



CENTER FOR ADVANCED STUDIES AND THE ARTS



Enrollment Form

Course Catalog 2026-2027



CASA Website

**22180 Parklawn
Oak Park, MI 48237
248-586-8860**

www.casa-online.org

Four important things you need to know before you apply to CASA:

1. Attendance at CASA: Since CASA serves students from seven different sending districts, with seven different school calendars, we work to create our own CASA calendar that may, on occasion, differ from the students' home school schedule. **Students are expected to attend CASA when CASA is in session, even if their home district is closed.**

Please pay careful attention to the CASA calendar. CASA Calendar dates are published in August, on-line, via email, and printed in the CASA Student Handbook.

2. Advanced Placement at CASA

Advanced Placement, or "AP" classes, are classes that are taught at the college level, with high expectations for student engagement in the classroom and extensive reading and work at home. At the completion of an AP course, students may elect to take the AP exam in May. Most colleges and universities reward credit for an AP exam score of 3 or higher (on a 5-point scale). Taking an AP class in high school gives students a taste of what to expect when they go to college.

CASA offers 14 Advanced Placement courses in six-different subject areas. CASA encourages every student to enroll into an Advanced Placement course. We believe all students will benefit from such an experience, and we advise students to also take the AP exam for that course.

3. Prerequisites: A prerequisite is a class you must complete before taking an advanced course, or other requirements you must fulfill before you may take an advanced class. Many of our classes at CASA have required prerequisites. For example, to be able to enroll in AP Calculus BC at CASA, student must have completed a pre-calculus course that covered trigonometry, logarithmic functions and polynomial equations. Or, to take AP Music Theory, a student must be able to read music and have had experience playing in a band or orchestra or taking private lessons on their instrument. Prerequisites are listed under each class in the CASA Course Catalog, and there is a chart of prerequisites included here as well.

4. The Enrollment Process: Students should work on their enrollment with the counselor from their home high school in order to ensure that they are getting the proper credits they need for graduation, and that they are appropriately placed in classes. The enrollment form is on-line, and counselors must approve the students' class choices. Some CASA classes are very popular. Usually, students are scheduled on a first-come, first-served basis, however, for a few very popular CASA classes, Seniors will receive priority scheduling where appropriate. Occasionally, we do have to give students their second-choice class, so students should be sure to pick a second-choice class that they really want to take when completing the application.

Apply online at www.casa-online.org

Course Prerequisites


Course Name	Prerequisites	Grade Level	Met 
English			
AP English Language and Composition	Completion of English 10 or Honors English with a B or better	11-12	
AP English Literature and Composition	Completion of English 10 or Honors English with a B or better	11-12	
Arts			
Advanced Dance	Prior dance experience	10-12	
AP Studio Art 2D: Drawing & Painting	Portfolio of at least 5 completed pieces submitted by May 30 of the year prior to enrollment in CASA	10-12	
3D Art and Design	Portfolio of at least 5 completed pieces submitted by May 30 of the year prior to enrollment in CASA	10-12	
AP Music Theory	Ability to read music, experience in band, orchestra, or private music lessons	11-12	
Math			
AP Calculus (BC)	Completion of a pre-calculus course that covered trigonometry, logarithmic functions and polynomial equations	11-12	
AP Statistics	Working knowledge of Algebra II	11-12	
Personal Fitness			
Yoga	Must be physically fit to participate	10-12	
Science			
AP Chemistry	Completion of second year Algebra with a grade of B or higher, strong mathematical reasoning skills	11-12	
AP Physics C: Mechanics	Calculus AB or higher (may be taken concurrently)	11-12	
Astronomy	Completion of Geometry and Algebra I with a B average or better	11-12	
AP Research	AP Seminar	12	
Social Studies			
AP Psychology	B average in social studies classes, strong reading ability	11-12	
World Language			
Japanese II	Completion of Japanese I	11-12	
Japanese III	Completion of Japanese II	11-12	
German II	Completion of German 1	11-12	

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English

AP English Language and Composition

Grades: 11 – 12

Credit: 1

Prerequisite: "B" average in English; demonstrate above

*average ability in reading and writing skills. Completion of English 10, or Honors English 10. **Recommended for students in 11th grade.***

Advanced Placement English Language and Composition is a year-long (two-semester) college level course in which students will learn to read complex texts with greater understanding and develop richness, clarity, and complexity in their own writing. Students will have the chance to experiment writing with the stylistic elements and rhetorical techniques used by great writers. Students will discover how to produce narrative, descriptive, expository, and argumentative writing that introduces a complex central idea and develops it with specific evidence, insightful commentary, and clear organization.

AP English Literature and Composition

Grades: 11-12

Credit 1

*Prerequisite: "B" average in English; demonstrate above average ability in reading and writing skills. Completion of English 10, or Honors English 10. **Recommended for students in 12th grade.***

The AP English Literature and Composition course focuses on reading, analyzing, and writing about imaginative literature (fiction, poetry, drama) from various periods. Students engage in close reading, and critical analysis of Imaginative literature to deepen their understanding of the ways writers use language to provide both meaning and pleasure. As they read, students consider a work's structure, style, and themes, as well as its use of figurative language, imagery, and symbolism. Writing assignments includes expository, analytical, and argumentative essays that require students to analyze and interpret literary works.

Contemporary Literature and Film (First Semester Only)

Grades: 10-12

Credit 0.5

This elective explores how modern literature and film reflect society, identity, and storytelling in the 21st century. Students will read short, contemporary texts (short stories, excerpts, poems) and view films that explore similar themes. The focus is on critical thinking, personal reflection, and connections between media.

Science Fiction and Fantasy (Second Semester Only)

Grades: 10-12

Credit 0.5

This elective explores the imaginative worlds, big ideas, and powerful themes found in science fiction and fantasy literature. Students will read classic and contemporary works, analyzing how authors use speculative settings to examine real-world issues such as identity, technology, power, and society. Through discussions, creative projects, and analytical writing, students will investigate how world-building, myth, and innovation shape these genres. By the end of the course, students will develop stronger critical thinking skills and a deeper appreciation for speculative storytelling.



Advanced Dance

Grades: 10– 12

Credit: 1

Prerequisite: This performance- based class is designed for serious students who have had previous dance experience or who have excellent movement aptitude. To ensure students' proper placement, the instructor will conduct a personal interview after enrollment.

This course is designed to enhance the students' knowledge of dance as a performing art. B hour dance may concentrate on modern, hip-hop, and theatrical styles of dance. C hour may emphasize jazz, ballet, and tap. Advanced Dance students will have many opportunities to perform throughout the community and to attend local professional dance performances. Students may repeat this course for additional credit. Attendance daily is crucial to be successful in this performance class and is factored into the final grade. Students will provide their own personal dance clothes and shoes.

Open Enrollment Dance

Grades: 10– 12

Credit: 1

This course is designed to allow students to explore dance as a performing art. This class will introduce students to modern, hip-hop, jazz, ballet, and tap, and theatrical styles of dance. Open Enrollment Dance students will have many opportunities to perform throughout the community and to attend local professional dance performances. Students may take this course concurrently with Advanced Dance. Attendance daily is crucial to be successful in this performance class and is factored into the final grade. Students will provide their own personal dance clothes and shoes.

AP Studio Art 3D

Grades 10-12

Credits: 1

*Prerequisite: This course is designed for the serious art student who wishes to achieve college credit with the compilation of a supervised portfolio. **To ensure proper placement, potential AP Studio Art students must present their art portfolio for review the spring before enrollment into the class.** Students may email photographs of their work to the art teachers or the director through the CASA website.*

This course is an opportunity for students to explore sculptural issues and concepts of volume, space, and surface. Students will have access to a spacious sculpture studio with a range of tools and materials. A hands-on survey of techniques will include installation art, assemblage, metals, fibers/fabrics, and ceramics. After initial explorations of materials, the course emphasizes independent work with student choice. Therefore, the course can be tailored to the individual's interest in 3D Art, ranging from fashion design, architecture, jewelry, woodworking, ceramics and more.

Sculpture I & II

Grades: 10 – 12

Credit: 0.5 each semester

Prerequisite: Must have prior formal art experience in school or private lessons

This course is an opportunity for students to explore sculptural issues and concepts of volume, space, and surface. Students will have access to a spacious sculpture studio with a range of tools and materials. A hands-on survey of techniques will include installation art, assemblage, metals, fibers/fabrics, and ceramics. If a student elects to take the course for two semesters, they will also pursue independent work with student choice of materials. Students taking the course for two semesters will also complete a portfolio.

Beginner Piano I & II

Grades: 9 – 12

Credit: 0.5 each semester

Prerequisite: Must have prior formal art experience in school or private lessons

This introductory course is designed for students with little to no piano experience. Students will learn proper hand position, basic music reading, and foundational skills in rhythm and technique. Through guided practice and simple repertoire, they will gain confidence at the keyboard and develop essential musicianship. By the end of the course, students will be able to read music on both clefs and perform beginner-level pieces. No prior knowledge is required.

Music Technology (First Semester Only)

Grades: 10-12

Credit: 0.5

The Music Technology course is a survey course which introduces students to fundamental principles of music technology, including context regarding its historical uses. In addition to the historical studies, students will learn about sound equipment, mixers, digital signal processing, MIDI, and digital music production, with opportunities to apply their knowledge about these topics in hands-on projects.

Film Music (Second Semester Only)

Grades: 10-12

Credit: 0.5

This course combines a historical survey of film music with the goal of gaining a working understanding of the role music plays in films, observing different approaches to how music is used in films, and exploring how music interacts with other soundtrack elements that help create a compelling work of art. Students will learn how music affects our perception of films, and will be able to experience films with an increased understanding of how the picture and soundtrack come together.

AP Music Theory

Grades: 11-12

Credit: 1

Prerequisite: Prospective students should be able to read and write musical notation and have basic performance skills with voice or an instrument.

The AP Music Theory course covers topics such as musicianship, theory, musical materials, and procedures. Musicianship skills, including dictation and other listening skills, sight-singing, and harmony, are considered an important part of the course. Students develop the ability to recognize, understand, and describe basic materials and processes of tonal music that are heard or presented in a score. Development of aural skills is a primary objective. Performance is also part of the curriculum through the practice of sight-singing. Students understand basic concepts and terminology by listening to and performing a wide variety of music. Notational skills, speed, and fluency with basic materials are also emphasized. This is a challenging course designed to improve and prepare the music literacy of students beyond high school.



Advanced Forensics Science

Grades: 10 -12

Credit: 1

Prerequisite: Geometry and Algebra I with a B average or better.

This class explores how evidence is gathered at a crime scene, analyzed, and used in the prosecution of a criminal. Students will need to have a good understanding of trigonometry and geometry.

Topics that will be covered include blood spatter patterns, gunshot trajectory, fingerprinting, blood typing, and chromatography. Students should expect daily assignments, independent research, in-depth reading and writing, and group activities. This class satisfies the Final Year Math Requirement.

AP Calculus BC

Grades: 11 - 12

Credit: 1

Prerequisite: The completion of a pre-calculus course that covered trigonometry, logarithmic functions, and solutions to polynomial equations.

This course is intended for students with outstanding ability in mathematics. Students will study topics covered by the Calculus BC Advanced Placement Test. The material covered is roughly the equivalent of two semesters of freshman college calculus. This course is more comprehensive and faster paced than Calculus AB. Students should expect two hours of homework each day. This class satisfies the Final Year Math Requirement.

AP Chemistry

Grades: 11 - 12

Credit: 1

Prerequisite: Second-year Algebra with a grade of B or higher coupled with strong mathematical reasoning skills; The AP College Board strongly recommends incoming students have already completed (with an A or B) a first-year high school Chemistry course.

The AP College Board has modeled the AP Chemistry course after a typical two-semester introductory inorganic Chemistry course at the college-level. Universities may award credit based on the results of the AP Chemistry Exam and evidence of laboratory work. This is a fast-moving course which requires students to communicate in-depth understanding of complex ideas. Students regularly engage in problem solving, creation of scientific investigations, guided-inquiry investigations, analysis of data, presentation of conclusions, and application of concepts to multiple content areas within the chemistry framework and beyond. Students should expect to devote a large amount of time outside of class for independent learning. Approximately 25% of class time is devoted to laboratory investigations, which includes performing laboratories as well as preparation and analysis. This class satisfies the Final Year Math Requirement.

AP Environmental Science

Grades: 10-12

Credit:1

In this class, students investigate environmental issues, scientific principles, and interrelationships within the natural world. We identify and analyze natural and man-made environmental problems, evaluate risks, and examine solutions for resolving or preventing them. This is a lab based, interdisciplinary class where we look at topics from biology, geology, chemistry, geography, as well as social issues and impact. This one-year course is designed to be an equivalent to a one-semester introductory college course in environmental science. This class satisfies the Final Year Math Requirement.

AP Statistics

Grades: 11 - 12

Credit: 1

Prerequisite: Working knowledge of Algebra II

This course is the equivalent of an introductory college Statistics course required by many non-mathematical majors (i.e., social science, business, health, science, and engineering). Examples of the use and abuse of statistics in these fields and in politics and advertising will be used to foster critical thinking about research design. Activity-based learning will be used to demonstrate how unbiased data can be collected and dramatically presented to reveal patterns. This class satisfies the Final Year Math Requirement.

Biology of Food I (First Semester Only)

Grades: 10 – 12

Credit: .5

Prerequisite: completion of Biology with a grade of B or better

Do things like ice cream and fruit drinks really have a flavor “enhancer” taken from a gland near beavers’ anuses? Are strawberry *Frappuccinos*® pink because they have ground up bugs in them? What’s that “pink slime” in my McNuggets®, anyway?

You eat three times a day, or more. Wouldn’t you like to know more about where your food comes from and what foods truly contribute to good health? Would you like to know how to produce your own food safely and without damaging the environment? This class will help you gain a greater understanding of food and food production. We will take a hands-on approach. The first semester will focus on food preservation, canning, botulism, microbiology, food safety, food technology, longevity, vegetarianism, veganism, meat, and GMOs. The student will also learn basic ways to preserve food.

Biology of Food II (Second Semester Only)

Grades: 10 – 12

Credit: .5

Prerequisite: completion of Biology with a grade of B or better

Second semester will focus on dieting and obesity, nutrition, basic biochemistry, organic gardening, compost, soil, pesticides, pests, bees and farm animals. Students will learn how to grow their own organic food.

Invasive and Poisonous Species (Second Semester Only)

Grades: 10 – 12

Credit: .5

Throughout history, the movement of humans has been the cause of many species spreading from continent to continent. The Great Lakes has had an unfortunate series of invaders including the alewife, sea lamprey, zebra mussels and now, quite possibly, the Asian carp. In places like Guam, the brown tree snake has decimated the bird population. Closer to home, both Florida and Hawaii have been experiencing problems with invasive species. In addition to animals, our survey of invasive species will also include plant species like puncture vine and insects like the emerald ash borer.

College Biology (First Semester Only)

Grades: 11 – 12

Credit: .5

This dual enrollment course will cover the basics of biology including topics like: The basic structure, chemistry and energetics of a cell, mechanisms of inheritance, gene structure and function, and Mendelian genetics. Upon successful completion of this course, students will receive 3 college credits from LTU. This class satisfies the Final Year Math Requirement.

College Chemistry 1 (First Semester Only)

Grades: 11 – 12

Credit: .5

This dual enrollment course will cover the basics of chemistry including topics like: chemical bonding, stoichiometry, solutions and concentrations, and fundamentals of chemical nomenclature. This is a fast-moving course which requires students to communicate in-depth understanding of complex ideas. Students regularly engage in problem solving, creation of scientific investigations, guided-inquiry investigations, analysis of data, presentation of conclusions, and application of concepts to multiple content areas within the chemistry framework and beyond. Students should expect to devote a large amount of time outside of class for independent learning. Approximately 25% of class time is devoted to laboratory investigations, which includes performing laboratories as well as preparation and analysis. Upon successful completion of this course, students will receive 3 college credits from LTU. This class satisfies the Final Year Math Requirement.

College Chemistry 2 (Second Semester Only)

Grades: 11 – 12

Credit: .5

This dual enrollment course continues the conversation started in College Chemistry 1 and will cover the basics of biology including topics like: chemical kinetics, equilibrium, acids and bases, aqueous equilibria, and coordination chemistry. Upon successful completion of this course, students will receive 3 college credits from LTU. This class satisfies the Final Year Math Requirement.

Plagues and Pandemics (First Semester Only)

Grades: 10 – 12

Credit: .5

More than 50 million people died during the 1918 flu pandemic, and as many as 500 million people were killed by the “black death” in the 14th century. With headline-grabbing modern threats, like antibiotic resistant “super bacteria,” many Americans are asking: Will another disease circle the globe spreading death and destruction? This course will survey the plagues and pandemics that have occurred in recorded history. It will include not only diseases that have infected humans, but also diseases that have infected plants thus reducing our food supply, causing starvation. Finally, we will examine current public health threats, as well as attempts to prevent outbreaks by organizations like the Center for Disease Control.

Science in Movies (Second Semester Only)

Grades: 11 – 12

Credit: .5

Ever watch a movie and think to yourself, “is that really possible?” Come learn the science to explain why that part of the movie is (or is not) possible! Students will also conduct experiments to better understand the science, or pseudoscience, found in the most popular films!

AP Physics: C – Mechanics

Grades: 11 - 12

Credit: 1

Prerequisite: Calculus AB or higher (may be taken concurrently)

This one-semester class will cover the principles of Physics including Kinematics, Rotational Motion, Momentum, Work, and Energy using Calculus-based equations. There is a significant lab portion to this class. This class satisfies the Final Year Math Requirement.

AP Capstone Program

****Upon successful completion of AP Research and AP Seminar, students will be eligible for the AP Certificate or the AP Diploma.****

AP Seminar

Grades: 11 or 12

Credit: 1

This latest addition to the Advanced Placement program is designed to develop students' reading, writing, research, and critical thinking skills. Investigate real-world topics of your choice from multiple perspectives. Learn to collect and analyze information with accuracy and precision. Develop arguments based on facts and effectively communicate them. Examine materials such as news stories, research studies and literary works so you can craft arguments to support your point of view and communicate effectively using various media. Students will work on individual and group projects and presentations, often on topics of their own choosing. (Students may use this course for a science, or an elective, credit.)

AP Research

Grade: 12

Credit: 1

Prerequisite: AP Seminar

AP Research allows students to deeply explore an academic topic, problem, or issue of individual interest. Through this exploration, students design, plan, and conduct a year-long research-based investigation to address a research question. In the AP Research course, students further their skills acquired in the AP Seminar course by understanding research methodology; employing ethical research practices; and accessing, analyzing, and synthesizing information as they address a research question. Students explore their skill development, document their processes, and curate the artifacts of the development of their scholarly work in a portfolio, culminating with a final paper, presentation, and oral defense.

Social Studies

AP Microeconomics

Grades: 11-12

Credit: 1.0

AP Microeconomics is an introductory college-level microeconomics course. Students cultivate their understanding of the principles that apply to the functions of individual economic decision-makers by using principles and models to describe economic situations and predict and explain outcomes with graphs, charts, and data as they explore concepts like scarcity and markets; costs, benefits, and marginal analysis; production choices and behavior; and market inefficiency and public policy. This class satisfies the Final Year Math Requirement.

AP Comparative Government

Grades: 11-12

Credit: 0.5

AP Comparative Government and Politics is an introductory college-level course in comparative government and politics. The course uses a comparative approach to examine the political structures; policies; and political, economic, and social challenges of six selected countries: China, Iran, Mexico, Nigeria, Russia, and the United Kingdom. Students cultivate their understanding of comparative government and politics through analysis of data and text-based sources as they explore topics like power and authority, legitimacy and stability, democratization, internal and external forces, and methods of political analysis.

AP Psychology

Grades: 11-12

Credit: 1

Prerequisite: "B" average in Social Studies with strong reading skills.

AP Psychology will introduce students to the fascinating discipline of psychology from classical conditioning to the biology of psychology, from motivation and cognition to visual perception, personality theory and psychological disorders and therapies. Students will perform original research in the field of psychology, participate in experiments, demonstrations, case studies, projects and much more. The class will provide students with the opportunity to acquire the knowledge and skills necessary to succeed on the AP Exam in May, which can provide students with college credit.

Heroes and Villains (Mythology) I & II

Grades: 10 - 12

Credit: .5 each semester

The course will follow the history of the world's greatest civilizations through stories of adventure, magic, epic love, and tragic loss. We will discuss Egypt, Greece, Rome, Britain, The Norse, and many others. We will compare great heroes like Gilgamesh, Achilles, Hector, Thor, King Arthur, and Beowulf to modern heroes such as The Avengers, Luke Skywalker, and Harry Potter. Through stories of their battles with Ice Giants, and projects investigating when if ever great kings (and queens) can live forever, we will gain vast historical, geographical, and social knowledge of the world, and find deep connections to our own lives that we never knew existed.

Comparative Religions I & II

Grades: 9 - 12

Credit: .5 each semester

This course introduces students to the major world religions by exploring their histories, core beliefs, practices, and cultural influences. Students will examine traditions such as Hinduism, Buddhism, Judaism, Christianity, Islam, and a selection of other global belief systems in a respectful and academic manner. Through readings, discussions, and comparative analysis, students will develop a deeper understanding of how different religions shape societies and perspectives around the world. The course emphasizes critical thinking, cultural awareness, and respectful dialogue. No prior knowledge is required—only an open mind and a willingness to learn about diverse worldviews.

Introduction to Coding (Second Semester Only)

Grades: 9-12

Credit:0.5

This course gives students a foundational understanding of computer programming and problem-solving through code. Students will learn core concepts such as variables, data types, loops, conditionals, and functions while gaining experience in a beginner-friendly programming language. Through hands-on projects and challenges, students will apply these skills to create simple programs, games, and interactive applications. The class also introduces computational thinking, debugging strategies, and the role of coding in various career fields. By the end of the course, students will build confidence in writing code and be prepared for more advanced computer science coursework. This class satisfies the Computer Science Requirement.

Introduction to Law

Grades: 11-12

Credit:1

In this course, students will explore the fundamental elements of constitutional, family, consumer, civil and criminal law. Students develop and refine inquiry, decision-making, problem solving, communication skills and examine how they apply to being a responsible citizen. Students learn through classroom discussions, role playing, analysis of case studies and mock trials. Students listen to and interact with speakers in law-related careers to better understand the legal system.

Introduction to Marketing (First Semester Only)

Grades: 9-12

Credit:0.5

This elective provides students with a foundational understanding of how products, services, and ideas are promoted in today's world. Students will explore key marketing concepts such as consumer behavior, branding, market research, advertising, pricing, and digital marketing. Through hands-on projects, case studies, and collaborative activities, students will learn how businesses identify target markets and create strategies to reach them effectively. The course also introduces ethical considerations and the impact of marketing on society. By the end, students will have practical skills and real-world insights that can be applied to future business, entrepreneurship, or marketing pathways.

Personal Fitness

Yoga I & II

Grades: 10 - 12

Credit: .5 each semester

Prerequisite: Must be physically fit to participate

CASA yoga is a one semester or year-long opportunity to cultivate a daily yoga practice. It includes breathing and centering techniques, and meditation to help students manage their lives. To be able to experience a daily yoga practice during school is an incredible offering. Yoga is a mind and body workout. Students should become stronger and more flexible, as well as more mindful, relaxed, and better able to handle the daily stresses of life with equanimity and grace. It is important to note, however, that, as in all classes, students will get out of this class what they put into it.

World Language

Japanese Level 1

Grades: 10 – 12

Credit: 1

Please note: Students should expect daily homework assignments and should be prepared to speak, write, and memorize words and phrases.

This course is the first of a two-year sequence designed to prepare students for Japanese at the university level. This course emphasizes the fundamentals of speaking, reading, writing, and the basic linguistic structures of Japanese. Students must learn two separate writing systems, and a third writing system will be introduced. They will begin to understand basic Japanese and comprehend simple paragraphs and dialogues written in Japanese. Students will also study various aspects of Japanese culture, such as geography, people, and customs.

Japanese Level 2

Grades: 11-12

Credit: 1

Prerequisite: One year of Japanese I and a "C" or better in Japanese

This intermediate course will provide second year students with an extension of basic knowledge, enabling them to construct a firm *foundation in the Japanese language and culture. Students will reinforce the grammatical base acquired in Japanese I through dialogues and conversational contexts. They will increase the number of characters that they can read and write from the third writing system. Students will continue to study various aspects of Japanese culture.*

Japanese Level 3

Grades: 11-12

Credit: 1

Prerequisite: Japanese I and II, with a B or better average.

This course is primarily an independent study. Assignments will include listening and reading passages, as well as reading and writing kanji. Students may choose to take the Japanese Language Proficiency Test (N5 level) in December.

German 1

Grades: 9-12

Credit: 1

German is designed to prepare students for German at the university level. This course emphasizes the fundamentals of speaking, reading, writing, and the basic linguistic structures of German. Students will begin to understand basic German and comprehend simple paragraphs and dialogues written in German. Students will also study various aspects of German culture, such as geography, people, and customs.

German 2

Grades: 10-12

Credit: 1

Prerequisite: German I with a C or better average.

German is designed to prepare students for German at the university level. This course emphasizes the fundamentals of speaking, reading, writing, and the basic linguistic structures of German. Students will begin to understand basic German and comprehend simple paragraphs and dialogues written in German. Students will also study various aspects of German culture, such as geography, people, and customs.

Lawrence Tech Dual Enrollment

College Biology (First Semester Only)

Grades: 11 – 12

Credit: .5

This dual enrollment course will cover the basics of biology including topics like: The basic structure, chemistry and energetics of a cell, mechanisms of inheritance, gene structure and function, and Mendelian genetics. Upon successful completion of this course, students will receive 3 college credits from LTU. This class satisfies the Final Year Math Requirement.

College Chemistry 1 (First Semester Only)

Grades: 11 – 12

Credit: .5

This dual enrollment course will cover the basics of chemistry including topics like: chemical bonding, stoichiometry, solutions and concentrations, and fundamentals of chemical nomenclature. This is a fast-moving course which requires students to communicate in-depth understanding of complex ideas. Students regularly engage in problem solving, creation of scientific investigations, guided-inquiry investigations, analysis of data, presentation of conclusions, and application of concepts to multiple content areas within the chemistry framework and beyond. Students should expect to devote a large amount of time outside of class for independent learning. Approximately 25% of class time is devoted to laboratory investigations, which includes performing laboratories as well as preparation and analysis. Upon successful completion of this course, students will receive 3 college credits from LTU. This class satisfies the Final Year Math Requirement.

College Chemistry 2 (Second Semester Only)

Grades: 11 – 12

Credit: .5

This dual enrollment course continues the conversation started in College Chemistry 1 and will cover the basics of biology including topics like: chemical kinetics, equilibrium, acids and bases, aqueous equilibria, and coordination chemistry. Upon successful completion of this course, students will receive 3 college credits from LTU. This class satisfies the Final Year Math Requirement.

****The Cybersecurity Certificate is a two-year program.****

The Computer Science Cybersecurity Certificate provides students with the opportunity to gain a technical understanding of computing system security from software, hardware, and communications perspectives.

CYBERSECURITY CERTIFICATE

Computer Science 1 (First Semester Only - Year 1)

Grades: 10 - 12

Credit: .5

Introduction to programming with C++, Binary, two's complement, decimal, hex, and octal representations. Variable types. Simple, iterative, and conditional statements. Procedure and functions with parameters by value and reference with or without a returning value. Arrays and vectors, multidimensional arrays, bubble and selection sorts, linear and binary search. Pointer and dynamic memory allocation, character and C-strings, file input/output (sequential). Classes, friends, array of objects, and operators' overloading. Inheritance, polymorphism, virtual function, and recursion. This class satisfies the Final Year Math Requirement.

Computer Science 2 (Second Semester Only - Year 1)

Grades: 10 - 12

Credit: .5

Records, advanced file input/output (random access), dynamic memory allocation. Static and dynamic implementation of stacks, linked lists (ordered and unordered), queue (regular and priority), circular queues. Selection and insertion sort, binary search.

Intro to Database Systems (First Semester Only - Year 2)

Grades: 10 - 12

Credit: .5

Organization of database systems. Data definition, retrieval, manipulation. Relational databases, SQL. Practice using standard databases.

Web Development Foundations (First Semester Only - Year 2)

Grades: 10 - 12

Credit: .5

This course introduces the students to the concepts and techniques for developing dynamic web-based applications. Introduction to Web-based application development; client-side authoring using HTML, CSS, and JavaScript; web protocols; server-side programming; connecting to databases.

Foundations of Cybersecurity (Second Semester Only - Year 2)

Grades: 10 - 12

Credit: .5

This course is an introduction to Cyber Security concepts and methods. The course presents and explains different types of threats and explores a range of topics within Cybersecurity: infrastructure, network security, intrusion detection and prevention, information systems strategy and planning, security risk analysis and risk management, information assurance, and cybersecurity infrastructure.

****The Game Software Development Certificate is a two-year program.****

The undergraduate certificate in Game Software Development is an exciting option for students interested in developing game programming skills. These skills are the foundation to join the rapidly expanding and biggest entertainment industry in the world. You will learn how to make your own games, work in interdisciplinary teams, and help shape the future of this emerging art form with diverse and passionate game developers.

GAME SOFTWARE DEVELOPMENT CERTIFICATE

Computer Science 1 (First Semester Only - Year 1)

Grades: 10 - 12

Credit: .5

Introduction to programming with C++, Binary, two's complement, decimal, hex, and octal representations. Variable types. Simple, iterative, and conditional statements. Procedure and functions with parameters by value and reference with or without a returning value. Arrays and vectors, multidimensional arrays, bubble and selection sorts, linear and binary search. Pointer and dynamic memory allocation, character and C-strings, file input/output (sequential). Classes, friends, array of objects, and operators' overloading. Inheritance, polymorphism, virtual function, and recursion.

Introduction to Computer Games and Animation (Second Semester Only - Year 1)

Grades: 10 - 12

Credit: .5

Hands-on introduction for programmers and artists into game development. Each of the major components of making computer games will be studied through hands-on exercises. Students will make their first games using industry-wide tools.

Game Genre Development (First Semester Only - Year 2)

Grades: 10 - 12

Credit: .5

Create video games of several different genres such as puzzles, platform, maze racing, sports, and RPG. Examining and implementing game requirements for different hardware platforms.

Game Design (Second Semester Only - Year 2)

Grades: 10 - 12

Credit: .5

Each aspect of game design is examined and implemented. At the end of the course, students will have designed a complete game.

College for Creative Studies Dual Enrollment

Drawing 1: Rapid Concepts (First Semester Only)

Grades: 11 – 12

Credit: 1

In this introductory drawing course, students define the basic methods and principles of applied volumetric drawing with perspective and form, and rapid concept development through the visual description of imagined and observed objects using line variance, value, and composition.

Drawing 2: Style and Skill (Second Semester Only)

Grades: 11 – 12

Credit: 1

Students expand their understanding of the fundamentals of drawing and sketching, and develop their own personal sense of style and enhanced skill. A variety of drawing techniques are explored with a focus on creative composition, design and visual narrative. Additionally, the human figure will be explored as a basis of understanding gesture, proportion, geometric forms in space and the definition of complex surfaces. During this course students will be drawing from a live, clothed model