The following courses, using the curriculum and examinations offered by Cambridge University, are required of the students in the Cambridge Program at Bethel High School.

The Cambridge advanced level courses are equivalent to those of Advanced Placement (AP) and International Baccalaureate (IB). AICE not only prepares students to get into a university with up to 45 hours of college credit, but it also provides them with the skills required to be successful once there. Students also have an opportunity to earn the AICE (Advanced International Certificate of Education) Diploma through the Cambridge advanced level courses offered at BHS. The AICE Diploma is an award for the completion of a specific number and type of classes that are recognized at many universities throughout the US.

Syllabus Descriptions

English Language Arts

Cambridge IGCSE English Language & Literature (9th grade) (ENG 161/162)

This accelerated course combines two Cambridge IGCSE courses and is designed to enable students to communicate clearly, accurately and effectively in both speech and writing, as well as to read, interpret and evaluate texts through the study of literature in English. Students learn how to employ a wide range of written forms for a variety of purposes, develop a personal style and an awareness of the audience, explore writers' use of English to achieve a range of effects, and construct informed, personal responses to the material they have studied. Learners are also encouraged to read widely, both for their own enjoyment and to further their awareness of the ways in which English can be used. Class skills include synthesis, inference, and the ability to order facts and present effectively. This course is based on CIE syllabi 0500 and 0486. *Credit: English Language Arts 1.0 - NCAA approved*

Cambridge AICE English General Paper (English Writing) – AS Level (10th grade) (ENG 261/262/565)

This Advanced Subsidiary (AS) English General Writing course promotes the skills of rational thought, persuasion, analysis, interpretation and evaluation. It encourages the exploration and appraisal of social, cultural, economic, philosophical, scientific and technological issues. Students will develop an understanding and appreciation of individual, social, and cultural diversity as well as maturity of thought and clarity of expression both verbally and in writing. Through the reading of timely literature, outside novels and works, and current media reports, students will develop critical reading and analysis skills. This course is based on CIE syllabus 8021. (Prerequisite IGCSE English Language & Literature) *Credit: English Language Arts 1.0 - NCAA approved*

Cambridge AICE English Language – AS Level (11th grade) (ENG 361/362/566)

This Advanced Subsidiary (AS) English Language course gives learners the opportunity to study English language and its use in contemporary communication. It aims to encourage a critical response to texts in a range of forms, styles and contexts, and to promote skills of communication, reading,

research and analysis. Through their study, learners will develop an ability to read and analyze material, gaining further knowledge and understanding of English language features and issues, and writing clearly, accurately, creatively and effectively for different purposes and audiences. This course is based on CIE syllabus 9093. (Prerequisite AICE English General Paper) *Credit: English Language Arts 1.0 - NCAA approved*

Cambridge AICE Literature in English – A Level (12th grade) (ENG 451/452/553)

This Advanced Subsidiary (AS) English Literature course provides students with an opportunity to study several pieces of literature in four genres in order to gain a greater understanding of literary techniques, themes, purpose, etc. Student will read assigned literature at home and spend class time dissecting the material through a variety of venues. Students will also learn to express their interpretations of the works through written analytical essays that demonstrate a strong grasp of the English language. This course is based on CIE syllabus 9695. (Prerequisite AICE English Language) *Credit: English Language Arts 1.5 - NCAA approved*

Mathematics

Cambridge IGCSE Mathematics (Geometry) (9th or 10th Grade) (MTH 153/154/559)

An essential subject for all learners, Cambridge IGCSE Mathematics encourages the development of mathematical knowledge as a key life skill, and as a basis for more advanced study. The syllabus aims to build learners' confidence by helping them develop a feel for numbers, patterns and relationships, and places a strong emphasis on solving problems and presenting and interpreting results. IGCSE reviews basic mathematics, builds skills in algebra, introduces probability and statistics and emphasizes geometric concepts. Learners also gain an understanding of how to communicate and reason using mathematical concepts. This course is based on CIE syllabus 0580. (Prerequisite Algebra 1) *Credit: Mathematics 1.5 - NCAA approved*

Cambridge AICE Mathematics 1 (Advanced Algebra) – Level 1 (9th, 10th, or 11th Grade) (MTH 161/162/561)

Cambridge International AS and A Level Mathematics builds on the skills acquired at Cambridge IGCSE level. Topics of study during year 1 include coordinate geometry, exponent and root properties, functions and their graphs, quadratics, inequalities, and an introduction to differentiation. This course is based on CIE syllabus 9709. (Prerequisite IGCSE Mathematics or Algebra 1/Geometry required) *Credit: Mathematics 1.5 - NCAA approved*

Cambridge AICE Mathematics 2 (Pre-Calculus) – Level 2 – AS Level (10th, 11th or 12th Grade) (MTH 261/262/562)

This Advanced Subsidiary (AS) Mathematics course builds on the skills acquired at Cambridge IGCSE and AICE Mathematics 1. The syllabus allows teachers to choose from three different routes to Cambridge International AS Level Mathematics: Pure Mathematics, Pure Mathematics and Mechanics or Pure Mathematics and Probability and Statistics. Concepts from Level 1 continue to develop with the addition of sequences, binomial expansion, trigonometry, vectors, derivatives (first and second), volume of revolution, integration and radian measure. This course is based on CIE syllabus 9709. (Prerequisite AICE Mathematics 1 – Level 1) *Credit: Mathematics 1.5 - NCAA approved*

Cambridge AICE Mathematics 3 (Calculus) – Level 3 - AS Level (11th or 12th grade) (MTH 453/454/566)

This Advanced Subsidiary (AS) Mathematics course, consisting of Pure Mathematics 2 & 3, is equivalent to first year college calculus. In the area of Pure Mathematic 2 the curriculum consists of polynomials, modulus functions, exponential function, circular measure, trigonometry, series, differentiation, and integration. Students are required to recognize appropriate mathematical procedures for a given situation. They must apply combinations of mathematical skills and techniques in solving problems. The presentation of mathematical work and the ability to communicate conclusions in a clear and logical way is required. This course is based on CIE syllabus 9709. (Prerequisite AICE Mathematics 2 – Level 2) *Credit: Mathematics 1.5 - NCAA approved*

Cambridge AICE Mathematics 4/Mechanics 1 – (Calculus II) Level 4 - AS Level (11th or 12th grade) (MTH 453/454/568)

This Advanced Subsidiary (AS) Mathematics course, consisting of pure mathematics and mechanics, is equivalent to first year college calculus. In the area of pure mathematics, the curriculum consists of quadratics, functions, coordinate geometry, circular measure, trigonometry, vectors, series, differentiation, and integration. In the area of mechanics the curriculum consists of forces and equilibrium, kinematics of motion in a straight line, Newton's laws of motion, energy, work and power. Students must demonstrate understanding of relevant mathematical concepts, terminology and notation. The course requires accurate recall and successful use of appropriate manipulative techniques. Students are required to recognize appropriate mathematical procedures for a given situation. They must apply combinations of mathematical skills and techniques in solving problems. The presentation of mathematical work and the ability to communicate conclusions in a clear and logical way is required. This course is based on CIE syllabus 9709. (Prerequisite AICE Mathematics Calculus/Statistics – Level 3) *Credit: Mathematics 1.5- NCAA approved*

Cambridge AICE Mathematics Statistics – (Statistics) Level 5 – AS Level (11th or 12th grade) (MTH 361/362/564)

Cambridge International AS and A Level Mathematics builds on the skills acquired at Cambridge IGCSE, AICE Mathematics Levels 1, 2, & 3. Further study of statistics and probability are also studied including topics such as representations of data, measures of location and spread, probability including permutations and combinations probability and binomial distributions, expectation and variable of a random variable, the normal distribution. This course is based on CIE syllabus 9709. (Prerequisite AICE Mathematic – Level 3) *Credit: Mathematics 1.5 - NCAA approved*

Science

Cambridge IGCSE Coordinated Science (9th grade) (SCI 167/168/567)

Cambridge IGCSE Co-ordinated Sciences gives learners the opportunity to study biology, chemistry and physics within a scientifically coherent syllabus and is accepted by universities and employers as proof of essential knowledge and ability. As well as a subject focus, the Cambridge IGCSE Co-ordinated Sciences syllabus encourages learners to develop: A better understanding of the technological world, with an informed interest in scientific matters – A recognition of the usefulness (and limitations) of scientific method, and how to apply this to other disciplines and in everyday life -- A relevant attitudes, such as a concern for accuracy and precision, objectivity, integrity, enquiry, initiative and inventiveness – An

interest in, and care for, the environment – A better understanding of the influence and limitations placed on scientific study by society, economy, technology, ethics, the community and the environment and – An understanding of the scientific skills essential for both further study and everyday life. Biology topics include: Characteristics of living organisms; Cells, Biological molecules; Enzymes; Plant nutrition; Animal nutrition; Transport; Gas exchange and respiration; Coordination and response; Reproduction; Inheritance; Organisms and their environment; and Human influences on ecosystems. Chemistry topics include: The particulate nature of matter; Experimental techniques; Atoms; elements and compounds; Stoichiometry; Electricity and chemistry; Energy changes in chemical reactions; Chemical reactions; Acids, bases and salts; The Periodic Table; Metals; Air and water; Sulfur; Carbonate; and Organic chemistry. Physics topics include: Motion; Work, energy and power; Thermal physics; Properties of waves, including light and sound; Electricity and magnetism; Electric circuits; Electromagnetic effects and; Atomic physics. This course is based on CIE syllabus 0654. *Credit: Science 1.5 - NCAA approved*

Cambridge AICE Biology AS Level (10th grade) (SCI 163/164/561)

AS Level Biology requires students be able to demonstrate knowledge and understanding of scientific phenomena, facts, laws, definitions, concepts, theories, vocabulary, instruments and apparatus, scientific quantities and their determination. Students must handle information and solve problems in oral, written, symbolic, graphical, and numerical form. Students must locate, select, organize and present information from a variety of sources. This course requires students to translate information from one form to another, manipulate numerical and other data, to use information to identify patterns, and draw inferences. Presenting reasoned explanations of phenomena, patterns and relationships, making predictions and proposing hypothesis are also required. Students must solve problems of a quantitative nature and apply knowledge and principles to novel situations. They must demonstrate an awareness of the limitations of biological theories and models. Students must demonstrate experimental and investigation skills by their use of apparatus and materials, recording observations and measurements, interpreting and evaluating experimental observations and data, planning and carrying out investigations, and evaluating methods. The Advanced Subsidiary Biology curriculum consists of cell structure, biological molecules, enzymes, cell membranes and transport, cell and nuclear division, genetic control, transport in plants and mammals, gas exchange, infectious disease, and immunity. This course is based on CIE syllabus 9700. (Perquisite AICE - IGCSE Physical Science) Credit: Science 1.0 – NCAA approved

Cambridge AICE Chemistry – AS Level (11th or grade) (SCI 377/378/579)

AS Level Chemistry syllabus includes the main theoretical concepts, which are fundamental to the subject, a section on some current applications of chemistry, and a strong emphasis on advanced practical skills. Practical skills are assessed in a timetabled practical examination. The emphasis throughout is on the understanding of concepts and the application of chemistry ideas in novel contexts as well as on the acquisition of knowledge. The course will foster creative thinking and problem-solving skills, which are transferable to any future career path, and AS Level Chemistry is ideal for students who want to study chemistry or a wide variety of related subjects at university or to follow a career in science. This course is based on CIE syllabus 9701. (Perquisite AICE - AS Biology and IGCSE Physical Science) *Credit: Science 1.0 – NCAA approved*

Cambridge AICE Physics – AS Level (12th grade) (SCI 373/374/573)

AS Level Physics includes the main theoretical concepts, which are fundamental to the subject, a section on some current applications of physics, and a strong emphasis on advanced practical skills. Practical skills are assessed in a timetabled practical examination. The emphasis throughout is on the understanding of concepts and the application of physics ideas in novel contexts as well as on the acquisition of

knowledge. The course encourages creative thinking and problem-solving skills, which are transferable to any future career path. Cambridge International AS and A Level Physics is ideal for learners who want to study physics or a wide variety of related subjects at university or to follow a career in science. This course is based on CIE syllabus 0625 (Perquisite AICE - AS Biology and IGCSE Physical Science) *Credit: Science 1.5 – NCAA approved*

Cambridge AICE *Biology* - A Level (12th grade) (SCI 375/376/577)

A Level Biology builds on the skills acquired at Cambridge AS level. The syllabus includes the main theoretical concepts, which are fundamental to the subject, a section on some current applications of biology, and a strong emphasis on advanced practical skills. Practical skills are assessed in a timetabled practical examination. The emphasis throughout is on the understanding of concepts and the application of biology ideas in novel contexts as well as on the acquisition of knowledge. The course encourages creative thinking and problem-solving skills, which are transferable to any future career path. Cambridge International Biology is ideal for learners who want to study biology or a wide variety of related subjects at university or to follow a career in science. This course is based on CIE syllabus 9700. (Perquisite AICE - AS Biology and IGCSE Physical Science) *Credit: Science 1.0 – NCAA approved*

Social Studies

Cambridge **Thinking Skills** and **Global Perspectives/Research** is a two-year program integrating study of three syllabi in preparation for completion of four assessment components central to earning a Cambridge AICE Diploma at Bethel High School . The three syllabi are **Thinking Skills 9694, Economics 0455,** and **Global Perspectives/Research 9239 AS Level,** and an additional independent study A Level research project and paper, considered to be an additional course of study, transforming the Global Perspectives AS Level into an A Level Cambridge course.

Cambridge IGCSE Thinking Skills in Contemporary/Economic World Issues (9th grade) (SST 161/162)

The AICE Thinking Skills curriculum is designed to prepare students for higher education in a wide range of careers including law, scientific research, social sciences, journalism, medicine, business, accounting, and engineering. This course consists of problem solving and critical thinking. The problem-solving component is designed to assess a student's ability to analyze numerical and graphical information in the context of real life situations and apply appropriate numerical techniques in order to find new information or derive solutions. Students gain skills in the areas of date handling, reading, modeling, and logic and reasoning. Students must apply simple mathematics to new situations in order to demonstrate and an ability to manipulate numerical and graphical data. They extract and use relevant data and find methods of using information in order to come to conclusions. Students are required to recognize how the same data may be presented in different forms. Students must be able to think critically about information, evaluate possible reasons for unexpected variations and be able to use information for informed decision making. Central to critical thinking is the notion of argument. Students learn to recognize a reasoned argument as distinct from quarreling, disputing, reporting or explaining Students are required to understand the common characteristics of reasoning and argument and the use of reasons to support conclusions. Students will develop an understanding of economic theory, terminology and principles. Learners study the economics of different countries and how these interrelate. They also learn to work with simple economics data and to use the tools of economic analysis. Learners apply understanding of economics to current economic issues. The main

activities of this course are analysis, evaluation and construction of argument. This course is based on CIE syllabi 0455 & 9694. *Credit: Social Studies 1.5 - NCAA approved*

Cambridge AICE Global Perspectives in International Relations – A Level (10th grade) (SST 261/262/564)

This Advanced Subsidiary (AS) Social Studies course prepares learners for positive engagement with our rapidly changing world. Learners broaden their outlook through the critical analysis of - and reflection on - issues of global significance. The Cambridge International AS Level Global Perspectives syllabus is based on skills rather than on specific content. Learners develop research, thinking, reasoning and communication skills by following an approach to analyzing and evaluating arguments and perspectives called the Critical Path. The skills gained through study of Cambridge International AS Level Global Perspectives enable students to meet the demands of twenty-first century learning and make a successful transition to study in higher education. This course is based on CIE syllabus 9239. *Credit: Social Studies 1.0 - NCAA approved*

Cambridge AICE U.S. History (and Government) – AS Level (11th grade) (SST 361/362/566)

This Advanced Subsidiary (AS) History course explores a variety of approaches to different aspects of history and government through different interpretations of particular historical and political issues. Student will explore seven units in American history: Westward Expansion and the Taming of the West, 1840-1896; the Impact of Economic Expansion, 1865-1917; Civil War and Reconstruction, 1861 -1877; Boom and Bust, 1920-1941; The USA's Rise as a World Power, 1890-1945; and Social Developments, 1945-1968. This course is based on CIE syllabus 9389. *Credit: Social Studies 1.0 - NCAA approved*

Cambridge AICE Modern European History – AS Level (12th grade) (SST 451/452/568)

This Advanced Subsidiary (AS) History course enables students to understand the developments that shaped Modern European History. This will be achieved with a holistic understanding of Europe as a geographic region for 1789 to 1939. Europe's key developments will be studied in relation to the wider European context and with attention focused on the broader issues (revolution, nationalism, imperialism, war, and totalitarianism) that helped shape European history. This course is based on CIE syllabus 9389. *Credit: Social Studies 1.5 - NCAA approval*