the Schools, and the National Council for Social Studies.

UNIT 1: INTRODUCTION TO GEOGRAPHY

UNIT 2: PHYSICAL ELEMENTS

UNIT 3: CULTURE

UNIT 4: NORTH AND SOUTH AMERICA

UNIT 5: EUROPE AND SOUTHWEST ASIA

UNIT 6: EAST ASIA AND SOUTH ASIA

UNIT 7: AFRICA, ANTARCTICA, AND OCEANIA

UNIT 8: REVIEW AND EXAM

## PRECALCULUS

Precalculus is a course that combines reviews of algebra, geometry, and functions into a preparatory course for calculus. The course focuses on the mastery of critical skills and exposure to new skills necessary for success in subsequent math courses. The course is built to state standards and the National Council of Teachers of Mathematics (NCTM) standards.

UNIT 1: FUNCTIONS

UNIT 2: QUADRATIC FUNCTIONS

UNIT 3: POLYNOMIAL AND RATIONAL FUNCTIONS

UNIT 4: EXPONENTIAL AND LOGARITHMIC FUNCTIONS

UNIT 5: CONIC SECTIONS

UNIT 6: SEMESTER 1 REVIEW AND EXAM

UNIT 7: INTRODUCTION TO TRIGONOMETRY

UNIT 8: TRIGONOMETRIC FUNCTIONS

UNIT 9: WORKING WITH TRIGONOMETRIC FUNCTIONS

UNIT 10: TRIGONOMETRIC IDENTITIES

UNIT 11: APPLICATIONS OF TRIGONOMETRY

UNIT 12: COMPLEX NUMBERS

UNIT 13: SEMESTER 2 REVIEW AND EXAM

## **ENGLISH 12**

The English 12 course asks students to closely analyze world literature and consider how we humans define and interact with the unknown, the monstrous, and the heroic.

UNIT 1: MONSTERS AND HEROES

UNIT 2: SINS AND CRIMES

UNIT 3: THE TEMPEST

UNIT 4: SWIFT AND DEFOE

UNIT 5: SEMESTER WRAP-UP

UNIT 6: FRANKENSTEIN

UNIT 7: WORLD WAR II

UNIT 8: THE COLONIZERS AND THE COLONIZED

UNIT 9: THE MODERN AND THE MEDIA

UNIT 10: SEMESTER WRAP-UP