

Central Catholic High School



Electives Catalog
2024-2025

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Scheduling Basics

Incoming Freshmen

Initial 9th grade courses are determined by the results of the High School Placement Test (HSPT) that is taken as part of the application process. For students that would like to be considered for Honors or AP level courses, but do not meet the minimum HSPT scores, additional testing can be taken in May of the 8th grade year. Instructions on how to select courses and additional Honors/Advanced tests are included in the Acceptance Packet. Incoming 9th graders will receive their course placements in summer prior to the start of 9th grade. This Course Catalogue serves as an overview of the scope and sequence of the curriculum at Central Catholic High School.

Transfer Students

Transfer students will be placed in courses in accordance with their high school transcripts, records, recommendations, and the transferring student's input with regard to preferences and academic pursuits. This process will take place after the student is officially accepted and enrolled for the new school year.

Continuing Students

Currently enrolled students will select courses for the next academic year during the 3rd quarter marking period. The current subject teacher will choose core class selections for the following year and recommendations by teachers will be based on a student's performance in the current course. Elective courses can be requested through the elective teacher, school counselor, or the Assistant Principal for Academic Affairs. The Electives Catalog will guide students to course descriptions on elective prerequisites and the registration requirements.

If a student/parent disagrees with a teacher's recommendation or a student does not meet the prerequisites for a particular course, the issue should be addressed directly with the teachers. Consultation with the assigned school counselor is acceptable if a resolution cannot be reached with the teacher.

Once the course selection period has concluded, students will receive a course card with all core and elective classes requested. At that point, students will submit course requests through the PowerSchool scheduling portal by a designated deadline to complete the course selection process. ***It should be noted that the selection of specific courses does not guarantee that the student will receive these courses on his schedule.*** Course availability is dependent on interest from the student body, individual course schedules, capacity, and staffing. If scheduling conflicts arise, students will be contacted through their school-assigned e-mail addresses from their assigned counselor or school administrator. Students who do not reply to school outreach regarding scheduling conflicts will automatically have course selections chosen for them.

Scheduling Changes

The course selection process should be taken seriously. Any changes made after the last day of school will require administrative approval. The academic schedule that a student receives during their orientation day at the beginning of the academic year will be considered final.

Dropping or adding courses after the start of the academic year is permitted only under the following circumstances:

- student is misplaced
- lacks necessary pre-requisites for the class
- school/computer error
- extenuating circumstances (i.e. medical, family)

Course change requests can be initiated by the teacher, student, parent, or school counselor within the first (9) full weeks of the year for full credit courses and within the first (5) full weeks of the semester for half credit courses. Students must complete a schedule change request form and submit it to their assigned counselor. Any course change requests received after these deadlines will not be accepted. Questions regarding a student's academic placement should be directed to the Assistant Principal for Academic Affairs or the assigned counselor.

Course Levels

Bishop McDowell (Level 2)

Designed to facilitate student success through the development and reinforcement of necessary skills, Level 2 classes are part of the Bishop McDowell program. This program encourages students, through a variety of individually designed activities, to become thoroughly familiar with their own learning styles. Level 2 classes provide students with extra support and structure with the aim to help them progress in the college preparatory curriculum.

College Preparatory (Level 3)

College Preparatory (Level 3) courses are a part of a comprehensive curriculum that is offered as an option in all content areas to students in grades 9–12. The college preparatory courses are designed to prepare a student for college upon graduation by challenging him within the required program of studies. If a student wishes to move to an Honors level, he must fulfill the prerequisites described in each course description within this course catalogue.

Honors (Level 4)

Honors level courses are more rigorous than College Preparatory courses. The explanation and requirements can be found in the forthcoming pages, according to department. All Honors courses are weighted and are available to students in grades 9–12. Acceptances into Honors courses at the ninth-grade level are dependent upon a standardized test scores and Honors/Advanced placement exams.

College in High School (Level 4 or 5)

College in High School courses are taught at a college-level in association with a local college or university; the courses are taught at Central Catholic and by Central Catholic faculty who have been approved and accredited by the college or university. The college or university granting credit for the course determines the syllabus of course. All students who enroll in a CiHS course MUST register with the college or university offering the course for the associated college credit. There is a nominal fee set by the college/university for these courses. College credit is awarded according to the criteria set by the higher education institution.

Advanced Placement (Level 5)

Advanced Placement (AP) courses are college-level courses approved by the College Board and subject to syllabus review every three to five years. Students who register for AP courses are required to take the AP Exam in May of each year. The College Board sets the exam schedule and fee. The School Counseling Department and the teacher of the AP course will provide specific information on AP course registration, exam date, and fee to the student.

Graduation Requirements

In order to receive a diploma from Central Catholic, students must earn 27 credits of passing work. During the Freshman year students will take 7 credits. In the Sophomore year, students will take 7 credits while during the Junior and Senior years, students will take 6.5 credits.

Course	Credits	Course	Credits
English	4	Religion	4
Fine Arts	.5	Science	3
Health/Physical Education	1	Technology	.5
History & Social Studies	3	World Language	2
Mathematics	4	Electives	5.5

CC/OC Collaboration

In an ongoing effort to collaborate in various ways, Central Catholic High School and Oakland Catholic High School make certain courses available to students from both schools in a limited capacity. Only Juniors and Seniors are eligible to register for these select courses, with the exception of Band, which is open to students in all grades. As electives, these courses cannot serve as substitutions for the core curriculum of either school. Descriptions of the classes can be found in this catalogue under the appropriate academic department. Below is a list of shared course offerings:

Courses taught at Central Catholic but offered to Oakland Catholic:

- AP Art History
- Computer Aided Design (CAD)
- Engineering 1
- Marching & Concert Band

Courses taught at Oakland Catholic but offered to Central Catholic:

- Intermediate College French
- AP French
- Chinese 2

Electives Index

Below is a table that provides a list of all electives with corresponding course numbers. Included in the table is the faculty/staff member who can sign students up for the course as well as a location to find that person. Use this resource to select your electives.

<i>Number</i>	<i>Level</i>	<i>Course</i>	<i>S/Yr</i>	<i>Dept.</i>	<i>Credits</i>	<i>Request</i>	<i>Room</i>
0936	3	Advanced Physical Fitness	SEM	APH	0.5	Counseling/Academic Affairs	2nd Floor Offices
0937	3	Essential Concepts of Athletic Training	SEM	APH	0.5	Counseling/Academic Affairs	2nd Floor Offices
0935	3	Physical Fitness and Nutrition	SEM	APH	0.5	Counseling/Academic Affairs	2nd Floor Offices
0710	3	Studio Art I	YR	ART	0.5	Ms. Kasey Neiderlander	Room 413
0721	3	Studio Art II	SEM	ART	0.5	Ms. Kasey Neiderlander	Room 413
0731	3	Studio Art III	YR	ART	1	Ms. Kasey Neiderlander	Room 413
0741	3	Studio Art IV	YR	ART	1	Ms. Kasey Neiderlander	Room 413
0635	3	Accounting I	YR	BUS	1	Counseling/Academic Affairs	2nd Floor Offices
0667	4	Business Law and Ethics (Honors)	SEM	BUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0273	3	Economics	SEM	BUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0641	3	Future Readiness	SEM	BUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0636	4	Honors Accounting	YR	BUS	1	Counseling/Academic Affairs	2nd Floor Offices
0632	3	Personal Finance	SEM	BUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0631	3	Principles of Entrepreneurship	SEM	BUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0148	5	AP English Language and Composition	YR	ENG	1	Current English Teacher Recommendation	Varies
0150	5	AP English Literature and Composition	YR	ENG	1	Current English Teacher Recommendation	Varies
165	3	Creative Writing	SEM	ENG	0.5	Counseling/Academic Affairs	2nd Floor Offices
0170	4	Honors World Lit and Theater	YR	ENG	1	Mr. Todd Rooney	410
0173	3	Video Production I	SEM	ENG	0.5	Mr. Matt Carlson	STEM Front Desk
0174	3	Video Production II	SEM	ENG	0.5	Mr. Matt Carlson	STEM Front Desk
0166	3	Yearbook Design	YR	ENG	1	Counseling/Academic Affairs	2nd Floor Offices
1282	4	CAD, 3D Modeling, and CNC	SEM	ENG & INN	0.5	Mr. Mark Salamacha	Room Z006
1271	3	Engineering 1	SEM	ENG & INN	0.5	Mr. Mark Salamacha	Room Z006
1286	3	Engineering Design	SEM	ENG & INN	0.5	Mr. Mark Salamacha	Room Z006

<i>Number</i>	<i>Level</i>	<i>Course</i>	<i>S/Yr</i>	<i>Dept.</i>	<i>Credits</i>	<i>Request</i>	<i>Room</i>
1277	3	Experiential Engineering	SEM	ENG & INN	0.5	Mr. Mark Salamacha	Room Z006
1292	3	Principles of Robotics	SEM	ENG & INN	0.5	Mr. Mark Salamacha	Room Z006
0550	5	AP Spanish Language and Culture	YR	LANG	1	Mrs. Shirley Gentile	Room 404
0355	5	AP Calculus AB	YR	MATH	1	Mr. William Hoss	Room 309
0356	5	AP Calculus BC	YR	MATH	1	Mr. William Hoss	Room 309
0365	5	AP Statistics	YR	MATH	1	Mr. Andrew Sweeney	Room 310
0374	4	Introduction to Programming with Python	SEM	MATH	0.5	Counseling/Academic Affairs	2nd Floor Offices
0375	5	AP Computer Science A	YR	MATH	1	Mr. Andrew Sweeney	Room 310
0985	3	Audio Engineering 2	SEM	MUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0984	3	Audio Engineering I	SEM	MUS	0.5	Counseling/Academic Affairs	2nd Floor Offices
0887	4	Honors Instrumental Music	YR	MUS	1	Mr. Joseph Wilson	PAC
0890	4	Honors Jazz Combo	YR	MUS	1	Mr. Joseph Wilson	PAC
0885	4	Honors Vocal Music	YR	MUS	1	Dr. Michael Mackey	PAC
0888	3	Jazz Band	YR	MUS	1	Mr. Joseph Wilson	PAC
0893	3	String Ensemble	YR	MUS	1	Mr. Joseph Wilson	PAC
0882	3	Vocal Music II	YR	MUS	1	Dr. Michael Mackey	PAC
0062	4	Honors Intro to Philosophy	SEM	REL	0.5	Counseling/Academic Affairs	2nd Floor Offices
0060	4	Honors Brotherhood as a School of Virtue	YR	REL	0.5	Counseling/Academic Affairs	2nd Floor Offices
0434	3	Chemistry II	YR	SCI	1	Bro. Eric Henderson	Room Z302
0450	5	AP Biology	YR	SCI	1	Mr. Mark Krotec	Room Z206
0458	5	AP Chemistry	YR	SCI	1	Dr. Justin Belardi	Room Z306
0459	5	AP Physics: Mechanics	YR	SCI	1	Mr. Jacob Good	Room Z102
0462	3	Environmental Science	YR	SCI	1	Counseling/Academic Affairs	2nd Floor Offices
0489	4	Honors Anatomy and Physiology	YR	SCI	1	Mrs. Cassandra Sirockman-Bell	Room Z204
0484	4	Honors Biotechnology/Bioengineering	YR	SCI	1	Counseling/Academic Affairs	2nd Floor Offices
0456	4	Honors Organic Chemistry	YR	SCI	1	Dr. Justin Belardi	Room Z306
0260	5	AP Art History	YR	SOC	1	Dr. Patrizia Costa	1st Floor Office
0258	5	AP European History	YR	SOC	1	Current History Teacher Recommendation	Varies
0261	5	AP Psychology	YR	SOC	1	Current History Teacher Recommendation	Varies
0248	5	AP United States Government and Politics	YR	SOC	1	Current History Teacher Recommendation	Varies
0250	5	AP United States History	YR	SOC	1	Current History Teacher Recommendation	Varies
0262	3	History of Pitt. and Western Penn.	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices

<i>Number</i>	<i>Level</i>	<i>Course</i>	<i>S/Yr</i>	<i>Dept.</i>	<i>Credits</i>	<i>Request</i>	<i>Room</i>
0272	3	Introduction to Leadership	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices
0263	3	Psychology	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices
0265	3	History of Modern America	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices
0266	3	Sociology	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices
0221	3	Sports in America	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices
0271	3	The Story of World War II	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices
0274	3	Strategic Leadership & Teambuilding	SEM	SOC	0.5	Counseling/Academic Affairs	2nd Floor Offices

Art

Level	Course Name	Number	Semester	Credits	Days
3	Studio Art I	0710	Both	0.5	3/6

Studio Art I provides an introduction to the elements and principles of art and design, perspective and drawing techniques. This course is a foundation program designed to introduce basic drawing, color and design techniques. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
3	Studio Art II	0721	One	0.5	6/6

Studio Art II is an introduction to drawing of objects and people. Other media introduced this year are relief print process, collage, show card paints and mixed media. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
3	Studio Art III	0731	Both	1	6/6

Studio Art III is designed to master the drawing techniques learned in Art II. Print making, water color, and acrylic painting are also introduced. *This meets the fine arts requirement.*

Prerequisite: Studio Art II

Level	Course Name	Number	Semester	Credits	Days
3	Principles of Art and Design	0743	Both	.5	3/6

This course provides an introduction to the elements and principles of art and design, perspective and lettering techniques. This course is a foundation program designed to introduce basic color and design techniques. This course is only offered for freshman. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
4	Studio Art IV	0741	Both	1	6/6

Studio Art IV introduces new techniques of intaglio, drawing and design. Students will prepare an acceptable portfolio. The class will also offer an opportunity to participate in the scholastic art competition as well as an opportunity for a “one man show” at the end of the school year. *This meets the fine arts requirement.*

Prerequisite: Studio Art III

Business

*Seniors will have priority in enrollment in ALL Business Courses

Level	Course Name	Number	Semester	Credits	Days
3	Accounting I	0635	Both	1	6/6

The purpose of the course is to instruct the student how to keep orderly financial records, summarize them for convenient interpretation, and then analyze them. The course will introduce students to the financial operations of various types of businesses. Manual and automated methods of processing financial data will be covered in detail. Three accounting projects will be a course requirement, and a problem test will be given after each unit in the text is finished.

Level	Course Name	Number	Semester	Credits	Days
3	Principles of Entrepreneurship	0631	One	.5	6/6

In this business course, learn what it takes to be an entrepreneur while mastering the basics of planning and launching a successful business. Whether starting our own money-making business or creating a non-profit to help others, this course develops the core skills needed to be successful. Come up with new business ideas, attract investors, market your business, and manage expenses.

Level	Course Name	Number	Semester	Credits	Days
3	Personal Finance	0632	One	.5	6/6

In this finance course, learn what it takes to understand the world of finance and make informed decisions about managing finances. Whether learning more about economics or becoming more confident in setting and reaching financial goals, this course will develop the core skills to be successful. Learn how to open bank accounts, invest money apply for loans, explore careers, create a spending plan, prepare a budget, make decisions about major purchases and more.

Level	Course Name	Number	Semester	Credits	Days
3	Future Readiness	0641	One	.5	6/6

Future Readiness introduces students to the skills and strategies that are helpful in becoming more focused, productive, and driven individuals. In this class, students will be guided in exploring, identifying, and connecting to a variety of post high school options. These options include college and career exploration. Students will explore careers of interest; goal setting; managing time, energy, and stress and identify their *High School and Beyond Plan. This will also teach practical consumer and life skills. Course size is limited to 20 students per semester.

*High School and Beyond Plan is a culminating project that students will present at the end of the class. This project will require students to develop a career goal and a realistic plan for success including exploration of the cost of college, loan options, anticipated income, and how to handle life expenses after college. It will allow those planning to enter the workforce an opportunity to put together a budget and anticipate the cost of living.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Accounting	0636	Both	1	6/6

This Accounting Pilot and Bridge Project uses an integrated approach to teach real world accounting. Students will first learn how businesses plan for and evaluate their operating, financing, and investing decisions, and then how accounting systems gather and provide data to internal and external decisions makers. This year-long course includes the learning objectives of a traditional college level financial accounting course, and those from a managerial accounting course. College in High School is offered.

Prerequisite: Minimum of a B in Algebra II and a B in Accounting I or instructor approval.

Level	Course Name	Number	Semester	Credits	Days
4	Business Law and Ethics (Honors)	0667	One	.5	6/6

This one semester course provides students with an understanding of the legal framework of our society. The topics covered include the history, development, and classification of laws, personal and business law related to everyday life, contract law, the court system and courtroom procedures, legal terminology, constitutional rights, ethics, technology law, intellectual property, social responsibility, international law and consumer protection. College in High School is offered.

Engineering & Innovation

Level	Course Name	Number	Semester	Credits	Days
3	Introduction to Technology for the 21st Century	1275	One	.5	3/6

This course gives freshmen a breadth of knowledge into the STEM fields. Using Lego EV3 robotics kits, students will work in groups of two or three to develop solutions to basic problems. To implement their solutions, they will learn basic programming skills to build and program robot models. Working as a team will be emphasized and evaluated. Through use of the Central Catholic iPad program, students will be competent and comfortable using the Central Catholic network, PowerSchool, Moodle and Microsoft Office applications. Microsoft Word, PowerPoint, and Excel will be covered and allow students to translate their understanding of each to their other courses. Internet safety and appropriate use will be emphasized. Students will be introduced to the Engineering Design Process by building racecars out of every day, familiar materials. Course assessments will be in the form of projects, written assignments, computer assignments, quizzes, and unit tests.

Level	Course Name	Number	Semester	Credits	Days
3	Experiential Engineering	1277	One	.5	6/6

Ancient civilizations created complex works of architecture using fundamental math and physics skills coupled with a hands-on approach to design and implementation. That approach is still applicable today as the need for expedient and short-term solutions that work and are safe are preferable in some instances to the perfect solution that takes more time to develop and implement. This course is a hands-on project-based introduction to engineering and the engineering design process. A formal presentation is required at the completion of a major group project. Assessment emphasizes team-work and successful completion of projects.

This course cannot be taken with Engineering 1 (1271) and cannot be taken if Engineering 1 has already been taken.

Level	Course Name	Number	Semester	Credits	Days
3	Principles of Robotics	1292	One	.5	6/6

This course gives students an introduction into robotics and computer science and is ideal for students looking to further pursue courses or an eventual career in the robotics or associated fields. Computer science has many branches (software development, networking, cyber-security, data mining, game development, simulation, computer engineering, etc.), however students will start by learning basic level programming.

Students use a robotics platform and development environment in a hands-on, collaborative approach to program robots to complete the objectives of various challenges. Students gain an understanding of hardware systems and software components. The use of mathematics is vital to a person's success in the computer programming and engineering worlds and will be a focus of this course. This course is for students of all ability levels with robotics and computer science backgrounds.

Involvement/participation in First Robotics Competition (FRC) is not required to take this course.

Level	Course Name	Number	Semester	Credits	Days
4	Computer Aided Design, 3D Modeling and CNC	1281	One	.5	6/6

The engineering design process follows the steps of planning, design, prototyping, testing and redesign. The use of software programs, 3-D printing, and modern machining equipment assist in the engineering process to shorten the overall development cycle. This course provides professional engineering software and tools to be accessible at the high school level.

In the first part of this course, students use the Autodesk Inventor Professional software to learn the fundamentals of Computer-Aided Design (CAD) and 3D modeling that are used in different engineering fields. Students use the functionality and features of Autodesk Inventor to design 3D models and complete various design projects from a given set of requirements and constraints. In addition, students learn the basics of 3D printing slicing software and use 3D printers to print their designs.

The second part of this course provides students with the fundamentals of machining equipment and associated software that are used in today's engineering fields and provides professional tools accessible at the high school level. Students will develop their mastery of the design process while learning to use the same Vectric V-Carve software and CNC Milling machines that professionals use. Students will learn how to utilize equipment and develop their CNC skills through a series of hands-on projects.

Assessments include design projects, quizzes and exams.

Level	Course Name	Number	Semester	Credits	Days
4	Engineering 1 - Using Math to Engineer a Modern Society	1271	One	.5	6/6

Modern societies are possible in part due to a complex and reliable infrastructure that is able to support large numbers of people living and working near each other. Engineers are the inventors, developers, and maintainers of that infrastructure, and math is one of the foundations upon which engineering rests. This course is a project-based introduction to engineering and the engineering design process. Course units include engineering design, strength of materials and structures, and bridge analysis and design. A formal presentation is required at the completion of a major group project. Assessment emphasizes team-work and successful completion of projects. Some project work will require meeting outside of class to complete.

Prerequisite: 85% or higher in Honors Algebra I or 80% or higher in Honors Algebra 2.

This course cannot be taken with Experiential Engineering (1277) and cannot be taken if Experiential Engineering has already been taken.

Level	Course Name	Number	Semester	Credits	Days
4	Engineering Design	1286	One	.5	6/6

So much of modern technology is a result of computer programming/computer science and software engineering integrated with electronics and hardware engineering. As the modern digital world continues to expand and evolve, future engineers and engineering projects will need solutions combining both hardware and software.

In this course, students develop an understanding and skills in the areas of electronics electronic circuits, computer

programming in C++ and the integration of the two to complete hands-on projects and design challenges. To accomplish this, students use the Arduino Integrated Development Environment (IDE) and Arduino UNO development board to learn and explore concepts of computer programming, electronic circuits and circuit components, electronic “breadboarding” and prototyping, circuit schematics and design simulation and test. Arduino is an open-source microcontroller development platform and is used to implement the “brains” of the projects and design challenges in the course. Students use the circuit design tools in Tinkercad to design and implement hardware/circuit solutions, write the software program and simulate and test the design prior to physically building and testing it.

Assessments include design projects, quizzes and tests.

Prerequisites: Engineering I OR Experiential Engineering,

English

Level	Course Name	Number	Semester	Credits	Days
3	Creative Writing	0165	One	.5	6/6

This course is designed to develop a student's creative facilities and writing ability. The course will examine authors and their writing craft, including strengths and weaknesses of specific fiction writers. Instruction will delve into the different techniques used by writers to create works of fiction. Students will create their own written work through writing workshops. Collaboration will be essential, as students will share their own written work. As a course requirement, students will submit one creative work of fiction.

Level	Course Name	Number	Semester	Credits	Days
3	Yearbook Design	0166	Both	1	6/6

Students will learn the basics of design, layout, photography, caption writing and copywriting in this course and create an original product – the Towers yearbook. Students will be responsible for meeting strict deadlines throughout the year and be required to attend extracurricular activities and sporting events after school, in the evenings, and on the weekends to photograph and gather information for the book. Former students have the opportunity to take the course again and hold an editorial position. All interested students must receive direct permission from the moderator of the Yearbook before registering for the course. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
3	Video Production I	0173	One	.5	6/6

Video Production is an introductory course that will guide students in developing their skills in videography, and all stages of the digital media production process. Through this course, students will work hands-on with school-provided video production equipment to create video projects. Students will learn the basic principles of shot composition, scriptwriting, storyboarding, directing, and video editing throughout the semester. The Video Production class will collaborate with the Viking News Network, as some student-created videos will air during our morning announcement broadcasts. This course is offered to juniors and seniors. Enrollment is limited. Teacher approval is needed for this course.

Level	Course Name	Number	Semester	Credits	Days
3	Video Production II	0173	One	.5	6/6

This class will build upon the skills learned in the Video Production I course and introduce students to advanced video editing techniques in Adobe Premiere Pro. Students will work in teams to produce videos for the Viking News Network YouTube channel and Instagram account while assisting in the creation of content for Central Catholic High School communication channels. This course will require filming outside of class time to complete assignments within a certain timeframe. You must own a smartphone capable of shooting high-quality video and photos for this course.

This class is open to all students, but priority will be given to students who have taken the prerequisite course, or who are actively involved with the Viking News Network (VNN) or Viking Productions. Students who are

passionate about video creation but do not fulfill any of the prerequisite requirements must email Mr. Carlson two examples of their best photography/videography work for consideration. The class is limited to 15 students.

Prerequisite: Video Production I, active involvement in Viking Productions or Viking News Network clubs, or a background in video production with instructor approval.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Humanities: World Literature & Theater	0170	Both	1	6/6

This course will provide students with a survey of World Literature through the close study of literature that has been translated into other artistic media, such as visual art, ballet, opera, spoken theater, and symphonies. The course readings will change yearly to coincide with current live performance offerings at local Pittsburgh theater companies and venues: Carnegie Mellon University School of Drama, PICT Classic Theatre, Pittsburgh Opera, The Metropolitan Opera Live in HD, Pittsburgh Public Theater, Pittsburgh Ballet Theater, and Pittsburgh Symphony Orchestra. Students will read and write about various genres of literature and are required to attend at least one live stage performance each month with the class. The class requires a separate application and fee, and it may be taken only with the instructor's approval. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement English Language & Composition	0148	Both	1	6/6

Juniors only: AP Language and Composition is a Rhetoric and Composition course that is aligned with the College Board's AP Language and Composition Exam. Students will learn how to evaluate a given text's goals, messages, and arguments in light of its era of origin, author, intended audience, implicit or explicit purpose, and subject matter, among other factors. Students will be challenged to make use of deep analysis and close reading to explain how and why argumentative rhetoric works across a wide variety of genres, in addition to constructing analytically sound and rhetorically persuasive argumentative writing of their own. Students will engage in frequent timed writing exercises during class time in addition to out-of-class writing assignments of varying purposes, lengths, and registers of formality. Enrollment is limited to one section of 15 students. Students are required to take the AP Exam.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement English Literature & Composition	0150	Both	1	6/6

Seniors only: The Advanced Placement English course examines major writers of Western literature, while focusing on refining skills in the areas of critical thinking and critical writing. The student will be expected to participate in class discussions, do extensive reading, and write critically and creatively. A culminating project must be completed as part of the course requirements. Enrollment is limited to ONE section of 15 students. Students are required to take the AP Exam.

Health & Physical Education

Level	Course Name	Number	Semester	Credits	Days
3	A Personal Approach to Physical Fitness & Nutrition	0935	One	.5	6/6

The course will address the importance of proper nutrition and regular exercise enabling the student to make informed, healthy choices. This class will give students a basic knowledge base on the five pillars of physical fitness: Muscular Endurance, Muscular Strength, Cardio-respiratory Endurance, and Flexibility, body Composition. Course will also give students a basic understanding of proper nutrition, performance based nutrition, supplementation, and disease prevention through proper nutrition. Self-assessment is done throughout the year to evaluate student's basic knowledge of nutrition and personal level of fitness. Course is designed to also help students set realistic and achievable goals. Teacher/student assessment will emphasize the student's improvement on an individual basis. This course takes into consideration a variety of contraindication (asthma, obesity, orthopedic, etc.) to exercise. Students choose a variety of activities to ensure personal success. Course will also give students a general idea of the needs and expectations necessary to pursue a career in personal Training, Athletic training, and Nutrition/Dietician.

Level	Course Name	Number	Semester	Credits	Days
3	Advanced Physical Fitness	0936	One	.5	6/6

Class will give students the opportunity to focus on the five pillars related to physical fitness. Cardiovascular fitness, muscular endurance muscular power, flexibility and body composition. Majority of the class will focus on proper strength training in order to improve individual performance and fitness. Class will also include sports specific training, functional training and various other elements necessary to improve overall fitness & strength. Assessment will mostly be done through individual goal setting, demonstrating proper lifting technique, creating personal workouts, and written assignments. Class will meet every other day for one semester only. Students must get teachers signed permission prior to entrance into class.

Level	Course Name	Number	Semester	Credits	Days
3	Essential Concepts in Athletic Training	0937	One	.5	6/6

The course will be an introduction to the basic and essential elements of Athletic Training including emergency management, recognition, evaluation and follow-up care for injury and illness. Treatment protocols, taping techniques and other fundamental concepts relating to athletic injury care are discussed as they relate to prevention and management. Students will be required to perform "observation" hours in the Athletic Training Room after school hours at scheduled athletic practices and events. Space is limited to 15 students for "hands-on" labs in the Athletic Training Room.

Prerequisites: Students must have completed Biology and Health courses & departmental approval.

History & Social Sciences

Level	Course Name	Number	Semester	Credits	Days
3	History of Pittsburgh and Western Pennsylvania	0262	One	.5	6/6

This course is intended to develop in the student a fuller awareness and appreciation of the development of Western Pennsylvania, and particularly the role which the City of Pittsburgh has played. The course will trace the history of the city from its beginnings as a frontier stronghold to its emergence as the Renaissance City of today. Class activities will consist not only of readings and discussions, but also the use of local historical resources and visits to important sites in the city's history and development. This course will be a web enhanced course. Course is limited to 24 students per semester. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
3	History of Modern America	0265	One	.5	6/6

This course explores the era from the conclusion of World War II to the present with emphasis upon significant events and notable personalities, both foreign and domestic, as they relate to the American experience.

Level	Course Name	Number	Semester	Credits	Days
3	The Story of World War II	0271	One	.5	6/6

A semester-long college-style elective course that examines the lead up to, major events during, and the aftermath of World War II using *The Story of World War II* by Dr. Donald Miller as its textbook. At the beginning of the semester students will explore the immediate aftermath of and the issues left unresolved from WW I as well as new events that occurred during the Inter-War years that set the stage for World War II. Students will then study World War II with an in-depth look at each Theatre and its major campaigns, respective military leaders, and important events. The course will conclude with an epilogue that previews the Marshall Plan, the Occupation and Reconstruction of Japan, and the beginning of the Cold War.

Level	Course Name	Number	Semester	Credits	Days
3	Psychology	0263	One	.5	6/6

This introductory course is designed to provide the student with an overview of the field of psychology. During the course of the semester students will study research methods, motivation, emotion, personality theories, psychological disorders, health, developmental and applied psychology and therapy methods.

Level	Course Name	Number	Semester	Credits	Days
3	Sociology	0266	One	.5	6/6

This course is a basic introduction into the field of Sociology. Students will discover the basic fundamentals of the behaviors of groups/societies. The topics of sociological careers, the basic structure of society, norms, values,

propaganda, urban myths, fads, fashions will be studied. The legendary founders and their contributions to sociology will be examined. The process of societal change, social issues of sports and urban ecology will be investigated. The students will use a text and outside readings with assessment being tests, quizzes and projects.

Level	Course Name	Number	Semester	Credits	Days
3	Introduction to Leadership	0272	One	.5	6/6

Introduction to Leadership is designed to raise students' awareness of the importance of leadership and their own potential. It is a semester-long elective course. Using class discussion, lecture, practical exercises, guest speakers and a field trip, Intro to Leadership will create a greater understanding among the students on what leadership means to them. Individual classes during the course will explore definitions, morals & ethics, leadership & faith, and historical examples. The outcome of the course will be students with an expanded view of leadership in the world around them and a better understanding of how they can develop, practice and apply their own leadership skills.

Level	Course Name	Number	Semester	Credits	Days
3	Strategic Leadership & Teambuilding	0274	One	.5	6/6

Strategic Leadership & Teambuilding is designed to enable students first to cultivate an awareness and then master fundamental theories, principles, and applications of effective leadership. The class will entail an examination of the economic, ethical, legal, and social responsibilities of those who must make and implement challenging decisions and manage others who do. Student teams will actively collaborate to develop and execute strategic leadership skills and techniques utilized by those aspiring to be "Men of Action." Opportunities will be presented for meaningful interaction with graduates of Central Catholic who have attained leadership roles in the region, nation, and world.

Level	Course Name	Number	Semester	Credits	Days
3	Economics	0273	One	.5	6/6

This course is designed to give the students a greater understanding of both micro and macroeconomics. The class will cover such topics as: economic markets, the law of supply and demand, money and pricing, market competition, labor unions, the US tax system, and money supply and interest.

Level	Course Name	Number	Semester	Credits	Days
3	Sports in America	0221	One	.5	6/6

Sports in America examines the development of sports in America, from the revolutionary period to the present, including the impact on American culture. Students will explore how unorganized and impromptu athletic activities were transformed into spectator sports at the collegiate and professional levels and how sports reflected and informed issues of race, class, gender, ethnicity, and international politics. Specific topics include the power of sports on a region's economy; the debate about sports heroes as role models, the evolution of women's sports; racial segregation in sports; athletic rivalries during the Cold War; and the globalization of American sports. Students will also examine important events in sports history, including the 1919 Black Sox scandal, the racial integration of major sports leagues, the creation of free agency, the establishment of Title IX, the use of performance enhancing drugs, and the American-led boycott of the 1980 Moscow Olympics. The course will consist of films, readings, lectures, and discussions.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement European History	0258	Both	1	6/6

Sophomores only: This study of European history since 1450 introduces students to cultural, economic, political, and social developments that played a fundamental role in shaping the world in which they live. Without this knowledge, we would lack the context for understanding the development of contemporary institutions, the role of continuity and change in present-day society and politics, and the evolution of current forms of artistic expression and intellectual discourse. In addition to providing a basic narrative of events and movements, the goals of the AP program in European History are to develop (a) an understanding of some principal themes in modern European History, (b) an ability to analyze historical evidence and historical interpretation, and (c) an ability to express historical understanding in writing. Intensive reading, summer work, and extensive writing are required. The AP exam must be taken at the end of the year. Departmental approval required.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement United States History	0250	Both	1	6/6

Juniors only: This course is an intensive study in U.S. History from the discovery to the present. Students are expected to analyze in depth and to examine previously held conceptions of American History. Reading load is extensive, with summer reading required. Writing is a major component of the course. Students must take the AP Exam at the completion of this course. Department approval is required.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement American Government	0248	Both	1	6/6

Seniors only: This course focuses on United States Government and Politics, one of two A.P. curricula offered in Political Science. Major topics include: Constitutional foundations of the U.S. Government; Political beliefs and behaviors; Political parties, Interest groups and Mass media; Institutions of National Government: the Congress, the Presidency, the Bureaucracy, and Federal Courts; Public Policy; Civil Rights and Liberties. A major purpose of this course is to prepare students for the Advanced Placement exam, which is required. Department approval is required.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Art History	0260	Both	1	6/6

This course will engage students at the same level as an introductory college art history survey. Students will be introduced to major artistic developments in the visual arts from Prehistory through Contemporary Art. Paintings, sculptures, architecture and other media will be discussed in a variety of ways including their formal and stylistic characteristics, the cultural and social conditions in which they were produced, and the meanings that have been and can be interpreted from them. Working both chronologically and thematically, we will give special emphasis to: the articulation of world religions (both past and present), the changing function of the visual arts in diverse cultures, the shifting role of the artist in visual production and the tools and techniques involved in arts production. We will also explore global arts including African, Asian, and Islamic traditions. Because this is an Advanced Placement Course, there will be emphasis on preparation for the AP exam and a set list of 250 key works. The course does not assume prior training or seek primarily to identify students who will major in art or art history in college. Students who have done well in other courses in the humanities, such as history and literature, are especially encouraged to enroll as are STEM-oriented students who want to work in a multi- or interdisciplinary manner. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Psychology	0261	Both	1	6/6

This course provides the student with an understanding of how the scientific method is applied to the study of human behavior. Topics include the structure and function of the nervous system, foundations of learning, intelligence, social behavior, personality, feeling and emotion, developmental patterns, and the measurement of behavior. This course focuses on the study of human behavior. As an introduction to the field of psychology, this course includes consideration of psychological principles, terminology, major theories, careers, methods of experimentation, and practical applications. Special topics include personality development, problem-solving, group dynamics, and motivation.

Mathematics & Computer Science

Level	Course Name	Number	Semester	Credits	Days
4	Introduction to Programming with Python	0374	One	.5	6/6

This course is designed to develop a student's ability to think algorithmically. The bulk of this course will be centered around solving abstract problems with computational methods. Students will learn to think critically and to deconstruct problems in an unfamiliar context. Students will learn the Python programming language to express their solutions and demonstrate their correctness. The course will emphasize technique mastery as well as the specific semantics of the Python language and runtime environment. Fundamental topics include variables, data types, conditionals, and loops. Students may also receive instruction in Python classes and objects.

This course may serve as a prerequisite for AP Computer Science and/or the College in High School course "Programming with Java".

Prerequisites: Must be a junior or a senior, or a sophomore with a 93% in Honors Algebra 1 or an 88% in Honors Algebra 2.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Calculus AB	0355	Both	1	6/6

AP Calculus AB is an introductory college-level calculus course. Students cultivate their understanding of differential and integral calculus through engaging with real-world problems represented graphically, numerically, analytically, and verbally and using definitions and theorems to build arguments and justify conclusions as they explore concepts like change, limits, and the analysis of functions.

Prerequisites: At least an 88% average in Precalculus with Trigonometry (Pre-AP).

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Calculus BC	0356	Both	1	6/6

AP Calculus BC is designed to be the equivalent to a second semester college calculus courses. AP Calculus BC applies the content and skills learned in AP Calculus AB to parametrically defined curves, polar curves, and vector-valued functions; develops additional integration techniques and applications; and introduces the topics of sequences and series.

Prerequisites: At least an 88% average in Advanced Placement Calculus AB.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Statistics	0365	Both	1	6/6

AP Statistics is a college-level statistics course, designed to introduce students to core probability and statistics concepts and tools for collecting, analyzing, making inferences, and for drawing conclusions from data collected. A college level textbook will be used and a graphing calculator with statistics capabilities will be required (TI-84s

are available in the classroom). Assessment will include homework, exams and a Capstone Project. Students who register for this course must take the AP Statistics exam at the end of the year.

Prerequisites: A minimum final grade of 85% in Honors Algebra II; strong verbal skills (reading and writing) are highly recommended. Students who do not meet these requirements must receive approval from the AP Statistics teacher before enrolling in the course.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Computer Science A	0375	Both	1	6/6

The AP Computer Science course covers the topics in a typical introductory college computer science class, focusing on the study of the fundamental principles associated with object-oriented programming using the Java language. Topics include classes, objects, data types, variables, Boolean expressions, methods, loops, and input/output. Advanced topics include searching, sorting and recursion. There is an emphasis on problem-solving and algorithm development throughout the course.

Students who register for this course must take the AP Computer Science A examination at the end of the year. Prior programming experience is highly recommended. A strong interest in Computer Science and a proven academic record are required.

Performing Arts

Vocal Music

Level	Course Name	Number	Semester	Credits	Days
3	Freshman Choir	0814	One	.5	3/6

Freshman Choir is a half-credit course for Freshmen only, that focuses on building students' singing skills. Fundamental vocal techniques and musicianship are introduced and reinforced using various styles of music, basic ear-training, and introductory music reading concepts. Students are evaluated on classroom participation, singing assessments, and concert performance. This course meets every-other day for a full year. Students will participate in two major concerts, one at Christmas and one in the Spring. This meets the fine arts requirement.

Level	Course Name	Number	Semester	Credits	Days
3	Vocal Music I	0815	One	1	3/6

Vocal Music I is a full-credit, participation-driven class for Freshmen only, that focuses on building students' singing skills. Fundamental vocal techniques and musicianship are introduced and reinforced using various styles of music, basic ear-training, and introductory music reading concepts. Students are evaluated on classroom participation, singing assessments, and concert performance. Students will participate in two major concerts each year, one at Christmas and one in the Spring. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
3	Vocal Music II (Concert Choir)	0882	Both	1	6/6

Vocal Music II is a full-credit, daily course open to all students in grades 9-12. Like Vocal Music I, students study foundational techniques of vocal performance and musicianship, but with increased emphasis on the mastery of core performance skills and music literacy. Attention will be given to both solo and group singing in a variety of musical styles, including but not limited to standard choral repertoire, sacred music, musical theatre, pop, and a capella. Students are evaluated on classroom participation, singing assessments, and concert performance. Students will participate in two major concerts each year, one at Christmas and one in the Spring. *This meets the fine arts requirement.*

Level	Course Name	Number	Semester	Credits	Days
4	Honors Advanced Vocal Music (Chamber Singers)	0884	Both	1	6/6

Also known as the Chamber Singers, Honors Advanced Vocal Music consists of students selected by audition to perform collegiate and professional repertoire at the highest level of artistry. As an honors-level class, these students study advanced vocal techniques, musicianship, and music literacy, as applicable to solo and a capella repertoire, in a variety of classical, musical theatre, and popular styles. Students are evaluated on classroom participation, individual singing assessments, and concert performance. As the premier choral ensemble, the Chamber Singers represent the school and vocal music department in the greater Pittsburgh region. Participation in all school and community performances is required. *This meets the fine arts requirement.*

Prerequisite: Approval by the Choral Director, based on audition.

Instrumental Music

Level	Course Name	Number	Semester	Credits	Days
3	Instrumental Music (Concert Band)	0881	Both	1	6/6

Participation in the Concert Band is based on demonstrated musical competence and knowledge. Instrumental techniques and basic musicianship are introduced, reinforced and refined in performance. The student will participate in all concert band functions, including winter and spring concerts. Evaluation is based on rehearsal participation and musical performance. *This meets the fine arts requirement.*

Prerequisite: Approval by the Instrumental Director

Level	Course Name	Number	Semester	Credits	Days
3	Jazz Band	0888	Both	1	6/6

The Blue Knights Jazz Band gives students the opportunity to perform various genres of jazz in a big-band setting. The historical context of these genres will be explored in the course, with understanding of the styles demonstrated through musical performance. The concepts of jazz improvisation will also be introduced. Students will be evaluated based on rehearsal participation and musical performance. *This meets the fine arts requirement.*

Prerequisites: Students must play a jazz instrument (saxophone, trumpet, trombone, guitar, bass guitar, piano, or drum set). Roster spots for some instruments have limited availability (guitar, bass guitar, piano, drum set); positions with limited availability will be determined by audition. Approval by the Instrumental Director is required.

Level	Course Name	Number	Semester	Credits	Days
3	String Ensemble	0893	Both	1	6/6

Participation in the String Ensemble is based on demonstrated musical competence and knowledge. Instrumental techniques and basic musicianship are introduced, reinforced and refined in performance. The student will participate in all scheduled performances. Evaluation is based on rehearsal participation, musical performance, and written assignments. *This meets the fine arts requirement.*

Prerequisites: Approval by the Instrumental Director. The student must play a string instrument.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Jazz Combo	0890	Both	1	6/6

Students participating in Jazz Combo in addition to Jazz Band will earn honors credit. Students will further study the concepts of improvisation in the context of smaller ensemble repertoire. Study of jazz theory and harmony will be utilized to develop improvisation skills. *This meets the fine arts requirement.*

Prerequisites: Approval by the Instrumental Director, in addition to the requirements of Jazz Band.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Instrumental Music (Marching & Concert Bands)	0887	Both	1	6/6

Students participating in Marching Band in addition to Concert band will earn honors credit. This includes participation in all marching and concert band functions, including football game appearances, parades, concerts, assemblies, festivals, etc. Evaluation is based on rehearsal participation and musical performance. *This meets the fine arts requirement.*

Prerequisite: Approval by the Instrumental Director

Audio Engineering

Level	Course Name	Number	Semester	Credits	Days
3	Audio Engineering I - Live Sound Reinforcement	0984	One	.5	6/6

Students will learn techniques required for live sound reinforcement using PA systems. Topics will include properties of acoustics, audio equipment (microphones, mixing consoles, cables, speakers, amplifiers, etc), and understanding how to use equipment in a real situation. Students will have the opportunity for hands-on experience in McGonigle Theater. This meets the fine arts requirement.

Prerequisites: Students must have approval from Mr. Wilson to take this course.

Level	Course Name	Number	Semester	Credits	Days
3	Audio Engineering II - Recording & Production	0985	One	.5	6/6

Students will learn techniques for audio recording and production. Topics will include a review of audio equipment, digital audio encoding, and digital audio workstation processing, mixing, and mastering techniques. Students will have the opportunity for hands-on experience recording student ensembles and musicians. This meets the fine arts requirement.

Prerequisites: Students must have approval from Mr. Wilson to take this course.

Religion

Level	Course Name	Number	Semester	Credits	Days
4	Brotherhood as a School of Virtue	0060	One	.5	6/6

Brotherhood as a School of Virtue will be a guided study on the Cardinal Virtues. Students will read selections from various authors on the virtues and use the course material to write their own essay for each virtue. In Nicomachean Ethics the Greek philosopher Aristotle seeks to respond to the Socratic question, “What is the best way to live?” This work which is divided into 10 books discussing various questions on the virtues finds its culmination in books 8 and 9 both of which are titled “Friendship.” The concept that Friendship is a school of virtue was taken up by the early Church and was commonplace within the Christian Tradition for centuries. The overarching theme of the course is that to be a good Christian means quite simply to be a good friend and that if we want to strive to become better Christians, we ought to strive to become better friends. A study of the virtues can help us to achieve this end by giving us a clearer vision of the kind of man a Christian should strive to be.

The course will be a guided discussion. Students will be expected to complete reading assignments and bring into the classroom a readiness to engage in discussion with the teacher and other students.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Introduction to Philosophy	0062	One	.5	6/6

This course will cover a variety of classical and contemporary works to address central questions in philosophy pertaining to truth and the human person. This course is aimed at helping students analyze, discuss, clarify, and create arguments based on the readings covered. A high level of confidence and competence in reading comprehension and writing skills are encouraged.

Science

Level	Course Name	Number	Semester	Credits	Days
3	Environmental Science	0462	Both	1	6/6

This course examines problems created by the interaction of humans with the natural world. It also seeks to provide possible remedies for the imbalances caused by human/nature interaction. In this quest, students will be exposed to three major themes: (1) the natural processes, both physical and biological, that operate in the world; (2) the role that technology plays in society and its ability to alter natural processes, as well as provide potential solutions to problems caused by human impact; (3) the complex social processes that characterize human populations and influence environmental impact. Much of the course will engage students in environmental challenges to find potential solutions to issues facing the world today. This team-oriented focus will also be applied to the majority of assessments, including: quizzes, short papers, lab reports, oral presentations, and individual or team projects. This course relies heavily upon a variety of learning experiences, such as: lectures, guest visits, field trips, frequent lab investigations, discussions, and team projects. Students will utilize numerous local resources throughout the course in their project-based learning experiences.

Prerequisites: 85% in Honors/Level 3 Biology, Chemistry, and Physics or 90% in Level 2 Biology, Chemistry, and Physics.

Level	Course Name	Number	Semester	Credits	Days
3	Chemistry II	0434	Both	1	6/6

This course builds upon the Chemistry 431 course and covers topics not covered in the first year of Chemistry 431. The course uses mathematical and laboratory skills to approach topics from the text. The correlation of experimental data to reveal its patterns, and the development of models and theories are emphases of the course. Mathematical relationships are stressed. The course begins with mole concepts and continues with the following topics: stoichiometry (review), states of matter, behavior of gases and kinetic theory, water and aqueous systems, solutions, rates of reaction and kinetics, equilibrium, acid, bases, and salts, oxidation and reduction reactions, electrochemistry, organic chemistry and nuclear chemistry. Students are required to perform experiments and submit lab reports. Class work and home study are from the text. Chapter tests and quizzes are administered on class work. Demonstrations done by the teacher as well as the students themselves are used to show descriptive chemistry. The use of multimedia on computer and video helps in the understanding of scientific models. Problem solving is emphasized. Everyday applications of chemistry make the theory practical. Examining our natural resources lets the students see what must be kept for future generations. The teacher instructs students in practices of personal chemical safety which they can carry outside the school to their home and/or workplace.

Prerequisites: Successful completion (grade of 80% and above) in a first-year chemistry course, at least 83% or better in math.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Organic Chemistry	0456	Both	1	6/6

Honors Organic Chemistry is an advanced level course for Seniors that is designed to track with the first semester of college-level organic chemistry. Students will be expected to work rigorously both in class and independently

in order acquire proficiency in this difficult subject. Students who successfully complete this course will be well-positioned to excel in any college-level organic chemistry course. Topics in this course include but are not limited to chemical structure and bonding, organic functional groups, nomenclature, stereochemistry, chemical transformations, reaction mechanisms, synthetic design, and analytical chemistry including NMR spectroscopy. Students will take regular exams and quizzes in addition to cumulative midterm and final exams. Limited to 20 students.

Prerequisites: 90% or above in Honors Chemistry and teacher recommendation.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Biotechnology/Bioengineering	0484	Both	1	6/6

Many of Earth's Superheroes have suffered injuries in their battles to safeguard our planet. Can your company restore them to peak performance using the new tools of the bioengineering revolution? Come and compete against your classmates to win this medical and economic race! This course is meant to expose students to the theory and practical application of the biological revolution. Students will be challenged to use engineering principles to design and test regenerative therapies such as ACL injury reconstruction, bionic limbs, neural repair and interface technology, bone scaffold modeling and testing, blood vessel synthesis, cardiac assist devices, and skin replacements. Students will also be exposed to biotechnology strategies, including PCR, DNA purification, gel electrophoresis, chromatography, tissue culture, stem cell manipulation, immunoprecipitation, microbiology, computational biology, and a significant focus on regenerative medicine (tissue engineering). In addition, bioethics will be addressed throughout the curriculum, exposing students to the potential ramifications of technology on society. Finally, numerous guest speakers and field trips will be arranged to reinforce the experiential nature of the course, allowing students to engage in meaningful dialogue with professionals in the biotechnology field.

It should be noted that the instructor served as the lead educational outreach teacher for the region's most famous biotechnology venture, the Pittsburgh Tissue Engineering Initiative. Students will compete as biotechnology companies, racing to restore our heroes' functionality through bioengineering and tissue engineering techniques. For honors credit, students must complete video and article reviews and additional homework assignments and quizzes.

Level	Course Name	Number	Semester	Credits	Days
4	Honors Anatomy/Physiology	0489	Both	1	6/6

Anatomy/Physiology is a study of the structure and function of the human body. This course will be a fast-paced Anatomy course that is designed for students with demonstrated ability in science and will enhance the education of students considering a career in biological studies, medical science and other science-based careers. All body systems are covered in detail, and various major dissections are performed. Due to the nature of this course, students are expected to study and complete homework on a regular basis. The majority of class time will be devoted to lab investigations, instructional videos, guest speakers, field trips, numerous group projects, and discussion. Evaluation is based on tests, written assignments, and labs. This course is open to juniors and seniors.

Prerequisites: A 90% average in Honors Biology I and a 90% average in Honors Chemistry I, must be achieved. A 93% or higher in both Biology I and Chemistry I must be achieved.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Biology	0450	Both	1	6/6

This course is meant to provide the equivalent education of a full year college introductory biology curriculum and is only available for juniors and seniors. In general, all topics spanning the realm of modern biology will be addressed, though a number of them will be mastered independently by the student. Students will be expected to thoroughly prepare for the mandatory national A.P. Biology exam. The new course curricular framework emphasizes: 1. Thematic learning, greatly reducing the memorization of content 2. Inquiry science process 3. Mastery of life science quantitative skills. This new framework is meant to reinforce four big ideas permeating life science: 1. Evolution 2. Cellular processes that maintain homeostasis 3. Information flow within living systems 4. Complex interactions within and between organisms.

Given the limited instructional time allotted to achieve these lofty goals, students will be encouraged to master the majority of the basic course content on their own. The majority of class time will be devoted to numerous lab investigations, guest speakers, videos, field trips, team projects, and review of take-home tests. Frequent readings, short papers, lab reports, take home tests, exams, and a major experimental project are expected of the student and comprise the majority of the grade.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Chemistry	0458	Both	1	6/6

The Advanced Placement Chemistry course is a rigorous and fast-paced course that is designed to be comparable to the first year of college level chemistry. The course syllabus is approved by the College Board who administers the AP Chemistry exam at the end of the year. All students who are enrolled in AP Chemistry are required to take the exam. Topics covered include atomic theory, stoichiometry, thermochemistry, electron configurations, chemical bonding, gases, liquids and solids, reaction types, kinetics, equilibrium, and thermodynamics. Students will be expected to complete significant summer review assignments in preparation for this course. In class tests are administered at the completion of each unit, and students will be required to perform 16 laboratory experiments throughout the year to reinforce the concept covered in class. Lab reports and scientific writing will be a required component for each experiment. Prerequisites: 90% in Honors Chemistry (0420); 90% in Math; 90% in Physics. (Students may be taking the year-long Physics course concurrently). Class size will be limited.

Prerequisite: Teacher recommendation required.

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Physics	0459	Both	1	6/6

The Advanced Placement Physics course is designed to be comparable to a first year calculus based college course and closely follows the course syllabus as designed by the College Entrance Examination Board (Physics C) who administers the examination. The course is devoted to a rigorous study of Mechanics, as prescribed by the A.P. College Board. The Calculus approach to problem solutions is used throughout the course where feasible, with both differential and integral calculus required throughout the year. The course focuses heavily on collaborative, inquiry-based lab work and solving challenging physics problems. Students must take the Mechanics portion of the Physics "C" Mechanics A.P. Examination at the end of the year.

Prerequisites: Recommendation from previous year's science instructor and enrollment in AP Calculus AB either junior or senior year.

World Languages

Level	Course Name	Number	Semester	Credits	Days
5	Advanced Placement Spanish	0534	Both	1	6/6

AP Spanish is directed toward the use of the Spanish language through print texts, audio texts, email replies, interpersonal conversations, persuasive essays, and oral presentations in the target language. The course is divided into six themes: Beauty and Aesthetics, Global challenges, Science and Technology, Contemporary Life, Personal and Public Identities, and Families and Communities. The Temas textbook series, as well as other sources, are used throughout the year. Students are required to take the AP Spanish Language Exam in May.

Prerequisites: Must have successfully completed Honors Spanish III with a 96% or higher OR Honors Spanish Language and Culture with a 92%