



Arrupe Virtual Learning Institute

Venturing beyond the classroom in Catholic schools

Catalog of Courses

Fall 2019 & Spring 2020

"Our prime educational objective must be to form men-and-women-for-others... This kind of education goes directly counter to the prevailing educational trend practically everywhere in the world... **What, then, shall we do? Go with the current or against it?"**

- *Father Pedro Arrupe (1973)*



A quick note...

Welcome to the Arrupe Virtual Learning Institute. Your school is making AVLI courses available to you as a means of providing additional course options for you to pursue interests that will help you grow to be your personal best. Beyond challenging course content, an AVLI experience fosters important life skills, and provides opportunities to learn with and from teachers and students from schools across North America.

We invite you to join us, and encourage you to bring an open mind, an open heart, and a willing spirit.

Jeff Hausman
Executive Director

Stephen Haessler
Chief Academic Officer

WHAT YOU SHOULD EXPECT FROM AN AVLI COURSE

LEARNING

Beyond mastering the subject material, our hope for you is that you grow as a learner. Working hard in your online course will help you develop time management skills, discipline, self-advocacy, and more. You will also come to better appreciate your learning strengths and weaknesses, maturing into an independent learner that will serve you well in college and beyond.

INSTRUCTORS

AVLI teachers are seasoned educators. They are certified in the subject area in which they are teaching, and have gone through extensive training in the development and delivery of online courses.

FORMAT

Courses are designed around a series of learning modules that students complete according to a schedule laid out by the teacher. Students will primarily work independently, but they will proceed as a class from one module to the next. Though the delivery will be different, just like the traditional classroom there will be lectures, discussions, projects, reading assignments, and more. Much of the work is done utilizing learning tools (discussion boards, blogs, wikis, group projects) that depend on active participation.

Online Class Meetings

In most courses, there will also be occasions when students gather online synchronously (i.e. at the same time) to collaborate, share perspectives, and/or receive live instruction. These synchronous sessions generally occur around once a week in the evening or on weekends according to a schedule set by the teacher.

TIME COMMITMENT

These courses are designed to be challenging. Students can expect to commit the same amount of time to an AVLI course as they would any other. Five to seven hours of focused attention each week should produce positive results.

CLASSMATES

Your classmates will be young men and women from other schools across North America. The courses are meant to be interactive experiences. As such it is the shared responsibility of all of the class' participants, both students and teacher, to build a rich learning community.

STILL HAVE QUESTIONS?

Still trying to decide if an AVLI course is right for you? Talk with your school advisor/counselor, or contact Dr. Steve Haessler at the AVLI, toll-free at (877)729-5852 ext. 102, or [email](#).

AVLI 2019-20 COURSE LIST BY SUBJECT AREA

MODERN LANGUAGES	SOCIAL STUDIES
AP Spanish Literature and Culture (dual credit eligible)	AP Comparative Government and Politics (dual credit eligible)
Arabic Level 1	AP Macroeconomics (dual credit eligible)
Arabic Level 2	AP Microeconomics (dual credit eligible)
Chinese Mandarin Level 1	AP Psychology (dual credit eligible)
Chinese Mandarin Level 2	AP United States Government and Politics (dual credit eligible)
Italian Level 1	AP World History (dual credit eligible)
Italian Level 2	Genocide and the Holocaust
Latin Level 1	Introduction to Business and Entrepreneurship
Latin Level 2	Law and Society
ART	Model United Nations and International Relations
AP Art History* (dual credit eligible)	Today's Latin American
AP Music Theory (dual credit eligible)	COMPUTER SCIENCE
Digital Photography	AP Computer Science (dual credit eligible)
SCIENCE	C++ Programming
AP Environmental Science (dual credit eligible)	Computer Game Development
Astronomy: An Introduction	Computer Science Principles
Principles of Engineering	Database Development for Real World Problems
MATHEMATICS	Playing with Legos: An Introduction to Computer Programming Through Lego Building
AP Calculus BC (dual credit eligible)	ENGLISH/COMMUNICATIONS
AP Statistics (dual credit eligible)	Multimedia Authorship – The Power of Words and Images
Linear Algebra	The Art of Drama
Multivariable Calculus (dual credit eligible)	"You Shall Not Pass"
Statistical Reasoning in Sports	THEOLOGY
MULTI-DISCIPLINARY	Bioethics: Navigating the Ethical Dilemmas of our Future (Fall)
Zombie Apocalypse: Interdisciplinary Approaches to Problem-Solving	Bioethics: Navigating the Ethical Dilemmas of our Future (Spring)
* Schools might choose to list AP Art History as a Social Studies course.	

COURSE SCHEDULE

- **YEAR-LONG COURSES:** September 5, 2019 thru May 1, 2020
- **FALL TERM COURSES:** September 5 thru December 13, 2019
- **SPRING TERM COURSES:** January 9 thru May 1, 2020

MORE ABOUT DUAL-CREDIT AND ADVANCED PLACEMENT

ADVANCED PLACEMENT

The AVLI offers a variety of Advanced Placement (AP) courses, all of which are College Board approved. AP testing is coordinated through the schools in which the students are enrolled. Like most schools, AVLI expects that students will sit for the College Board's subject exam after taking the AVLI's AP course, with some exceptions. (When available, students may choose to apply for dual credit in lieu of or in conjunction with sitting for an AP exam.)

CREIGHTON UNIVERSITY DUAL CREDIT OPTION

AVLI has a dual credit partnership with Creighton University whereby students are eligible to receive 3 hours of college credit for select AVLI courses (identified in the course listing). To qualify, students enroll in the course and pay the traditional course fee. They will then be provided the option of applying for credit for an additional fee of \$110 paid to the University.

[Request More Information about Creighton University](#)



YEAR-LONG COURSES

Sept. 5, 2019 thru May 1, 2020

Courses in this section carry 1.0 CREDIT

AP Art History

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Art

The AP Art History course explores topics such as the nature of art, its uses, its meanings, art making, and responses to art. Through investigation of diverse artistic traditions of cultures from prehistory to the present, the course fosters in-depth and holistic understanding of the history of art from a global perspective. Students learn and apply skills of visual, contextual, and comparative analysis to engage with a variety of art forms, constructing understanding of individual works and interconnections of art-making processes and products throughout history. Coursework is rigorous and will prepare students to sit for the AP Art History College Board exam in the spring. There is also an optional study abroad opportunity to travel to Paris in the spring where we will experience first-hand the art and architecture studied throughout the year.

AP Calculus BC

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Mathematics ([Dual Credit Eligible through Creighton University](#))

AP Calculus BC will cover all of the topics associated with AP Calculus AB includes the study and application of differentiation and integration, and graphical analysis including limits, asymptotes, and continuity. In addition, AP Calculus BC includes the study of convergence tests for series, Taylor and/or Maclaurin series, the use of parametric equations, polar functions, including arc length in polar coordinates, calculating curve length in parametric and function equations, L'Hôpital's rule, integration by parts, improper integrals, Euler's method, differential equations for logistic growth, and using partial fractions to integrate rational functions.

AP Comparative Government and Politics

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Social Studies ([Dual Credit Eligible through Creighton University](#))

The AP course in Comparative Government and Politics introduces students to fundamental concepts used by political scientists to study the processes and outcomes of politics in a variety of country settings. The course aims to illustrate the rich diversity of political life, to show available institutional alternatives, to explain differences in processes and policy outcomes, and to communicate to students the importance of global political and economic changes. Comparison assists both in identifying problems and in analyzing policymaking.

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AP Computer Science

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Computer Science ([Dual Credit Eligible through Creighton University](#))

PREREQUISITES: Students should have successfully completed one course in a programming language such as C, C++, Visual Basic .Net, or Java. Moreover, students should know how to edit, compile, and run a program.

This course is a college level introduction to object-oriented programming in Java. Students will focus on a problem solving approach designed to focus attention on programming algorithms and data structures. Students will be fluent in the syntax and logic structures of the Java programming language as well as familiar with the Java API. Students will attempt difficult programming challenges, reflect on these exercises, and share their discoveries with their peers. In the spring, students will be eligible to take the AP Computer Science A Exam offered by the College Board at their school. This class will take up a lot of time, so it is recommended have room in their schedule for it.

AP Environmental Science

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Science

PREREQUISITES: Chemistry and Biology

The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. Labs will be coordinated with the student's brick-and-mortar school. In the spring, students will be eligible to take the AP Environmental Science Exam offered by the College Board at their school. This class will take up a lot of time, so it is recommended students have room in their schedule for it.

AP Music Theory

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Fine Arts ([Dual Credit Eligible through Creighton University](#))

This course corresponds to the introductory college music theory class. Topics to be covered include musicianship, reading and writing musical notation, musical materials, and procedures. The course sequence involves aural skills, sight-singing, melodic and rhythm dictation, aspects of melody, keyboard harmony, musical form analysis, and elementary composition. The goal is to develop the ability to recognize, understand and describe basic materials and processes of music that are heard or presented in a musical score. Students who complete this course are encouraged and eligible to take the AP Music Theory examination in the spring.

AP Psychology

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Psychology/Social Studies ([Dual Credit Eligible through Creighton University](#))

AP Psychology is a general introduction, similar to a first-year college course. The course surveys the major topics of psychology, including: Psychology's early history to the present, neuroscience and behavioral genetics, sensation and perception, cognition (memory, intelligence, and language), motivation and emotion, states of consciousness, learning, development, personality, research methods, social dynamics, psychological disorders, and therapeutic methods.

AP Spanish Literature and Culture

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Modern Languages ([Dual Credit Eligible through Creighton University](#))

PREREQUISITES: Fluency in speaking, reading, and writing in Spanish

Following the College Board curriculum, this course is “designed to provide students with a learning experience equivalent to that of an introductory college course in literature written in Spanish. The course introduces students to the formal study of a representative body of texts from Peninsular Spanish, Latin American, and U.S. Hispanic literature. The course provides opportunities for students to demonstrate their proficiency in Spanish across the three modes of communication (interpersonal, interpretive, and presentational) and the five goal areas (communication, cultures, connections, comparisons, and communities) outlined in the Standards for Foreign Language Learning in the 21st Century. The overarching aims of the course are to provide students with ongoing and varied opportunities to further develop their proficiencies across the full range of language skills — with special attention to critical reading and analytical writing — and to encourage them to reflect on the many voices and cultures included in a rich and diverse body of literature written in Spanish.”

AP Statistics

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Mathematics ([Dual Credit Eligible through Creighton University](#))

This course prepares students to take the Advanced Placement national examination in elementary statistics. It develops an intuitive, non-calculus based understanding with an emphasis on doing statistics. Statistics makes sense of data. It consists of a set of tools that allow us to make inferences in the face of uncertainty. Statistical methods draw from the Gaussian (normal, bell shaped) distribution as well as the binomial and chi-square distributions. We learn about data description concepts, hypothesis testing, probability, discrete and random variables, several inferential techniques, regression, and how to plan and carry out a properly designed statistical analysis.

AP United States Government & Politics

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Social Studies ([Dual Credit Eligible through Creighton University](#))

Students in Advanced Placement United States Government and Politics will analyze the contemporary nature and function of the American political system. Students will examine the scope and framework of the United States government's institutions and structures. Also, students will explore the process through which the political system operates, and the factors impacting political participation. Students will understand how public policy is adopted, implemented, and impacts our lives.

AP World History

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Social Studies ([Dual Credit Eligible through Creighton University](#))

AP World History is structured around the investigation of key course themes and concepts in six different chronological periods, from approximately 8000 B.C.E. to the present. These themes, examined across cultures and time periods, include: Interaction between humans and the environment; Development and interaction of cultures; State-building, expansion and conflict; Creation, expansion and interaction of economic systems; Development and transformation of social structures.

Arabic Level 1

Registration Deadline – 15 May 2019

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: World Languages

This yearlong course (for students with little or no prior knowledge of Arabic) combines the study of the Arab language with an introduction to Arab-speaking cultures. Students will gain practical experience in speaking Arabic with proper pronunciation to acquire basic conversational skills on topics, such as, greetings, shopping, and travel. Moving from English language-centered to an Arabic-centered class, students will learn basic vocabulary and sentence patterns used in daily life and social interaction. Cultural notes will be given along with speaking practice necessary for interpersonal communication.

Arabic Level 2

Registration Deadline – 15 May 2019

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: World Languages

PREREQUISITES: Arabic Level 1 or equivalent

Arabic Level 2 builds on the grammar, writing, and conversational skills established in Arabic Level 1.

Chinese Mandarin Level 1

RECOMMENDED FOR: Sophomore, Juniors and Seniors

COURSE LISTING: World Languages

This course combines the study of the Chinese language with an introduction to Chinese culture. Students will gain practical experience in speaking Mandarin with proper pronunciation using the pinyin system to acquire basic conversational skills. Students will learn basic vocabulary and sentence patterns used in daily life and social interaction. Culture notes will be given along with speaking practice necessary for interpersonal communication. In addition, a certain amount of Chinese written characters are studied with a fun approach.

Chinese Mandarin Level 2

RECOMMENDED FOR: Sophomore, Juniors and Seniors

COURSE LISTING: World Languages

PREREQUISITES: Chinese Mandarin Level 1 or equivalent

Mandarin Level 2 builds on the grammar, writing, and conversational skills established in Mandarin Level 1.

Italian Level 1

RECOMMENDED FOR: Freshmen, Sophomores, Juniors, and Seniors

COURSE LISTING: Languages

Introduction to the basics of conversational Italian, including nouns, regular and irregular verbs, and basic conversations from Italian to English and English to Italian. This course will be team taught with by an Italian teacher in the United States and an English teacher in Italy. Students will communicate in Italian with native speakers in Italy. Successful completion of Italian 1 is a prerequisite for admission into Italian 2, 3, and AP Italian.

Italian Level 2

RECOMMENDED FOR: Freshmen, Sophomores, Juniors, and Seniors

COURSE LISTING: Languages

Italian Level 2 builds on the grammar, writing, and conversational skills established in Italian Level 1.

Latin Level 1

RECOMMENDED FOR: Freshmen, Sophomores, Juniors, and Seniors

COURSE LISTING: Languages

In this introductory course, students will learn the basic elements of Latin grammar, syntax, and vocabulary. Students will also study the Latin-based etymological roots of common English word families and selected topics from Roman history, culture, and mythology. By the end of the course, students will be able to read short, authentic Latin texts and write original Latin sentences using basic Latin grammar and vocabulary.

Latin Level 2

RECOMMENDED FOR: Sophomores, Juniors, and Seniors

COURSE LISTING: Languages

Latin Level 2 builds on the grammar, syntax, and vocabulary skills established in Latin Level 1.

Linear Algebra

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Mathematics

PREREQUISITES: High Performance in both Honors Algebra 2 and Honors Geometry

This course will cover the essentials of linear algebra. Topics covered will include matrix arithmetic, systems of equations, the determinant function, vectors in $\mathbb{R}^2$ and $\mathbb{R}^3$, general vector spaces, eigenvalues and vectors, and linear transformations.

Multivariable Calculus

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Mathematics ([Dual Credit Eligible through Creighton University](#))

PREREQUISITES: AP Calculus BC

Students taking this course will study the fundamental theorems and applications of multivariable calculus. This course will extend the calculus of one-dimension, which is studied in the AP Calculus BC course, to Euclidean spaces of arbitrary dimension. The course will begin with a careful consideration of vectors in $\mathbb{R}^n$. From there, we will consider the theory of partial derivatives and vector fields. Multiple Riemann integrals will then be considered as well as certain of their applications. Time permitting, the course will conclude with a careful look at the important theorems of vector calculus – namely, the theorems of Green, Gauss, and Stokes. Where applicable, concepts will be presented in full generality. In particular, a nontrivial amount of real analysis and point-set topology will be studied to facilitate studying certain of the multivariable calculus concepts. However, it is hoped that this increased sophistication will allow students to see more clearly how multivariable calculus is a beautiful generalization of the single-variable calculus. Moreover, throughout the course, the instructor will attempt to show students where the abstract mathematics can be applied. (e.g., We will examine briefly how the concepts of the course are used by meteorologists to study severe thunderstorm formation.)

FALL 2019

September 5 thru December 13, 2019

Courses in this section carry 0.5 CREDIT

AP Microeconomics

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Social Studies ([Dual Credit Eligible through Creighton University](#))

How should faithful Catholics think about economics? This course integrates selected themes from the Neoscholastic School of economics with the content of the Advanced Placement economics syllabus in microeconomics. The course prepares students to do well on the AP Microeconomics exam as well as offers a way to view our redeemed creation through the prism of social science. The economic way of thinking does not begin with Adam Smith. It is based on insights from Aristotle, St. Augustine, St. Aquinas, the Jesuit and Franciscan theologians at the University of Salamanca in Spain during the sixteenth and seventeenth centuries, and on the Popes' social encyclicals. We develop our understanding of basic economic concepts and analytic tools by anchoring them to our faith's moral traditions and foundations.

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Bioethics: Navigating the Ethical Dilemmas of our Future

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Theology

This course is a general introduction to ethical theory and reasoning and its application to a number of hot current world issues, with particular emphasis on bioethics (moral dilemmas of modern biological and medical fields). It begins by addressing the question, why do ethics and moral decision-making matter at all in a world we see operating so frequently without them? It surveys major ethical paradigms (common-good ethics, rights ethics, virtue ethics, and ethical relativism) and considers how each can help and hinder our pilgrimage to responsible, life giving choices for us and for our larger human family. Respectful consideration of opposing viewpoints, including the official teachings of the Catholic Church, is a hallmark of the course. By the end of the course, students should be able to manage some real cases on a committee of fellow ethicists using the vocabulary germane to ethicists in hospitals today.

C++ Programming

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Computer Science

This course will introduce students to computer programming using the C++ programming language. C++ is a programming language used in many applications, across many different industries. Through this course, students will learn the basic syntax necessary to write a computer program. They will learn how to attack a problem using the proper planning techniques. Students will learn about control structures, loops, procedures, arrays and much more. Another important aspect of this course is learning how to collaborate with other students. Each student will be put in a group of 3 and will work together to meet the objectives of the module. Collaborating with other students is essential to success of students in this course, as well as a much needed life skill.

Digital Photography

RECOMMENDED FOR: Freshmen, Sophomores, Juniors and Seniors

COURSE LISTING: Art

Digital Photography is a semester course designed for beginning photographers. Students will learn the basics of photography and fine-tune their camera skills. The course will also cover composition and the principles of design that work to create an aesthetically pleasing photo. The course will not cover photo editing and retouching, but will focus on getting good images that don't need editing. **Students must have a Digital SLR camera.

Introduction to Business and Entrepreneurship

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Social Studies

So you think you might want to start your own business. There's more to it than you might think! This course introduces the fundamental components of business – from operations, management, and IT, to accounting and finance, to marketing and sales. From there we will look at the entrepreneurial journey from identifying an idea, to building a presence in the marketplace, and financing the dream. Finally, you will put all of this to practice by building a business plan for a simple product or service of your choosing.

Law and Society

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Social Studies

Law & Society features the study of the political nature of state and federal level courts, while paying particular attention to contemporary issues related to the judiciary. The course will provide a foundation for legal study through surveying 1) the historical development of the courts, 2) controversial issues surrounding the essence of court authority, 3) state and federal court structures and operations, and 4) case study areas related to civil rights and liberties. Students will have the unique opportunity to become acquainted with fundamental aspects of the American legal system, and be afforded educational exposure to issues applicable as both citizens and students in the historical field of law. Class methods will include discussion, lecture, case-summary writing, historical research, and other related techniques. *Note: this course is not designed to be the basis of professional legal training. It is a general survey course designed to provide students with historical and contemporary practical learning material.*

Model United Nations/International Relations (MUNIR)

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Social Studies

Model United Nations is an educational simulation and academic competition in which students learn about diplomacy, international relations, and the United Nations. **International Relations** is an academic course designed to examine the behavior of nations and states both individually and collectively. When you combine the two—that is, using the Model UN platform to examine the state of International Relations today, you have an interesting, intriguing, and fun way to enhance both your perception of global issues and your position as a citizen of your country and the global community. This is not a course that will drown itself in theory. Rather, it is designed to offer opportunities for students to study modern global issues, and the positions and interactions of nations and states, through research, simulations, discussion, and written assignments. Students are assigned a country at the beginning of the semester and represent that country during simulations, constructing position papers, resolutions, and amendments. Several seminars encourage students to participate in online discussion

to resolve, or perhaps merely to understand better, an issue. Since committee work is such a vital part of the course, significant online interaction via email, video conferencing, or texting is a must for success. Simulations are based on the United Nations format.

Multimedia Authorship – The Power of Words and Images

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: English, Communications, Practical Arts, Media Studies

This course aims primarily to develop communication skills through student expression of his or her ideas using multimedia technology. Students will study models of multimedia composition used by professional and student writers and then create their own multimedia content, pushing the students to a mastery of the concepts and technical skills the composition requires. In order to fully participate in the class, the student must have a computer (Mac or Windows) on which he or she can install new programs. They will also need access to a digital camera. The semester will culminate with each student producing an original, substantive multimedia project on a topic of the student's choice.

Playing with Legos: An Introduction to Computer Programming Through Lego Building

RECOMMENDED FOR: Primarily for Freshmen, and Sophomores. Juniors and Seniors welcome.

COURSE LISTING: Computer Science

This project-oriented course is designed for students with no previous computer programming experience who want to learn the fundamentals of coding through an interactive graphics-oriented environment called Bricklayer. Using virtual bricks (i.e. Legos) to build progressively sophisticated 2D and 3D models, students will learn basic coding concepts such as functions, parameters, conditional expressions, basic data structures, and debugging. The culminating student project will be a 3D artifact that will be imported for viewing in Minecraft. (PC or Mac Computer required.)

Principles of Engineering

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Engineering, Science

This course takes students on a “doing” tour of the discipline of engineering and several of its sub-disciplines including mechanical engineering, electrical engineering and computer engineering. Students will learn the engineering design process and computer aided design and apply it to “hands-on” projects.

SPRING 2020

January 9 thru May 1, 2020

Courses in this section carry 0.5 CREDIT

AP Macroeconomics

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Social Studies ([Dual Credit Eligible through Creighton University](#))

How should faithful Catholics think about economics? This course integrates selected themes from the Neoscholastic School of economics with the content of the Advanced Placement economics syllabus in macroeconomics. The course prepares students to do well on the AP Macroeconomics exam as well as offers a way to view our redeemed creation through the prism of social science. The economic way of thinking does not begin with Adam Smith. It is based on insights from Aristotle, St. Augustine, St. Aquinas, the Jesuit and Franciscan theologians at the University of Salamanca in Spain during the sixteenth and seventeenth centuries, and on the Popes' social encyclicals. We develop our understanding of basic economic concepts and analytic tools by anchoring them to our faith's moral traditions and foundations.

Astronomy: An Introduction

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Science

At some point in our lives, each of us has gazed at the night sky in awe of its sheer magnitude. While we have learned much about our planet and its relationship to other celestial bodies, in many ways, the cosmos is the last great frontier. But how did it come to be? How large is it? How much do we know about the universe versus what remains to be discovered? This course provides an introduction to the solar system, stars, the interstellar medium, the galaxy, and the universe. It is also designed to force students to think like scientists – separating fact from theory, studying relationships between objects in search of patterns, and more. Please note that Astronomic principles are grounded in Physics (which is largely grounded in Mathematics). Though students need not have studied Physics previously, they should be prepared to work within this discipline.

Bioethics: Navigating the Ethical Dilemmas of our Future

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Theology

This course is a general introduction to ethical theory and reasoning and its application to a number of hot current world issues, with particular emphasis on bioethics (moral dilemmas of modern biological and medical fields). It begins by addressing the question, why do ethics and moral decision-making matter at all in a world we see operating so frequently without them? It surveys major ethical paradigms (common-good ethics, rights ethics, virtue ethics, and ethical relativism) and considers how each can help and hinder our pilgrimage to responsible, life giving choices for us and for our larger human family. Respectful consideration of opposing viewpoints, including the official teachings of the Catholic Church, is a hallmark of the course. By the end of the course, students should be able to manage some real cases on a committee of fellow ethicists using the vocabulary germane to ethicists in hospitals today.

Computer Game Development

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Computer Education, Technology

This course explores the process of game development, the principles of game design, styles/genres of computer games, techniques for game software engineering, and information about the computer game industry. Emphasis will be on pragmatic advice for game designers, together with techniques for game balance and analysis. Students will design and playtest a game as a course project. Group work is emphasized, especially the importance of collaboration between technical and artistic efforts. Students are expected to participate in game development using appropriate game development tools.

Computer Science Principles

RECOMMENDED FOR: Primarily for Freshmen, and Sophomores. Juniors and Seniors welcome.

COURSE LISTING: Computer Science

This course will introduce students to a wide array of important computer science topics. It is hoped that students will learn the ideas and practices of computational thinking, and also how computers are impacting the world around us. Topics that will be covered include basic computer vocabulary, bits and bytes, programming, abstraction, internet and networking. Another important aspect of this course is learning how to collaborate with other students. Each student will be put in a group of 3 and will work together to meet the objectives of the module. Collaborating with other students is essential to success of students in this course, as well as a much needed life skill.

Database Development for Real World Problems

Registration Deadline – 15 May 2019

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: Computer Science

This course introduces students to Microsoft Access in order to teach database and programming concepts and will show how to use Access as a real world problem-solving tool through the building of an actual database. Access is part of the Microsoft suite and allows you to organize, manage, collect, analyze, and report on data using 'objects' within Access that you learn to design and build. Students will organize and develop a database throughout the course based on an idea from their school or personal life. Past students have built databases on topics as wide ranging as tracking and rating recipes, entering college applications and showing college acceptance/financial aid, and rankings of different brands and types of audio headphones.

Genocide and the Holocaust

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Social Studies

This course takes a look at both the academic and social constructions of genocide. We will view the Holocaust as the paradigmatic example of, but not only, genocide in modern history. Students will study the causes and processes of genocide as well as other contemporary crimes against humanity. Students and parents should be advised that this course utilizes intense and disturbing materials.

Statistical Reasoning in Sports

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Mathematics

PREREQUISITES: Algebra I and II

The purpose of this course is to learn the foundational concepts and tools of descriptive and inferential statistical reasoning in a fun way. This is an introductory, non-AP course, that covers most of the concepts in an introductory statistics course by working with data from high school, amateur, and professional sports. In our data-saturated world, citizens must be able to ask thoughtful questions, properly analyze data, and, most importantly, use critical thinking skills to draw appropriate conclusions and recognize inappropriate conclusions made by others. A culminating activity will include applying course concepts by analyzing data from a selected school sport activity, assuming approval from school administration and coaching staff.

The Art of Drama

Registration Deadline – 15 May 2019

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: English

This class investigates how drama works and why we still read and watch plays. What, for instance, does a reader or a director do with that famous stage direction from Shakespeare's *The Winter's Tale*, "Exit, pursued by a bear"? Students will learn to think more broadly than just about drama, and will develop critical writing skills, forming arguments that think beyond the obvious and demonstrate a command of the text. Students will work throughout the semester on a capstone project: a short play of their creation to be handed in at the end of the semester. Those interested should expect to have one hour's worth of work each of six days out of the week including, but not limited to reading, viewing lectures, watching film adaptations of plays, writing essays, posting to a discussion board, and participating in e-meetings.

Today's Latin America

RECOMMENDED FOR: Juniors and Seniors

COURSE LISTING: Social Studies

The goal of this Latin American Studies course is that students obtain a better understanding of the realities within the region. From a comparative analysis and critical perspective, students will identify similarities, parallelisms, and differences of the countries' common origins, confluences of historical processes, and the challenges of social and political issues facing globalization. Topics include Latin American historical backgrounds, culture, identity, economics, and politics.

"You Shall Not Pass"

RECOMMENDED FOR: Sophomores, Juniors and Seniors

COURSE LISTING: English

This course is structured like a game, and so is game-driven. We will journey through Middle-earth to engage with the opposing forces of Good and Evil, and the subtle borders that separate them, in one of the twentieth century's most influential works of fiction: *The Lord of the Rings* by JRR Tolkien. To do this, we will take an interdisciplinary approach, using the tools of History, Literature, and Theology. Each day, students can expect to be doing one of three tasks: listening to a video lecture from the teacher, reading from Tolkien's novel and supplementary texts, or writing about their findings. Through forum discussions, we will grapple with the multiple iterations of Good and Evil we find on our journey, and together we will become the historians, literary scholars, and theologians of Middle-earth.

Zombie Apocalypse: Interdisciplinary Approaches to Problem-Solving

RECOMMENDED FOR: Seniors Only

COURSE LISTING: Multi-Disciplinary

This course focuses on solving interrelated problems stemming from a serious and widespread catastrophe such as an epidemic of infectious disease. The course strengthens creative problem-solving skills by drawing analytical tools from theology (ethics), mathematics (statistics), science (biology), and social science (psychology and economics). We will consider calamitous infections that have changed the course of history. Included topics are: disease transmission, outbreak investigations, control measures, assessment, and field investigations. A culminating project will partner students from different schools to present creative solutions to mind-boggling problems.

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