The Dayton Regional STEM School

HIGH SCHOOL COURSE SELECTION GUIDE

2023 – 2024

THE REAL WORLD STARTS HERE
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Message from the Superintendent
The information contained in this booklet is to assist you in planning your educational program at the Dayton Regional STEM School. This guide is designed to provide information for cooperative planning to meet your educational objectives. You are invited to call and arrange a conference with your counselor concerning your educational program. Choose your program of study wisely with consideration for abilities, interests, and goals. The course descriptions are written to ensure that students schedule courses that are appropriate to their ability level and career interest that satisfy graduation requirements.

Please read the course descriptions carefully, ensuring that you understand the prerequisites, expectations, and graduation requirements. Discuss classes with other students, teachers, and your parents to determine whether the level of difficulty of the class is what you expect and within your level of ability. Please complete your requests with considerable thought regarding graduation requirements, future interest, and level of difficulty.

Our Mission
The mission of the Dayton Regional STEM School is to prepare and inspire the next generation of leaders and innovators.

Our Vision
We will create an innovative learning community whose members are prepared to lead and serve.

Project Based Learning
At DRSS, we focus on using Project Based Learning in our curriculum. This teaching practice involves students learning through projects that address real-world problems and challenges. Throughout their education at DRSS, students will routinely learn the content through the process of completing projects. We rely on our large group of local partners to assist in providing authentic problems to allow our students the opportunity to give back to the community.

Five Qualities
In addition to our regular instruction, we teach, practice, model and assess the following “five important qualities” at the Dayton Regional STEM School:

PERSISTENCE – INQUIRY – COMMUNICATION – CREATIVITY – COLLABORATION
Schedule Changes
Once schedules are finalized, changes will only be permitted for educational necessity. In the spring of each school year, you are given the opportunity to select your own course of study. Because of this selection process, you are expected to follow through with your course commitments.

IMPORTANT: SCHEDULE CHANGES MUST BE REQUESTED BY THE END OF THE FIRST FULL WEEK OF THE SEMESTER! WITHDRAWAL FROM HIGH SCHOOL CREDIT CLASSES AFTER THIS DATE WILL RESULT IN LOSS OF COURSE CREDIT AND A “WITHDRAWAL F” ON YOUR TRANSCRIPT, WHICH CALCULATES AS AN “F” IN YOUR GPA.

Course Request Process
All students will be provided a digital copy of the Dayton Regional STEM School’s Course Selection Guide. This guide will be posted on the Schoology “Class of” pages for each grade level for student and parent review.

All students will complete a paper course selection form to select the classes they would like to take the following year. Once the courses are selected, current sophomore and junior students will meet with a counselor or administrator to finalize their course selections. Current 8th grade and 9th grade students will submit an online form confirming Honors and foreign language selections and turn their course selection sheet into their advisor.

*Students who are requesting the Honors section of a course or CCP Chinese will go through an approval process before being scheduled into Honors or CCP Chinese courses.*

Honors Course Eligibility (9th and 10th Grade)
Students who are requesting the Honors section of a course will go through an approval process before being scheduled into Honors courses. Students must meet the following criteria to qualify for Honors courses:

**Honors Science**
- No final grade failures in the previous year
- Student with an “A” grade point average in science for the previous school year
- Students with a “B” average in science for the previous school needs approval by a teacher

**Honors Math**
- Student with an “A” grade point average in science for the previous school year
- Students with a “B” average in science for the previous school needs approval by a teacher
Course Offerings
In order to maximize staff resources and available course offerings, student requests will drive section numbers and course offerings. Administrative discretion may be exercised for upper-level courses and to ensure adequate credits are available to provide proper graduation requirements for all students.

DRSS Graduation Requirements
In order to receive a diploma from the Dayton Regional STEM School, students must earn a total of 24 credits as described below.

- 4 credits of mathematics
- 4 credits of laboratory sciences
- 4 credits of language arts
- 3 credits of social studies
- 2 credits of foreign language
- 1 credit of fine arts
- ½ credit of wellness
- ½ credit of fitness
- ½ credit of internship
- 4 ½ credits of electives

24 Total Credits

Work-Based Learning
Work-Based Learning (WBL) is designed to provide authentic learning experiences to students that link academic, technical, and professional skills. The following experiences in each grade will fulfill the total 250 WBL hours required for graduation:

Students can earn an optional Professional Development Cord to wear at graduation if they complete 5 additional WBL experiences at school or in the community that are personalized to their career and future interests. Examples could include: extra job shadows or internships, experiential learning or pre-apprenticeships, earned industry credentials, conferences or events focused on career/professional growth, additional community service hours, mentorship programs, and more student-identified experiences!
**State Graduation Requirements**

In addition to completing all credit requirements listed above, the State of Ohio also requires that students meet specific testing requirements and earn two diploma seals. Please click this [link](#) to view a summary of Ohio’s Graduation Requirements for the Class of 2023 and beyond.

**Testing**

The following end-of-course state tests that students are required to take are:

- Algebra I
- Geometry
- American Government
- American History
- English Language Arts II
- Biology

Students who do not pass the tests will be offered additional support and must retake the test at least once. Alternative pathways for graduation will be available.

**Diploma Seals**

Students must earn two of the following diploma seals before graduation. Progress towards earning a seal will be tracked by the school counselors and administration at DRSS and for most students will require no additional efforts outside of the normal course completion and state-mandated testing requirements. If students are not making progress towards earning two seals, the student’s counselor will be in contact to help guide them through the process.

<table>
<thead>
<tr>
<th>OhioMeansJobs Readiness Seal</th>
<th>Military Enlistment Seal</th>
<th>Honors Diploma Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry-Recognized Credential Seal</td>
<td>Citizenship Seal</td>
<td>Technology Seal</td>
</tr>
<tr>
<td>College-Ready Seal</td>
<td>Science Seal</td>
<td>Community Service Seal</td>
</tr>
</tbody>
</table>

**Ohio Honors Diploma Criteria**

The State of Ohio offers the opportunity of earning an Honors diploma to all students that exceed the state’s minimum graduation diploma requirements. For more information about Ohio Honors Diploma requirements please [click here](#).

**Grading System**

Report cards will be distributed quarterly. Course credit is assigned upon completion of the course. Credit will not be awarded for courses marked as “Incomplete” or Failed.

**DRSS Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>89.5% or higher</td>
</tr>
<tr>
<td>B</td>
<td>79.5% to 89.4%</td>
</tr>
<tr>
<td>C</td>
<td>69.5% to 79.4%</td>
</tr>
<tr>
<td>F</td>
<td>0 – 69.4%</td>
</tr>
</tbody>
</table>

The DRSS grading scale will be: A, B, C, or F. “I” (In Progress) designation will only be used on a case-by-case basis. Report cards will have numeric grades (grading scale above), alpha grades will appear on high school transcripts.

Please see an administrator for the information on the grade appeal process.
College Entrance Exams

ACT
The ACT Assessment is a curriculum-based test designed to measure high school students’ college readiness and academic achievement in four skill areas: English, mathematics, reading, and science. The writing portion, which is optional, measures a student’s skill in planning and requires writing a short essay.

PSAT/NMSQT
The PSAT Assessment is similar to the SAT in measuring the ability to understand and process elements of reading, writing, and mathematics. Not only is the PSAT practice for the SAT; if the student’s scores, during junior year, meet the annual benchmark, the student will qualify for the National Merit and/or National Achievement Award.

SAT
The SAT Assessment is a measure of critical thinking skills students need for academic success in college. The SAT assesses how well students analyze and solve problems- skills learned in school that are needed in college. High school juniors and seniors typically take the SAT.

*Virtually all four-year colleges and universities in the United States require either the ACT or the SAT for admissions purposes.*

When to take College Entrance Exams
College Entrance exams are very important and should be taken with more than a casual interest due to the fact that all scores become part of a student’s permanent record. They should not be taken without forethought and planning.

Sophomores can take the ACT and/or SAT in the winter, spring, or summer.
Juniors *should* take the ACT and/or SAT at least one time during their junior year. (All juniors will take the ACT in the spring at DRSS.)
Seniors *should* take the ACT and/or SAT in the summer or fall, leaving enough time for colleges to receive scores before application deadlines.

*Any additional testing attempts are to be arranged and paid for by students and their families.*

Information about these tests, as well as test-prep activities, can be found at [ACT](http://www.act.org) or [SAT](http://www.collegeboard.org).

College Credit Plus
College Credit Plus (CCP) provides an opportunity for students, grades 7-12, to take courses and earn high school and college credit at the same time. The purpose of this program is to promote rigorous academic pursuits and to provide a wide variety of options for the college-ready student.

*Important Note regarding CCP Course Content from the Ohio Department of Education:* "The subject matter of a course enrolled in under the college credit plus program may include mature subject matter or materials, including those of a graphic, explicit, violent, or sexual nature, that will not be modified based upon college credit plus enrollee participation regardless of where course instruction occurs."
Students interested in taking College Credit Plus (CCP) classes need to complete the following items to be considered eligible for the program:

1. Must return a signed Intent to Participate statement; a component of the student’s course selection form.
2. Return and sign the Authorization form to the student’s school counselor (for students new to CCP and/or DRSS).
3. Must complete a required assessment (ACT, SAT, ALEKS, or Accuplacer) from the college/university and test “College Ready.” Students will be given the opportunity to take the ALEKS test at DRSS through Sinclair Community College.
4. Must complete an application with the college/university offering the course by the college’s deadline.

Eligibility to participate in the CCP program requires the DRSS student/parent to attend a mandatory College Credit Plus presentation during the Spring.

There is no guarantee that CC+ credits will transfer to your chosen university/college. Students must contact each college/university to determine whether the credits will count toward their chosen major. College/university advisors are responsible for helping students choose their courses, but the student must work with their high school counselor to ensure that students are still meeting graduation requirements. It is the student’s responsibility to provide their school counselor with their off-campus college course schedule immediately after registration and to inform the school counselor IMMEDIATELY of any schedule changes. Grades for CC+ courses will become a part of a student's permanent high school and college transcript. Students are advised to use caution when deciding to take college level classes. College tuition will be charged for any courses that are failed.

The Dayton Regional STEM School may deny a student’s request to take CCP classes if they do not meet minimum requirements or become ineligible due to failure to achieve minimum performance standards in college courses.

College Credit Plus Pre-Requisite Requirements

Due to recent changes to college policies related to CCP placement, eligibility varies depending on individual student situations (GPA, test scores, etc.). Each student will be evaluated on an individual basis. For more information, please contact the CCP coordinator, Steve Federinko (steven.federinko@daytonstemschool.org).
College Credit Plus Deadlines
May 1 – University application deadline
July 1 – Deadline to finish all required preliminary testing

College Credit Plus Courses

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Credit Earned Through</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>425/430</td>
<td>Chinese 1010 &amp; 1020</td>
<td>6 (year-long)</td>
<td>Wright State University</td>
<td>DRSS Campus</td>
</tr>
<tr>
<td>445/450</td>
<td>Chinese 2010 &amp; 2020</td>
<td>6 (year-long)</td>
<td>Wright State University</td>
<td>DRSS Campus</td>
</tr>
<tr>
<td>480/485</td>
<td>Chinese 3010 &amp; 3020 (CCP Chinese 4)</td>
<td>6 (year-long)</td>
<td>Wright State University</td>
<td>Wright State Campus</td>
</tr>
<tr>
<td>340</td>
<td>English Composition I</td>
<td>3</td>
<td>Sinclair Community College</td>
<td>DRSS Campus</td>
</tr>
<tr>
<td>341</td>
<td>English Composition II</td>
<td>3</td>
<td>Sinclair Community College</td>
<td>DRSS Campus</td>
</tr>
</tbody>
</table>

The Dayton Regional STEM School has developed a 15- and a 30-credit option for students wishing to pursue college credit while in high school. The details are listed in the table below.

15+ Credit Option

<table>
<thead>
<tr>
<th>Course Option</th>
<th>Course Name</th>
<th>Grade Level</th>
<th>Credit Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHI 1010/1020</td>
<td>Chinese 2A &amp; 2B (WSU)</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>CHI 2010/2020</td>
<td>Chinese 3A &amp; 3B (WSU)</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>PSY 1100</td>
<td>Psychology (SCC)</td>
<td>11 or 12</td>
<td>3</td>
</tr>
</tbody>
</table>

30+ Credit Option

<table>
<thead>
<tr>
<th>Course Option</th>
<th>Course Name</th>
<th>Grade Level</th>
<th>Credit Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 1101</td>
<td>English Composition I (SCC)</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>ENG 1201</td>
<td>English Composition II (SCC)</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>PSY 1100</td>
<td>Psychology (SCC)</td>
<td>11 or 12</td>
<td>3</td>
</tr>
<tr>
<td>SOC 1101</td>
<td>Sociology (SCC)</td>
<td>11 or 12</td>
<td>3</td>
</tr>
<tr>
<td>CHI 1010/1020</td>
<td>Chinese 2A &amp; 2B (WSU)</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>CHI 2010/2020</td>
<td>Chinese 3A &amp; 3B (WSU)</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>CHI 3010/3020</td>
<td>Chinese 4 at WSU</td>
<td>12</td>
<td>6</td>
</tr>
</tbody>
</table>
STEM Honors – Career Specializations

Career Technical Education (CTE) provides students of all ages with the academic and technical skills, knowledge and training necessary to succeed in future careers and to become lifelong learners. The Dayton Regional STEM School offers courses in three career technical pathways and one foreign language pathway. Students at DRSS are exposed to all pathways through courses that are integrated into the core curriculum. In the junior and senior years of high school students may select courses in a particular pathway to continue their development in that career field. The pathways and the associated courses are listed below. **Students must complete at least four of the corresponding criteria to complete a pathway.** Students who complete a pathway will receive a certificate of completion and will wear a special cord or medallion at graduation.

Industry-Recognized Credentials

Industry-recognized credentials are an innovative approach to truly recognize and account for a student’s hard work in becoming career ready. Possessing an industry-recognized credential not only helps a student prove competency and capability in a given field, but also demonstrates to the community and employers that the student is knowledgeable, properly trained and equipped to carry out their duties. Please see below for a list of courses in which students can earn credentials.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Industry-Recognized Credential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Hardware</td>
<td>CompTIA-A+</td>
</tr>
<tr>
<td>Network Professional</td>
<td>CompTIA Network+</td>
</tr>
<tr>
<td>Cyber Operations</td>
<td>CyberOps Associate</td>
</tr>
<tr>
<td>TAC Assistant Experiential Learning</td>
<td>Information Technology Pre-apprenticeship</td>
</tr>
<tr>
<td>Engineering Design &amp; Development</td>
<td>Lean Six Sigma Yellow Belt and Green Belt</td>
</tr>
<tr>
<td>Healthcare Design &amp; Development</td>
<td>Lean Six Sigma Yellow Belt and Green Belt</td>
</tr>
<tr>
<td>Health Sciences Experiential Learning</td>
<td>STNA</td>
</tr>
</tbody>
</table>


The DRSS Art program offers students a range of experiences in making, responding to, and presenting artwork. Exploring and expanding students’ personal voices through various media, design process thinking, and decision-making, are cornerstones of the program. Curriculum is structured to be inter-disciplinary and collaborative in nature. This allows students to experience connections between arts and the creative process across disciplines and to recognize applications in professional and daily life. This is a required course for all 9th grade students.

This course serves as an introduction to architecture with a focus on design. Starting with drawing as a foundation, students move through a series of design exercises focusing on principles of design as applied to space and structure while referencing examples of historical and contemporary architects and architecture. Finally, students learn professional approaches to architectural design including the design process and building physical as well as virtual models. Several field trips enrich student’s experience of the built environment and students have an opportunity to participate in AIA Dayton’s Annual Student Design Competition and compete for scholarships.

This class will introduce students to building with clay. Emphasis will be placed on the design elements: line, shape, texture, and color. Focus will be on hand building techniques: pinch, coil, and slabs. Functional, as well as sculptural applications will be explored. Introduction to traditional and historical ceramic arts will be incorporated into the studio experiences. Various glaze and surface decoration techniques for finishing work will be introduced in the beginning class. Learners will be introduced to basic clay properties, glazing, and firing techniques.

This year long interdisciplinary curriculum is focused on studying the properties and capacities of manufacturing materials of ceramics, metals, polymers and composites through the lens of Chemistry and Art. In the Chemistry lab students learn about the chemical and physical properties of these materials and in the Art studio students manipulate the materials creatively. Students are introduced to practical and contemporary manufacturing applications of materials and are exposed to related careers in manufacturing, design and advanced manufacturing. This interdisciplinary approach serves as an introduction to the capacities and potentials of manufacturing materials. The course is co-taught by the Art and Chemistry instructors and can be designated as either an art or chemistry credit.

Through this course, students will learn to combine art and technology to effectively communicate messages. Basic principles of design and image creation/manipulation, along with typography and interactive media will be explored through project work. Students will acquire a working knowledge of industry-specific Adobe software programs including Photoshop, Illustrator and InDesign, along
with various open-source applications. Professional skills including critical thinking, problem solving, and communication will be developed through engagement in the design process. Exploration of creative design career options, such as graphic design, illustration, digital photography, instructional design, and user experience are woven into the course.
Computer Science

DRSS High School Computer Science Sequence

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>910</td>
<td>Principles of Computer Science I</td>
<td>9</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>920</td>
<td>Robotics</td>
<td>10-12</td>
<td>Year</td>
<td>1</td>
<td>Principles of Computer Science I if taking in 10th grade. None for 11th and 12th.</td>
<td>$10</td>
</tr>
<tr>
<td>945</td>
<td>Computer Programming</td>
<td>10-12</td>
<td>Year</td>
<td>1</td>
<td>Geometry if taking in 10th grade. None for 11th and 12th.</td>
<td>$10</td>
</tr>
<tr>
<td>950</td>
<td>Computer Hardware</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>955</td>
<td>Network Professional</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>960</td>
<td>Game Design I</td>
<td>10</td>
<td>Year</td>
<td>0.5</td>
<td>See description</td>
<td>$10</td>
</tr>
<tr>
<td>960A</td>
<td>Game Design II</td>
<td>11</td>
<td>Year</td>
<td>1</td>
<td>Game Design I</td>
<td>$10</td>
</tr>
<tr>
<td>960B</td>
<td>Game Design III</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>Game Design II</td>
<td>$10</td>
</tr>
<tr>
<td>961</td>
<td>Cyber Operations</td>
<td>9-12</td>
<td>Year</td>
<td>0.5</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>ITCAP</td>
<td>TAC Assistant</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>See description</td>
<td>$0</td>
</tr>
</tbody>
</table>

*: Only offered after school
**: Pre-requisites required for Sophomores. See course description.
**910 – Principles of Computer Science I**
Prerequisite: None  
Grade: 9  
Length: Year  
Credit: 1  
Fee: $10
This first course in the IT career field is designed to provide students with a working knowledge of computer concepts and essential skills necessary for work and communication in today’s society, as well as survey several different career fields within IT and programming. Students will learn safety, security, and ethical issues in computing, social networking, security, and artificial intelligence. Students will also learn about input/output systems, computer hardware, operating systems, mobile app development, database management, and cybersecurity.

*This course is part of the Computer Science Pathway.*

**920 – Robotics**
Prerequisite: Principles of Comp Sci I  
Grade: 10, 11, 12  
Length: Year  
Credit: 1  
Fee: $10
Students will explore programming, engineering, electronics, and controls principles in robotics applications. The course revolves heavily around project and team-based learning opportunities. The course will have two primary components. First, students will explore the design thinking process and its applications in a competitive robotics space. Then, we will explore robotics platforms and their real-world use in manufacturing, medicine, and more.

*This course satisfies requirements in both the Computer Science pathway and the Engineering Pathway.*

**945 – Computer Programming**
Prerequisite: Geometry  
Grade: 10, 11, 12  
Length: Year  
Credit: 1  
Fee: $10
Students will learn to represent programming concepts as "objects" that have data fields and associated procedures known as methods. Students will implement classes such as support static, instance method, inheritance, polymorphism, exception handling, and object serialization. A variety of commercial and open-source programs and applications will be used. This course is on College Board recommended list for the AP CS A exam. The Java Programming course teaches students all Java skills required on the "AP Computer Science A" exam. While it can be taken standalone with no pre-requisites, this is one of our most advanced courses, and some degree of technical comfort is recommended.

*This course is part of the Computer Science Pathway.*

**950 – Computer Hardware**
Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10
Students will learn to install, repair, and troubleshoot computer hardware systems. They will perform preventative maintenance practices and learn techniques for maintaining computer hardware security. Communication skills and professionalism in troubleshooting situations will be emphasized. This course prepares students for the TestOut PC Pro and CompTIA A+ 220-1001 (Core 1) and 220-1002 (Core 2) certification exams. Students use multiple learning formats to learn how to install, manage, and secure computer hardware and master home and corporate OS environments.

*At the end of this course, students will take a credentialing exam to earn their CompTIA-A+ industry-recognized credential. This course is part of the Computer Science Pathway.*

**955 – Network Professional**
Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10
Students will install, configure, and troubleshoot network hardware and peripherals. Students will learn networking by exploring the OSI model, network topologies, cabling and security. Students will design networks, know how to select physical devices, and be able to configure the equipment. Knowledge and skills relating to the securing and maintaining operation and usage of networks and network protocols will be developed. This course prepares students for the TestOut Network Pro, CompTIA's N10-007, TestOut's Security Pro and CompTIA's Security+ SY0-601 certification exams. Students gain the knowledge and skills they need to install, configure, maintain, and secure a network for a small business.

*At the end of this course, students will take a credentialing exam to earn their CompTIA Network+ industry-recognized credential. This course is part of the Computer Science Pathway.*

**960 – Game Design I**
Prerequisite: See Below  
Grade: 10  
Length: Year  
Credit: 0.5  
Fee: $10
Students must complete the Virtual Museum Project as part of Mr. Potts' 9th grade class before joining this course. Game Design I is an introductory course that explores skills related to video game design and development. Students will use computer technology along with 21st century skills to conduct research, work in a team setting and solve problems in order to become competitive in the video game industry. Topics include career exploration, game design, computer programming, 3D modeling and simulation and game engines. Students will work on a capstone project to develop an original video game. Interested students will apply and be selected at the end of their 9th grade year during Mr. Potts' class. **Please note that Game Design I is considered a seventh class and takes place after school two days a week.** Students receive ½ an elective credit for taking the course during two
960A – Game Design II
Prerequisite: Game Design I  Grade: 11, 12  Length: Year  Credit: 1  Fee: $10
Game Design II is a continuation of the skills that students begin learning in Game Design I. Students must pass Game Design I to take this course. Students will begin making a new capstone building from the skills learned in Game Design I. Using computer technology along with 21st century skills to conduct research, work in a team setting and solve problems in order to become competitive in the video game industry will continue to drive learning. Outside partners will provide expertise as advanced skills are introduced such as using source control software to manage their project.

960B – Game Design III
Prerequisite: Game Design II  Grade: 12  Length: Year  Credit: 1  Fee: $10
Game Design III is a continuation of the skills that students learn in Game Design I and II. The capstone project will challenge students to work as a large development team becoming immersed in the various stages and roles of the game creation process. This course will have students utilize all of the skills from Game Design I and II to make their original game together as a single development team. Using computer technology along with 21st century skills to conduct research, work in a team setting and solve problems in order to become competitive in the video game industry will continue to drive learning. Outside partners will provide expertise as advanced skills are mastered.

961 – Cyber Operations
Prerequisite: None  Grade: 9 - 12  Length: Year  Credit: 0.5
Through hands-on project-based learning, students will develop their skills in cybersecurity. Students will work in groups to complete various projects leading to the final project for the course. During the final project, students will use the skills they developed to build and defend their own network while attempting to gain access to their peers’ networks through a capture-the-flag-style project. This course does not require any prerequisites or prior knowledge, just a desire to learn. All students will be provided an opportunity to take the Cisco CyberOPs Associate certification exam at no cost to the student.

ITCAP – TAC Assistant Experiential Learning
Prerequisite: None  Grade: 12  Length: Year  Credit: See description
The credits earned for this course will be based on scheduled hours and may occur over one semester or the entire year. This experiential learning opportunity provides the student with research and service-learning experiences with the Dayton Regional STEM School Technology Assistance Team (TAC). Students in the TAC Assistant position will receive assignments directly from the TAC staff. The work completed will support the technology needs of the school and will provide real world experiences to help prepare students for careers in Information Technology. Students should have an interest in enhancing their technology skills through hands-on application. After completing this course, students will earn the Information Technology Pre-Apprenticeship credential.
## Engineering

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>915</td>
<td>Principles of Engineering</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>916</td>
<td>Digital Electronics</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>917</td>
<td>Environmental Engineering</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>*will not be offered again until the ‘24-’25 school year</td>
<td>$10</td>
</tr>
<tr>
<td>918</td>
<td>Engineering Design &amp; Development</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>920</td>
<td>Robotics</td>
<td>10-12</td>
<td>Year</td>
<td>1</td>
<td>Principles of Computer Science if taking in 10th grade. None for 11th and 12th.</td>
<td>$10</td>
</tr>
<tr>
<td>ENGCAP</td>
<td>CAMP Assistant</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>See course description</td>
<td>$10</td>
</tr>
</tbody>
</table>

### 915 – Principles of Engineering
Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10

Principles of Engineering (POE) is a high school-level survey course of engineering. The course exposes students to some of the major concepts that they will encounter in a post-secondary engineering course of study. Students have an opportunity to investigate engineering and high-tech careers and to develop skills and understanding of course concepts through activity-, problem-, and project-based learning. Students will continually hone their interpersonal skills, creative abilities, and problem-solving skills based upon engineering concepts. Students will develop strategies to enable and direct their own learning. Students will employ engineering and scientific concepts in the solution of engineering design problems, develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, learn software programming (RobotC), and work with Vex robotics parts, motors and sensors to solve various challenges. Students will also learn how to document their work and communicate their solutions to their peers and members of the professional community. Additionally, students will apply the principles of physics to define and calculate the forces present in truss systems, as well as ballistics, and statics. This course is one of the most challenging of the PLTW survey courses, and will challenge students of all levels.

This course is part of the Engineering Pathway.

### 916 – Digital Electronics
Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10

This course will be offered again until the 2023 – 2024 school year.

Digital Electronics (DE) is the study of electronic circuits that are used to process and control digital signals, which are represented by two discrete voltages or logic levels. The major focus of the DE course is to expose students to the design process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation. Through Project Based Learning students will analyze, design, and build electronic circuits, while also developing their professional skills and creative abilities. The course will culminate in a student-driven circuit design project. Students will keep engineering notebooks as documentation that will be graded throughout the year.

This course is part of the Engineering Pathway.

### 917 – Environmental Engineering (not offered until 2024-2025)
Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10

Environmental Sustainability (EE) is an interdisciplinary PLTW elective course on the engineering pathway. In this course, students will address real world environmental challenges including world food insecurity, access to clean water, renewable energy, endangered and invasive species, and climate change. Beyond the content, frequent activities and projects develop professional skills such as collaboration, communication, engineering design, ethics, and leadership. The course also features bi-weekly environmental current event discussions to keep students up to date on what’s happening in the world around them. Students will keep engineering notebooks as documentation that will be graded throughout the year.

This course is part of the Engineering Pathway.
918 – Engineering Design and Development  
Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10  
Engineering Design and Development (EDD) is an engineering capstone course, in which students will develop and apply skills in brainstorming, research, critical thinking, data collection, CAD, fabrication, collaboration, and professional communication. Students will identify a real-world challenge and then research, design, and test a solution, ultimately presenting their unique solutions to a panel of experts. In addition, students will hear from different engineering professionals about career opportunities and learn about patent law. Throughout the course, students will work to earn their Lean Six Sigma Yellow Belt and Green Belt industry-recognized leadership credentials. Students will keep engineering notebooks as documentation that will be graded throughout the year. This course is taught parallel to Healthcare Design and Development.  
*At the end of this course, students will take a credentialing exam to earn their Lean Six Sigma Yellow Belt and Green Belt industry-recognized leadership credentials.*  
This course is part of the Engineering Pathway.

920 – Robotics  
Prerequisite: Principles of Comp Sci I  
Grade: 10, 11, 12  
Length: Year  
Credit: 1  
Fee: $10  
Students will explore programming, engineering, electronics, and controls principles in robotics applications. The course revolves heavily around project and team-based learning opportunities. The course will have two primary components. First, students will explore the design thinking process and its applications in a competitive robotics space. Then, we will explore robotics platforms and their real-world use in manufacturing, medicine, and more.  
*This course satisfies requirements in both the Computer Science pathway and the Engineering Pathway.*

ENGCAP – CAMP Assistant - Experiential Learning  
Prerequisite: See below  
Grade: 12  
Length: Year  
Credit: 1  
Fee: $10  
The Center for Advanced Manufacturing and Photonics (CAMP) offers an opportunity for students to work with the advanced technology machines at CAMP Dosser. Students will learn to safely operate the machines, develop/tweak designs, and create helpful products for DRSS staff and students. Assistants will use their analytical and problem-solving skills to find the most effective solutions for the jobs requested. Students will experience a professional work environment as they follow standard operating procedures, collaborate with others, and work independently on important tasks. Students will be expected to accomplish specific goals in a timely manner adhering to high quality standards. At the end of this course, students will have learned the science and technology involved in the high-tech machines and will be able to add the experience and multiple skills developed during this course to their resume. Throughout the course, students will work to earn the 12-point industry credential Industrial Manufacturing Technician (IMT) pre-apprenticeship. This course provides hands-on experience and knowledge applicable to most fields today, and is especially valuable for those seeking to have a career in Engineering or Manufacturing.  
*After completing this course, students will earn the Industrial Manufacturing Technician Pre-Apprenticeship credential. This course is part of the Engineering Pathway.*

<table>
<thead>
<tr>
<th>Students who are requesting this course must meet and agree to the following requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Earn a B or above in Engineering Science</td>
</tr>
<tr>
<td>- Must attend summer training session during Summer 2022</td>
</tr>
<tr>
<td>- Must return for Summer 2023 to train new CAMP assistants</td>
</tr>
</tbody>
</table>
Two Chinese foreign language credits are required for graduation. Students may earn their required Chinese classes during their 9th and 10th grade years OR delay their required Chinese courses until their 11th and 12th grade years.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>Chinese 1</td>
<td>9-11</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>410</td>
<td>Chinese 2</td>
<td>10-12</td>
<td>Year</td>
<td>1</td>
<td>Chinese 1</td>
<td>$0</td>
</tr>
<tr>
<td>425/430</td>
<td>CCP Chinese 2A &amp; 2B*</td>
<td>10-12</td>
<td>Year</td>
<td>1</td>
<td>Chinese 1</td>
<td>$0</td>
</tr>
<tr>
<td>440</td>
<td>Chinese 3</td>
<td>11,12</td>
<td>Year</td>
<td>1</td>
<td>Chinese 2 or equivalent</td>
<td>$0</td>
</tr>
<tr>
<td>445/450</td>
<td>CCP Chinese 3A &amp; 3B*</td>
<td>11,12</td>
<td>Year</td>
<td>1</td>
<td>CCP Chinese 2A &amp; 2B</td>
<td>$0</td>
</tr>
<tr>
<td>455</td>
<td>Chinese 4</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>Chinese 3 or equivalent</td>
<td>$0</td>
</tr>
<tr>
<td>480/485</td>
<td>CCP Chinese 4*</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>CCP Chinese 3A &amp; 3B</td>
<td>$0</td>
</tr>
</tbody>
</table>

* See course description for CCP requirements
** Geometry is a pre-requisite for Programming if taking in 10th grade.

**COURSE AVAILABILITY IS DEPENDENT ON NUMBER OF STUDENTS WHO SIGN UP**
**400 – Chinese 1**
Prerequisite: None  
Grade: 9, 10, 11  
Length: Year  
Credit: 1

This course is the first year of the four years of Chinese courses offered at DRSS. It is designed for students with no previous knowledge of the Chinese language. This course introduces the official Chinese language, Mandarin. The class emphasizes building a solid foundation in the Pinyin system of pronunciation, vocabulary, and sentence patterns in daily life communicative contexts. Students will acquire their language skills to carry on simple conversations in Chinese. Reading and writing will be developed in conjunction with speaking and listening skills. Along with learning the language, students will also explore culture highlights throughout the year.

This course is part of the Chinese Pathway.

**410 – Chinese 2**
Prerequisite: Chinese 1  
Grade: 10, 11, 12  
Length: Year  
Credit: 1

In this class, students will practice the four language skills of listening, speaking, reading, and writing in meaningful contexts. Students will further build up their Chinese vocabulary and syntactic knowledge through topics such as making an appointment, school life, and transportation. Through the year, students will learn through different tasks and projects and exposure to various aspects of Chinese cultures involving in the different units. The course offers an essential foundation for students who are interested in further studying the Chinese language in their junior year (Chinese 3).

This course is part of the Chinese Pathway.

**425 – College Credit Plus Chinese 1**
Prerequisite: Chinese 1  
Grade: 10, 11, 12  
Length: Year  
Credit: 1

These courses count as 1 high school credit and 6 college credits. Any student attempting CC+ classes must register with and meet the institution’s admission/testing requirements. The requirements usually involve minimum ACT, SAT, college's placement scores and/or a minimum GPA, and/or a recommendation.

This course is part of the Chinese Pathway.

**430 – College Credit Plus Chinese 2**
Prerequisite: Chinese 1  
Grade: 10, 11, 12  
Length: Year  
Credit: 1

This is the 1st year College Credit Plus Chinese course offered by Wright State University. Although this course is originally for students with no knowledge of the Chinese language at WSU, it is offered to DRSS students who have completed Chinese 1 during their freshman year.

In a Chinese immersed environment, students will continue developing their four language skills (listening, speaking, reading and writing) based on their fundamental knowledge acquired in Chinese 1. In addition to expanding their vocabulary and learning additional grammatical structures, students will apply their knowledge in a highly dynamic interactive environment through different tasks and projects. Students will also explore the cultural highlights after each lesson. The course offers a solid foundation for students who are interested in further studying the Chinese language in their junior year (CC+ Chinese 3) and senior years (WSU CH3010).

This course is part of the Chinese Pathway.

**440 – Chinese 3**
Prerequisite: Chinese 2  
Grade: 11, 12  
Length: Year  
Credit: 1

In this course, students continue to develop language skills in listening, speaking, reading, and writing. They will expand their vocabulary and review the basic grammatical structures through their everyday life conversations. This course is designed for students to carry on conversations and express themselves by speaking and writing in Chinese, to accomplish tasks, interpret and exchange information, and to communicate in a culturally appropriate manner. Task-based language teaching using authentic materials will be emphasized in this course throughout the year.

This course is part of the Chinese Pathway.

**445 – College Credit Plus Chinese 3**
Prerequisite: CCP Chinese 2A & 2B  
Grade: 11, 12  
Length: Year  
Credit: 1

CCP Chinese 3 is the second level of CCP Chinese courses offered by Wright State University and the third level Chinese class at Dayton Regional STEM School (DRSS). After completing a CCP course, students earn dual credits from high school and college. In the class, students gain an advanced overview of the Chinese language and culture in a Chinese-immersed environment through listening, speaking, reading, and writing. In addition, they will apply their knowledge in a highly dynamic interactive environment through different tasks and projects, including a pen pal project with Mingdao High School in Taiwan. Through this year-long project, the students gain authentic real-life language learning experiences. Students from both high schools learn the language and cultural perspectives of each other through the ten exchanges on online learning platforms such as Padlet and Flipgrid. The themes of the exchanges are related to the textbook units, and the topics reflect world trend issues. The course offers a solid foundation for students interested in further studying the Chinese language in their senior year (CCP Chinese 4 or Chinese 4).

*This course is part of the Chinese Pathway.*
455 – Chinese 4
Prerequisite: Chinese 3 or equiv.  Grade: 12  Length: Year  Credit: 1
In this course, students continue to develop language skills in listening, speaking, reading, and writing. Students will expand their vocabulary and review the grammatical structures through not only their daily life conversations but also broader topics in the community. This course is designed for students to carry on deeper conversations and express themselves better by speaking and writing in Chinese, to accomplish tasks, interpret and exchange information, and to communicate in a culturally appropriate manner. Task-based teaching using authentic materials will be emphasized in this course throughout the year.
This course is part of the Chinese Pathway.

480 – College Credit Plus Chinese 3010  485 – College Credit Plus Chinese 3020
Prerequisite: CCP Chinese 3A & 3B  Grade: 12  Length: Year  Credit: 1
These courses count as 1 high school credit and 6 college credits. Any student attempting CC+ classes must register with and meet the institution’s admission/testing requirements. The requirements usually involve minimum ACT, SAT, college's placement scores and/or a minimum GPA, and/or a recommendation.
Further development of advanced linguistic proficiency and complex conversation skills with emphasis on cultural aspects of communication. Taught in Chinese.
This course is taught on Wright State University’s Dayton campus. Students that sign up for this course MUST provide their own transportation to and from Wright State’s Campus.
This course is part of the Chinese Pathway.
## General Electives

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCEXP</td>
<td>College and Career Exploration</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>FAS</td>
<td>Faculty Assistant (Full Year)</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>FAS2</td>
<td>Faculty Assistant (One Semester)</td>
<td>12</td>
<td>Sem</td>
<td>0.5</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>IRES</td>
<td>Independent Research</td>
<td>12</td>
<td>Year</td>
<td>0.5-1</td>
<td>None</td>
<td>$0</td>
</tr>
</tbody>
</table>

**CCEXP – College and Career Exploration**
Prerequisite: None  Grade: 11, 12  Length: Year  Credit: 1
This course is designed to help students explore various colleges of interest and begin writing college essays, applying for scholarships, applying for college using Naviance Software and internet research in class. In addition, students will begin to read, analyze, manage, and communicate about personal financial conditions that affect material well-being. The students will discern financial choices, and financial issues, plan for the future and respond competently to everyday financial decisions. Lastly, students will learn different life skills that will aid in them interviewing, obtaining a job, preparing meals and starting to build an independent life after college and into adulthood.

**FAS – Faculty Assistant (Full Year)**
Prerequisite: None  Grade: 12  Length: Year  Credit: 1
This course can be taken for a semester or for an entire year. In this class students will provide support to teachers and/or staff. Assignments may include grading, setting up labs, working on special projects, or small group tutoring. By taking this class students will get involved in activities within the school so that they may develop academically as well as socially. Research has shown that students who are involved at their school do well academically as their motivation and time management skills improve.

**FAS2 – Faculty Assistant (One Semester)**
Prerequisite: None  Grade: 12  Length: Sem or Year  Credit: 0.5 or 1
This course can be taken for a semester. In this class students will provide support to teachers and/or staff. Assignments may include grading, setting up labs, working on special projects, or small group tutoring. By taking this class students will get involved in activities within the school so that they may develop academically as well as socially. Research has shown that students who are involved at their school do well academically as their motivation and time management skills improve.

**IRES – Independent Research**
Prerequisite: None  Grade: 12  Length: Year  Credit: 0.5 or 1
Independent Research is a self-paced course that will utilize an online learning system such as EdX to provide course content. Course progress will be monitored by DRSS Staff, but students will be responsible for completing the course content independently. Students will have the opportunity to deep-dive into any topic they wish to learn more about. This is a great course for students who wish to explore different topics of interest to them or that are related to their future career pursuits.

*Course credit will be earned based on the number of hours required to complete each class. Students may be able to complete multiple classes over the course of the year.*
## Health Sciences

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>205</td>
<td>Wellness</td>
<td>10</td>
<td>Sem</td>
<td>0.5</td>
<td>Required for 10th grade</td>
<td>$0</td>
</tr>
<tr>
<td>210</td>
<td>Fitness</td>
<td>10</td>
<td>Sem</td>
<td>0.5</td>
<td>Required for 10th grade</td>
<td>$0</td>
</tr>
<tr>
<td>211</td>
<td>Fitness Evaluation &amp; Assessment</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$10</td>
</tr>
<tr>
<td>911</td>
<td>Anatomy and Physiology*</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>Biology</td>
<td>$25</td>
</tr>
<tr>
<td>912</td>
<td>Medical Interventions*</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>*will not be offered again until 2024-2025 school year</td>
<td>$25</td>
</tr>
<tr>
<td>919</td>
<td>Healthcare Design and Development</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$25</td>
</tr>
<tr>
<td>MEDC AP</td>
<td>Health Sciences Experiential Learning</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$25</td>
</tr>
</tbody>
</table>

* This course is considered a science credit

### 205 – Wellness

Prerequisite: None  
Grade: 10  
Length: Sem  
Credit: 0.5  
Fee: $0

In this course, students will study the impact of behavioral choices on the health of individuals, families, and the community through project-based learning. Students will learn and demonstrate health-enhancing behaviors and work towards achieving personal wellness and fitness goals. Topics to be studied include CPR, suicide prevention, nutrition, dimensions of wellness, health-related fitness components, and sexual health. In addition, the course will integrate concepts covered in biology to help students better understand how the body functions and how diseases develop. Students in this course will also participate in a variety of team and individual physical activities in order to improve their level of fitness. By the end of the course, students will have developed lifelong fitness skills.

This course is part of the Health Sciences Pathway.

### 210 – Fitness

Prerequisite: None  
Grade: 10  
Length: Sem  
Credit: 0.5  
Fee: $0

In this course, students will study the impact of behavioral choices on the health of individuals, families, and the community through project-based learning. Students will learn and demonstrate health-enhancing behaviors and work towards achieving personal wellness and fitness goals. Topics to be studied include CPR, suicide prevention, nutrition, dimensions of wellness, health-related fitness components, and sexual health. In addition, the course will integrate concepts covered in biology to help students better understand how the body functions and how diseases develop. Students in this course will also participate in a variety of team and individual physical activities in order to improve their level of fitness. By the end of the course, students will have developed lifelong fitness skills.

This course is part of the Health Sciences Pathway.

### 211 – Fitness Evaluation and Assessment

Prerequisite: None  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $10

In this elective course, students will complete comprehensive fitness evaluations and develop individualized training programs. Students will administer lab and field tests of cardiovascular endurance, body composition, joint flexibility and muscular strength, power, and endurance. Emphasis is placed on assessing body composition, neuromuscular flexibility, agility, balance, coordination, and proprioception. Additionally, students will identify components of physical fitness and communicate how physical activity impact health and wellness. Students will work out 3-4 days each week.

This course is part of the Health Sciences Pathway.

### 911 – Anatomy and Physiology

Prerequisite: Biology  
Grade: 11, 12  
Length: Year  
Credit: 1  
Fee: $25

Students must earn a minimum of a B in Biology to take this course.

Anatomy and Physiology is a yearlong course that provides students an opportunity to explore the intricate and sophisticated relationship between structure and function in the human body. This course offers students an environment in which they may probe topics such as homeostasis, anatomical and physiological disorders, medical diagnosis and treatment, biochemistry, cytology, histology, and a survey of the many body systems that comprise the human body. Laboratory activities and projects will reinforce concepts and principles presented in this course. Students may also participate in a field trip to the Human Anatomy and Physiology Lab at Wright State University.

This course is considered a science credit and is part of the Health Sciences Pathway.
912 – Medical Interventions
Prerequisite: Biology  Grade: 11, 12  Length: Year  Credit: 1  Fee: $25

THIS COURSE WILL NOT BE OFFERED AGAIN UNTIL THE 2024 – 2025 SCHOOL YEAR.

Students must earn a minimum of a B in Biology to take this course.
Students follow the life of a fictitious family as they investigate how to prevent, diagnose, and treat disease. Students explore how to detect and fight infection; screen and evaluate the code in human DNA; evaluate cancer treatment options; and prevail when the organs of the body begin to fail. Through real-world cases, students are exposed to a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics.

This course is considered a science credit and is part of the Health Sciences Pathway.

919 – Healthcare Design and Development
Prerequisite: None  Grade: 11, 12  Length: Year  Credit: 1  Fee: $10

Healthcare Design and Development (HDD) is a health sciences pathway capstone course, in which students will develop and apply skills in brainstorming, research, critical thinking, data collection, physical design, fabrication, collaboration, and professional communication. Students will identify a real-world challenge and then research, design, and test a solution, ultimately presenting their unique solutions to a panel of experts. In addition, students will hear from different engineering professionals about career opportunities and learn about patent law. Students will keep engineering notebooks as documentation that will be graded throughout the year. This course is taught parallel to Engineering Design and Development.

At the end of this course, students will take a credentialing exam to earn their Lean Six Sigma Yellow Belt and Green Belt industry-recognized leadership credentials.

This course is part of the Health Sciences Pathway.

MEDCAP – Health Sciences Experiential Learning
Prerequisite: None  Grade: 12  Length: Year  Credit: 1  Fee: $10

Credits earned for this course will be based on scheduled hours and may occur over on semester or the entire year. This experiential learning opportunity provides students with research, teaching, and service-learning experiences in community organizations, businesses and industry that will enable them to discover and develop confidence in their ability to engage in productive and significant work. This experience may be a continuation of the student’s internship, or may include a pre-apprenticeship assignment. Students must submit a proposal that provides the location, hours and the type of work that will be completed. A DRSS mentor will be provided and weekly logs will need to be submitted to document the time spent in experiential learning. Students may have the opportunity to take State Tested Nurse Aide (STNA) exam upon successful completion of course.

This course is part of the Health Sciences Pathway.
Language Arts

DRSS High School Language Arts Sequence

9th Grade
- Language Arts 9

10th Grade
- Language Arts 10

11th Grade
- Technical Reading & Writing
  - English 12 College Prep
  - CCP English Composition I/II*

12th Grade

Four language arts credits are required for graduation.

* - CCP English Composition I&II are offered on the DRSS campus. 6 semester credit hours through Wright State earned for whole year course.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Language Arts 9</td>
<td>9</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>310</td>
<td>Language Arts 10</td>
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<td>Year</td>
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<tr>
<td>320</td>
<td>Technical Reading &amp; Writing**</td>
<td>11</td>
<td>Year</td>
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<tr>
<td>350</td>
<td>English 12 College Prep</td>
<td>12</td>
<td>Year</td>
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<tr>
<td>340</td>
<td>CCP English 1101: English Composition I*</td>
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<td>Sem</td>
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<td>Qualifying Placement test score</td>
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<tr>
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<td>Sem</td>
<td>0.5</td>
<td>CCP ENG 1101</td>
<td>$0</td>
</tr>
</tbody>
</table>

* - See course description for CCP requirements
** - Students interested in NCAA eligibility are required to meet with school counselor.
300 – Language Arts 9
Prerequisite: None  Grade: 9  Length: Year  Credit: 1
The ninth-grade integrated language arts course is a series of units that incorporate the six components of language arts – reading, writing, speaking, listening, viewing, and visual representation. In this course, students will read classic and contemporary literature written by a variety of authors. Students will also read and analyze non-fiction text and/or media that complement the literature being analyzed. Critical reading, thinking, and listening are central and are developed through whole class discussions as well as small group discussions, and Socratic seminars. Writing is used for personal reflection as well as demonstration of learning. Student writing is taken through the various stages of the writing process – initial drafting, revising, peer review, editing, and proofreading/polishing – for craftsmanship and possible publication. During the writing process, vocabulary, grammar, and syntax will also be addressed.

310 – Language Arts 10
Prerequisite: None  Grade: 10  Length: Year  Credit: 1
In this course, students explore our interconnected world through reading and writing a variety of texts. Students read fiction and non-fiction that addresses topics they are learning in their other courses, such as World History and Biology. Students engage in the writing process, including prewriting and generation of ideas, writing a rough draft, peer critique, revision, editing, and final draft production. Emphasis is on developing organizational skills for writing longer pieces and on answering one’s writing “voice” to appeal to a specific target audience. Larger written projects are often interdisciplinary and have a “real-world” audience; all writing is made public in some way. Students also learn various resources to support individual research, with a focus on finding credible and reliable sources of information. Students study basic grammar and language usage both as readers and as writers, discovering more complex sentence structures and advanced punctuation skills. Students regularly participate in formal and informal presentations.

320 – Technical Reading and Writing
Prerequisite: None  Grade: 11  Length: Year  Credit: 1
The purpose of Technical Reading & Writing is to help students understand the elements of technical and professional writing and communication by completing written assignments, workshops, oral presentations, collaborative research projects, daily group work, and peer-review. Students will learn to read and analyze business and technical materials, gaining an understanding of how to model and prepare workplace documents, resumes, cover letters, instructions, usability tests, reports, proposals, and science manuscripts. Because this course is the 11th grade language arts class at DRSS, during one quarter, students will compose a creative narrative piece that incorporates science and/or math. This course will ultimately guide students in technical reading and writing for their other STEM classes, including effective note-taking skills, reading strategies, considering the rhetorical situation when writing, as well as editing & proofreading for errors in mechanics, usage, grammar, and spelling (M.U.G.S.). Additionally, students will practice skills that will be useful for taking the SAT and ACT.

350 – English 12 College Prep
Prerequisite: None  Grade: 12  Length: Year  Credit: 1
This course is a yearlong (non-college credit) course designed to introduce students to the principles needed to be successful after high school. The course will be writing-intensive with a focus on developing skills in critical reading, self-reflection, effective written communication, research, as well as the use of technology that will aid students in their future endeavors. Students will generate a variety of writing pieces and projects. Students will be expected to use the accepted conventions for specific genres, tasks, and audiences.

340 – College Credit Plus English 1101: English Composition I
Prerequisite: Placement test score  Grade: 12  Length: Semester  Credit: 0.5
This course counts as 0.5 high school credits and 3 college credits. Any student attempting CC+ classes must register with and meet the institution’s admission/testing requirements. The requirements usually involve minimum ACT, SAT, college’s placement scores and/or a minimum GPA, and/or a recommendation.

In English Composition I students learn reflective, analytical and argumentative writing strategies, incorporating sources and personal experience. Students will negotiate between public and private rhetorical situations and purposes to achieve academic literacy. They will write multiple drafts using a recursive writing process as they work toward fluency in style and mechanics.
English Composition II, building on the skills in English Composition I, develops rhetorical literacy through research, critical reading and multigenre writing tasks. Through major and minor, cumulative and stand-alone assignments, students construct arguments and analyses, ethically incorporating academic sources while developing their own voices as writers and citizens.
**Math**

DRSS High School Math Sequence

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>502</td>
<td>Algebra 1A</td>
<td>9</td>
<td>Year</td>
<td>1</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>503</td>
<td>Algebra 1B</td>
<td>10</td>
<td>Year</td>
<td>1</td>
<td>Algebra 1A</td>
<td>$0</td>
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<tr>
<td>500</td>
<td>Algebra 1</td>
<td>8, 9</td>
<td>Year</td>
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<td>None</td>
<td>$0</td>
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<tr>
<td>9510</td>
<td>Geometry</td>
<td>9, 10</td>
<td>Year</td>
<td>1</td>
<td>Algebra 1</td>
<td>$0</td>
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<tr>
<td>9515</td>
<td>Honors Geometry*</td>
<td>9, 10</td>
<td>Year</td>
<td>1</td>
<td>See course description</td>
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<tr>
<td>1540</td>
<td>Algebra 2</td>
<td>10, 11</td>
<td>Year</td>
<td>1</td>
<td>Geometry</td>
<td>$0</td>
</tr>
<tr>
<td>1544</td>
<td>Honors Algebra 2*</td>
<td>10, 11</td>
<td>Year</td>
<td>1</td>
<td>See course description</td>
<td>$0</td>
</tr>
<tr>
<td>535</td>
<td>Pre-Calculus</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>Algebra 2</td>
<td>$0</td>
</tr>
<tr>
<td>536</td>
<td>Honors Pre-Calculus*</td>
<td>11, 12</td>
<td>Year</td>
<td>1</td>
<td>See course description</td>
<td>$0</td>
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<tr>
<td>560</td>
<td>Statistics</td>
<td>11, 12</td>
<td>Year</td>
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<td>Algebra 2</td>
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<tr>
<td>570</td>
<td>Modeling &amp; Reasoning</td>
<td>12</td>
<td>Year</td>
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<td>Algebra 2</td>
<td>$0</td>
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<tr>
<td>552</td>
<td>Calculus</td>
<td>12</td>
<td>Year</td>
<td>1</td>
<td>Pre-Calculus</td>
<td>$0</td>
</tr>
</tbody>
</table>

*Students interested in taking the honors section of a course must meet the Honors requirements.*
502 – Algebra 1A
Prerequisite: None  Grade: 9  Length: Year  Credit: 1
Algebra 1A is the first course of a two-year series which will cover all topics in a traditional one-year Algebra 1 course. The slower pace will allow time for personalized intervention and mastery of core content. Upon successful completion of Algebra 1A and Algebra 1B, the student will take the Ohio End of Course Exam for Algebra. Algebra 1A covers solving and graphing linear equations and inequalities, reading and interpreting word problems, and understanding functional relationships using graphs, charts, and tables.

503 – Algebra 1B
Prerequisite: None  Grade: 10  Length: Year  Credit: 1
Algebra 1B is the second course of a two-year series which will cover all topics in a traditional one-year Algebra 1 course. The slower pace will allow time for personalized intervention and mastery of core content. Upon successfully completing Algebra 1B, the student will take the Ohio End of Course Exam for Algebra. Algebra 1B covers solving and graphing linear equations and inequalities, reading and interpreting word problems, solving quadratic equations by graphing, by factoring, by completing the square, and by the quadratic equation, understanding functional relationships using graphs and charts, and working with rational and irrational expressions to solve simple rational and radical equations.

500 – Algebra 1
Prerequisite: None  Grade: 8, 9  Length: Year  Credit: 1
Students closely examine a variety of functions in this course, and study methods for solving problems involving those functions. These functions include linear, quadratic, and exponential. Students study connections between the graphical, numerical (table), and symbolic (equation) representations of each of these functions. Students apply representations to real life situations to solve problems about the situations. They use data to create models to solve problems and predict outcomes. Students often work in cooperative groups to participate in inquiry learning. Students are given carefully created problems and work together to explore the underlying mathematics.

9510 – Geometry    9515 – Honors Geometry
Prerequisite: Algebra 1 Grade: 9, 10  Length: Year  Credit: 1
Geometry is the second course in a sequence of college preparatory mathematics courses. Key concepts addressed in the course are: transformations and symmetry; relationships between figures (such as similarity and congruence); properties of plane figures (such as equal or perpendicular sides or diagonals); measurements of plane figures (such as area, perimeter, and angle measure); measurements of three-dimensional shapes; tools for analyzing and measuring shapes (such as the Pythagorean Theorem, trigonometric ratios, and coordinate geometry); investigation and proof; geometric construction; algebra; and probability. The course is structured around problems and investigations that build spatial visualization skills, conceptual understanding of geometry topics, and an awareness of connections between different ideas. Students often work in cooperative groups to participate in inquiry learning. Students are given carefully created problems and work together to explore the underlying mathematics. Honors Geometry students will cover the same topics but will look more deeply at many of these topics. Honors students will be expected to write and use mathematical arguments at a higher level of rigor.

Students who are requesting the Honors section of this course must meet the following requirements:
- Student with an “A” grade point average in math for the previous school year
- Students with a “B” average in math for the previous school year needs a teacher recommendation

1540 – Algebra 2   1544 – Honors Algebra 2
Prerequisite: Geometry  Grade: 10, 11  Length: Year  Credit: 1
The focus of the Algebra 2 course will be problem solving, particularly using algebraic equations. The course will introduce new Algebra 2 concepts with frequent steps back to reinforce vital Algebra 1 concepts needed to move forward in math. Algebra topics include: solving equations and problems involving linear, quadratic and exponential functions, polynomial and rational expressions, irrational and complex numbers, logarithmic functions and inverses. Specific Algebra 2 topics to be addressed include solving systems of equations, matrices, sequences and series, and basic counting theory including combinations and permutations, which will lead to a section on probability. In the latter half of the year trigonometry will be introduced, as it is certainly fundamental to many real-world problems. Basic trigonometry functions will be defined, and the coursework will focus on the right triangle, solving for general triangles, the unit circle, and trig identities. Concepts covered throughout the year will be reinforced with STEM word
problems, which illustrate the application of these concepts. In addition, special puzzles and projects will instill the importance of persistence in solving hard problems.

535 – Pre-Calculus  
536 – Honors Pre-Calculus
Prerequisite: Algebra 2  Grade: 11, 12  Length: Year  Credit: 1

**Students who are requesting the Honors section of this course must meet the following requirements:**
- Student with an “A” grade point average in math for the previous school year
- Students with a “B” average in math for the previous school year needs a teacher recommendation

Pre-calculus lays the foundation for the study of Calculus. We use a calculator-based graphing approach to explore functions. Using graphs and their transformations, students find characteristics of graphs such as extrema, domain, range, and limits of the function and intervals where functions are increasing or decreasing. The limiting behavior of graphs are determined graphically. We transform graphs geometrically by horizontal or vertical stretches and shrinks, and reflection with respect to the axes. We specifically study properties of exponential, logarithmic, rational, and trigonometric functions. Working cooperatively, students explore problems numerically, algebraically, and graphically using hands-on and technological methods. This course may also include applications of matrices, parametric equations, and polar coordinates.

560 – Statistics
Prerequisite: Algebra 2  Grade: 11, 12  Length: Year  Credit: 1

Students will work with probability, data collection, descriptive and inferential statistics, probability, and technological tools to analyze statistics. The main foci of the course will be exploring data, planning a study, producing models using probability theory, and making statistical inferences. Students will work with statistical measures of centrality and spread, methods of data collection, methods of determining probability, binomial and normal distributions, hypothesis testing, and confidence intervals. Students will use multiple representations to present data including written descriptions, numerical statistics, formulas, and graphs. Students who desire to take the AP exam at the end of the year will need to do extension work to prepare for the test.

570 – Mathematical Modeling and Reasoning
Prerequisite: Algebra 2  Grade: 11, 12  Length: Year  Credit: 1

This course is an introduction to mathematical modeling and reasoning using graphical, numerical, symbolic, and verbal techniques to describe and explore real-world data and phenomena. In this course, students use elementary functions to translate real-world problems into mathematical representations, and then use those representations to simulate, investigate, analyze, and revise solutions to the problems with the support of appropriate technology. Students actively engage in problem solving in this course by exploring phenomena, collecting data, using mathematical tools to evaluate the efficiency of created models, and by communicating their models and solutions verbally and in written form. This course is ideal for students who have completed Algebra II and desire opportunities to apply algebraic, geometric, and statistical content to real-world situations, while also working to improve their self-perception and success in mathematics.

552 – Calculus
Prerequisite: Pre-Calculus  Grade: 12  Length: Year  Credit: 1

In Calculus, students work individually and cooperatively to develop a conceptual understanding of derivatives, integrals, and the relationship between the two as expressed in the Fundamental Theorem of Calculus. Students express concepts, problems, and solutions geometrically, numerically, analytically, and verbally. Students use technology to explore concepts, confirm results, and produce models.
Four science credits are required for graduation.

*- Offered on a yearly rotating basis. Medical Interventions will be offered instead of Anatomy and Physiology during the '24-'25 school year.
Engineering Science (ES) is a high school level course that is appropriate for students who are interested in design and engineering. The major focus of the ES course is to expose students to design process, research and analysis, teamwork, communication methods, global and human impacts, engineering and manufacturing standards, and technical documentation. ES gives students the opportunity to develop skills and understanding of course concepts through activity-, problem-, and project-based learning. Students will employ engineering and scientific concepts in the solution of engineering design problems. In addition, students use Autodesk Inventor 3D solid modeling design software package to help them design solutions to solve proposed problems. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges that increase in difficulty throughout the course. Students will also learn how to document their work in an engineering notebook, and communicate their solutions to their peers and members of the professional community. In addition, students will learn the fundamentals of 3D printing, as well as laser cutting and vinyl laser printing. They will propose various solutions to problems or issues in their lives, and print or laser cut solutions after a thorough use and practice of the design process. Students in Honors Engineering Science engage in all the standard curriculum, but also participate in the Science Fair process. The student chooses their topic in whatever scientific discipline they like, and with the help of a mentor design and conduct an experiment, or do an engineering project. All data is collected by the end of the first semester, and students begin preparing for the school science fair in February.

**Students who are requesting the Honors section of this course must meet the following requirements:**
- No final grade failures in the previous year
- Student with an “A” grade point average in science for the previous school year
- Students with a “B” average in science for the previous school year needs a teacher recommendation

This course is considered a science credit and is part of the Engineering Pathway.

810 – Biology 815 – Honors Biology
Prerequisite: None Grade: 10 Length: Year Credit: 1
In this life science course, students investigate the four unifying themes of biology: heredity, evolution, diversity and interdependence of life and cells. They will explore concepts of biology and medicine to determine factors that led to the death of a fictional person. Students will be introduced to human physiology, biology, medicine, healthcare careers, and research processes while allowing them to design their own experiments to solve problems.

**Students who are requesting the Honors section of this course must meet the following requirements:**
- No final grade failures in the previous year
- Student with an “A” grade point average in science for the previous school year
- Students with a “B” average in science for the previous school year needs a teacher recommendation

This course is considered a science credit and is part of the Health Sciences Pathway.

820 – Chemistry
Prerequisite: None Grade: 11 Length: Year Credit: 1
Students learn chemical and physical principles by exploring a specific focus area in which chemistry is relevant to societal issues or technological advancements. They will apply the methods of science through experiments and learn to communicate scientific and quantitative information. The focus area will vary from among topics such as art, food and nutrition, the environment, forensic science, the material world, and others. The course develops scientific thinking and helps students understand important interdisciplinary connections. Topics of study include: structure of matter, states of matter, reactions, descriptive chemistry, chemical calculations, atomic theory, stoichiometry, electrochemistry, chemical bonding, thermochemistry, periodicity, and solution chemistry.

870 – Material Science
Prerequisite: Chemistry Grade: 12 Length: Year Credit: 1
This year long interdisciplinary curriculum is focused on studying the properties and capacities of manufacturing materials of ceramics, metals, polymers and composites through the lens of Chemistry and Art. In the Chemistry lab students learn about the chemical and physical properties of these materials and in the Art studio students manipulate the materials creatively. Students are introduced to practical and contemporary manufacturing applications of materials and are exposed to related careers in manufacturing, design and advanced manufacturing. This interdisciplinary approach serves as an introduction to the capacities and potentials of manufacturing materials. The course is co-taught by the Art and Chemistry instructors and can be designated as either an art or chemistry credit. Chemistry is a pre-requisite.
860 – Physics
Prerequisite: Algebra 2 Grade: 11, 12 Length: Year Credit: 1

Students should have a strong foundation in algebra to prepare for this algebra-based Physics course. Through the course, students will address physics topics and develop professional competency skills through inquiry, teamwork, and problem solving. The fall portion of the course covers motion, forces, energy, and features an engineering design projectile motion (catapult) project. The spring portion of the course covers electricity, magnetism, waves, sound, light and optics; it features a photonics (lasers) experience with CAMP Dosser. The course will culminate with special topics in modern physics, exposing students to what’s currently going on in the world of physics.

This course is considered a science credit and is part of the Engineering Pathway.
Social Studies

DRSS High School Social Studies Sequence

9th Grade

U.S. History

10th Grade

World History

11th Grade

Government (1 semester)

Financial Literacy (1 semester)

OPTIONAL 11th & 12th Grade

Contemporary World Issues (1 semester)

Human Geography (1 semester)

Social Science Exploration* (1-2 semesters)

Three social studies credits are required for graduation.
* - This course is completely online and will be self-paced. See course description for more info.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Grade</th>
<th>Length</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
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<tr>
<td>710</td>
<td>Modern World History</td>
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<td>Year</td>
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<tr>
<td>720</td>
<td>American Government⁺</td>
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<td>Sem</td>
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<td>None</td>
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<tr>
<td>750</td>
<td>Financial Literacy⁺</td>
<td>11</td>
<td>Sem</td>
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<tr>
<td>751</td>
<td>Contemporary World Issues</td>
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<td>Sem</td>
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<tr>
<td>760</td>
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<td>Sem</td>
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<tr>
<td>765</td>
<td>Human Geography</td>
<td>11,12</td>
<td>Sem</td>
<td>0.5</td>
<td>None</td>
<td>$0</td>
</tr>
</tbody>
</table>

⁺ - 11th grade students must take both American Government and Financial Literacy during 11th grade
United States History is taught through a chronological approach while using the Social Studies standards of Ohio as a guide. Within each time period studied (Industrial Revolution, Progressive Era, Imperialism, World War I, 1920's, Great Depression, New Deal, World War II, 1950's, Cold War, Civil Rights, and Modern Terrorism), students examine the past, but also make concrete connections to present-day events. This approach allows students to learn the significance of history by journeying from past to present several times throughout the course. Resources from universities and other institutions, as well as supplemental materials such as books, periodicals, the Internet, videos and other media are used. Teaching 21st century skills by incorporating technology and primary source analysis is a focus of the course.

This course examines world events from 1600 to the present. It explores the impact of the revolutions that take place throughout Europe and Latin America, the forces that led to world domination by European powers through imperialism, as well as the wars that changed empires, and the people and ideas that brought about new ways of thinking and living. Students utilize projects and note-taking skills to enhance their knowledge of world events and analyze how past events affect our present day lives.

Nearly two and a half centuries later, the United States continues to thrive and struggle with its principles, identity, and a wide array of actions. In this class students will examine and question the foundations this country, and how the American people govern themselves at national, state and local levels of government. The Revolution, The Declaration of Independence, the Constitution, landmark Supreme Court cases, key pieces of legislation, executive powers, and every amendment with be judged for their intentions, impacts, and relevance today. Students will research, analyze, and debate all of these factors and more as we unpack and explore American Government.

This course explores the fundamentals that guide individuals as they make choices about how to use limited resources to satisfy their wants. More specifically, it examines the ability of individuals to use knowledge and skills to manage limited financial resources effectively for a lifetime of financial security. By the end, students will have a financial plan for their life beyond college, skills needed to successfully budget, and knowledge of current economic hardships our country continues to and will soon struggle with.

The promise of global peace and prosperity after two devastating World Wars has turned out to be far more complicated than anyone could have imagined. World issues have blossomed from seeds planted by previous conflicts, evolved and grown on a global scale, and have even been created and born out of our modern political and economic systems. At the same time, our countries have become interconnected in unprecedented ways, providing innovation, worldwide collaborations, and hope for those promises made after 1945. This course covers dynamics of global interactions among nations and regions in current issues that affect all humanity. These dynamics include competing beliefs and goals, methods of engagement, and conflict vs. cooperation. Students will examine the impact of historical, political, economic, social, geographic factors that play into our current world affairs.

The Social Sciences Exploration course is a self-paced and online course that will utilize an online learning system such as EdX to provide course content. Course progress will be monitored by DRSS Staff, but students will be responsible for completing the course content independently. Students will have the opportunity to deep-dive into the Social Science topic of their choice. Such options could include: Psychology, Sociology, Anthropology, History, Criminal Justice, etc. This is a great course for students who wish to explore different Social Science topics of interest to them or related to their future career pursuits.

This course focuses on the processes, effects, and distribution of human populations on the planet. Students will analyze the relationship between society, place, and space to understand how humans have organized themselves across the globe and their relationship with the environment. Students will be given opportunities to improve their geographical skills and understanding by
using maps and conducting case studies of different societies. The course will allow students to build a geographical perspective of the past, present, and future developments of the world.