St. Xavier High School
2026-2027 Computer Science Course Offerings

3101
INFORMATION PROCESSING
Grade 9 / 1 Semester / .25 Credit

Note: ***Information Processing earns .25 credit. Freshmen are also automatically enrolled into Oral Communications for the other .25 credit; both of these classes together earn .50 credit in one semester.***

Goals and Objectives: Students will learn what it means to be a Citizen in a Digital Society. Information Processing will go beyond Acceptable Use Policies, where the students will learn how to use technology more appropriately in the educational realm, as well as, outside the classroom. The key is that they learn to use technology safely, responsibly, and ethically. Students will develop awareness and knowledge of what is appropriate and inappropriate uses of technology. Students will learn and, as a result, teach what it means to be a Good Digital Citizen.

Content and Methods: Classes meet alternately with *Oral Communication* and are primarily done in lab sessions. Emphasis is placed on a combination of skills and resourcefulness. Experimentation and development of creative ideas is encouraged.

Evaluation and Grading: Lab assignments, presentations, quizzes, and group debates.

3202
3D MODELING
Grades 10, 11, 12 / 1 Semester / .50 Credit

Prerequisites: Information Processing

Goals and Objectives: The student will be introduced to the fundamentals of using computers to create three-dimensional models. He will develop an appreciation for applying the principles of engineering, architecture, and interior design into digital designs and models.

Content and Methods: Students will learn to communicate graphical and design concepts with emphasis on visualization, modeling techniques, and tools. Students will implement computer graphic techniques using SketchUp and Autodesk Fusion 360 3D Modeling Software. Concepts will be discovered and developed primarily through lab work, as well as lectures and online resources. Some models will be brought into the physical world with 3D printing.

Evaluation and Grading: Exercises and projects.

3501
ADVANCE GAME OR MULTI-MEDIA
Grades 11, 12 / 1 Semester / .50 Computer Science or Fine Arts elective credit

Prerequisites: Information Processing and at least one additional Computer Science elective.

Goals and Objectives: This course is designed as an independent study, project-based, semester elective that allows students to further develop their interest in the area of technology they are called to pursue. Students would present ideas for projects to develop throughout the semester and collaborate with the instructor on extent and expectations. Length and scope would vary.

Content and Methods: Project will be customized based on the student's interest and teacher input. Students will build upon the skills they have learned and engage in the creation of robust projects that connect to the world outside of the classroom. Students should be self-motivated and have the ability to problem solve.

Evaluation and Grading: Grades will be based on a variety of project-based assessments.

3321
AP COMPUTER SCIENCE A
Grades 11, 12 / 1 Semester / .50 Credit

Prerequisites: Introduction to Java Programming with a grade of 85 or better; OR permission from instructor.

Goals and Objectives: The course provides preparation for the Advanced Placement Computer Science A Examination. In particular, the course introduces college level programming concepts such as object-oriented programming, development and evaluation of sorting algorithms, and the standard Java API.

Content and Methods: For students interested in further study of computer science, this rigorous and in-depth one-semester course covers program design, implementation and analysis. Students will write programs that utilize the object-oriented principles of design: inheritance, polymorphism, data abstraction, information hiding, and encapsulation. In addition, students work with programming structures such as Strings and Array Lists built into the Java API. The course features class lectures, lab work, selected readings, case studies, and homework.

Evaluation and Grading: Programming assignments, homework, quizzes, paper, and quarter exams.

3401
BROADCAST JOURNALISM I
Grades 11, 12 / 1 Semester / .50 Credit

Note: ***All interested students MUST meet with Mrs. Schulte prior to registering to discuss the expectations of the class and receive a signature if approved. Students are required to complete additional activities outside of the traditional school day (most will be associated with school related activities) as assigned by the Course Instructor.***

Prerequisites: Information Processing AND permission of the instructor (Mrs. Schulte).

Goals and Objectives: This course will focus on the fundamentals and purpose, context, voice, techniques, and structure for effective broadcast communication. The class will take students on an exploration of the ever-growing and ever-changing world of media. Students will be actively engaged with various forms of media in order to understand the processes and theories associated with media.

Content and Methods: This course introduces the student to the media industry, including but not limited to: Broadcast Journalism, Public Relations, News Reporting and Writing, and Television Production.

Evaluation and Grading: Grades will be based on a variety of project-based assessments. **Students are required to complete additional activities outside of the traditional school day (most will be associated with school related activities) as assigned by the Course Instructor.**

3402

BROADCAST JOURNALISM II

Grades 11, 12 / 1 Semester / .50 Credit

Note: ***All interested students MUST meet with Mrs. Schulte prior to registering to discuss the expectations of the class and receive a signature if approved. Students are required to complete additional activities outside of the traditional school day (most will be associated with school related activities) as assigned by the Course Instructor.***

Prerequisites: Broadcast Journalism I AND permission of the instructor (Mrs. Schulte).

Goals and Objectives: This course will build upon the fundamentals of Broadcast Journalism I with a deeper focus on production in broadcast communication. The class will take students on an exploration of the ever-growing and ever-changing world of media. Students will be actively engaged with various forms of media in order to understand the processes and theories associated with media.

Content and Methods: This course expands the student knowledge in the media industry, including but not limited to: Broadcast Journalism, Public Relations, News Reporting and Writing, and Television Production.

Evaluation and Grading: Grades will be based on a variety of project-based assessments. **Students are required to complete additional activities outside of the traditional school day (most will be associated with school related activities) as assigned by the Course Instructor.**

3302

IT CAPSTONE

Grades 11, 12 / 1 Semester / .50 Credit

Prerequisites: One or more STEM classes, such as, 3D Modeling, Engineering Foundations, CCP Web Design, etc. The student must get approval from CS Teacher.

Goals and Objectives: This course provides hands-on experiences that are similar to those found in an internship or college co-op position. The course builds upon the skills students have learned in other Computer Science classes by applying their knowledge in real-world projects while learning and applying product development practices. Corporate partners and St. X's Career Connections will work with all students in this course in a Product Development project that simulates a project for a real-life client or product concept. The projects will involve the definition of the problem statement, consumer research, solution design, and 3D printing. Additional tasks may include focus groups or gathering user feedback through surveys, analyzing data, and making new iterations of the design.

Content and Methods: This is primarily a hands-on, real-world project-based class. Students will use knowledge and skills from previous classes to fulfill requirements.

Evaluation and Grading: Students will be evaluated on initiative, teamwork, problem-solving, and customer service.

3204

GAME DESIGN

Grades 10, 11, 12 / 1 Semester / .50 Credit

Prerequisites: Information Processing

Goals and Objectives: This course is designed to allow students to express their desire to create video games. Students choose from a variety of projects, which will allow them to create 2D games, 3D games, or Virtual Reality games depending on their interest. This is a project-based class. There are no written tests. Programing is not required for 2D games but is needed for 3D and VR games. Software used includes GameMaker, Unity, Steam. and other applications. Students will also have an option to learn how to program a robot.

Content and Methods: Students will be introduced to design elements as it relates to the aspects of game development. Concepts include story line, scoring and rewards for progression, use of sound effects, creativity (power ups, etc.), and game flow (how the game increases in difficulty).

Evaluation and Grading: Assessment comes from the projects and games students create. There are no written tests.

3208

HONORS CYBERSECURITY

Grades 10, 11, 12 / 1 Semester / .50 Credit

Prerequisites: None. No previous experience is needed.

Goals and Objectives: Students learn about types of cyber-attacks, encryption, cybersecurity threats, risk analysis, cryptography, and how to protect computers and networks from bad actors. This course aligns with the CompTIA Security+ certification.

Content and Methods: Students will engage in a variety of learning methods, including simulations, authentic cybersecurity applications, hands-on Labs and opportunities to participate in competitions such as Capture the Flag. WireShark and various other software are used.

Evaluation and Grading: This course will include hands-on activities, use of various software, group projects as well as traditional tests and note-taking.

3201

MULTI-MEDIA AND FILM

Grades 10, 11, 12 / 1 Semester / .50 Computer Science or Fine Arts elective credit

Prerequisites: Information Processing

Goals and Objectives: Visual literacy is growing in importance as technology is incorporated into our daily lives. This course offers students the opportunity to learn the skills needed to express ideas in various multi-media formats. This project-based class allows for student creativity while meeting

the course objective. Projects will include: Sound editing; graphic design; 360-degree pictures; creating animations and filming & editing video. Students will create their own movies.

Content and Methods: This course is for students interested in hands-on use of the computer as a tool for expressing ideas and/or creating messages. Students will be introduced to the concept and use of Adobe Creative Suites: Flash/Animate, Premiere (video editing), Illustrator & Photoshop as well as Audacity (audio editing) software.

Evaluation and Grading: Lab assignments, presentations, group projects, and portfolio.

3207

STATISTICS AND DATA ANALYTICS

Grades 10, 11, 12 / 1 Semester / .50 Math or Computer Science Credit

Prerequisites: Advanced Algebra I (2130), Algebra II (2121, 2110) or instructor approval. If you have taken AP Statistics (2730), Statistics and Data Analytics must be taken for Computer Science credit.

Goals and Objectives: To develop strategies for collecting, cleaning, and analyzing data; to study sampling distributions, confidence intervals and hypothesis tests; to learn statistical software such as Microsoft Excel & Programming in R. Concepts will be applied to data sets which include NFL (nflfastR) Fantasy Football, ACT, and other real life data sets to show the practical application of data science skills.

Content and Methods: TI-84 graphing calculator, Microsoft Excel, Google Sheets, R and R Studio. *Method*: Classroom discussion, notes, group work, homework. Microsoft Excel is used extensively. No coding experience is required.

Evaluation and Grading: Assignments, quizzes, projects, tests, and quarterly exams.

3403

YEARBOOK I

Grades 11, 12 / 1 Semester / .50 Credit

Note: *All interested students MUST meet with Mrs. Schulte or Mr. Vargas prior to registering to discuss the expectations of the class and receive a signature if approved. Students are required to complete additional activities outside of the traditional school day (most will be associated with school-related activities) as assigned by the Course Instructor.*

Prerequisites: Permission from the instructor (Mrs. Schulte or Mr. Vargas).

Goals and Objectives: Students will develop essential journalistic writing skills, including crafting compelling feature articles, writing effective captions, and creating attention-grabbing headlines. The course also introduces digital photography and photo editing techniques to help students capture meaningful moments throughout the school year. Students will learn design principles and layout techniques used in professional print media, gaining experience in creating visually appealing pages. Through collaborative projects, students will build teamwork and project management skills. By the end of the course, students will contribute to producing a high-quality yearbook that reflects the spirit, achievements, and events of the school community.

Content and Methods: Representative examples of amateur and professional journalism are studied. This course includes instruction in computer software programs, primarily Adobe Lightroom, which aids photography and editing for the semester. The bulk of this course centers on the production of the school yearbook, XRay.

Evaluation and Grading: Grades will be based on a variety of project-based assessments. Students are required to complete additional activities outside of the traditional school day (most will be associated with school-related events and coverage) as assigned by the Course Instructor. Students will receive a grade weight that reflects the additional workload, task difficulty, and knowledge needed to successfully complete the responsibilities of a student publication.

- **Photography** – Capture high-quality images that reflect the activities and spirit of the school community. All photos must be properly tagged and organized.
- **Editing** – Proofread all written content for grammar, spelling, and journalistic style. Ensure captions, headlines, and articles are accurate and polished. Edit photos as needed to meet publication standards.
- **Layout Design** – Use the Lifetouch Yearbook site to design visually appealing, readable, and cohesive pages. Incorporate articles, photos, and graphics that support the overall theme of the book.
- **Writing** – Develop strong writing skills by creating engaging captions, headlines, and feature stories that bring student life to the page.
- **Final Semester Project** – Submit 10–20 final spreads by the last class of the semester, showcasing your best work in photography, writing, design, and editing.

3404

YEARBOOK II

Grades 11, 12 / 1 Semester / .50 Credit

Note: *All interested students MUST meet with Mrs. Schulte or Mr. Vargas prior to registering to discuss the expectations of the class and receive a signature if approved. Students are required to complete additional activities outside of the traditional school day (most will be associated with school related activities) as assigned by the Course Instructor.*

Prerequisites: Yearbook I and permission from the instructor (Mrs. Schulte or Mr. Vargas).

Goals and Objectives: This course is designed for students who have taken Yearbook I in a prior semester and are interested in an editorial role on staff. Time spent editing, designing, writing and/or photographing outside of class that goes above and beyond the expectations of a staff member is an expectation for students taking this course.

Content and Methods: Representative examples of amateur and professional journalism are studied. This course includes instruction in computer software programs, primarily Adobe Lightroom, which aids photography and editing for the semester. The bulk of this course centers on the production of the school yearbook, XRay.

Evaluation and Grading: Grades will be based on a variety of project-based assessments. Students are required to complete additional activities outside of the traditional school day (most will be associated with school-related events and coverage) as assigned by the Course Instructor. Students will receive a grade weight that reflects the additional workload, task difficulty, and knowledge needed to successfully complete the responsibilities of a student publication.

- **Photography** – Capture high-quality images that reflect the activities and spirit of the school community. All photos must be properly tagged and organized.
- **Editing** – Proofread all written content for grammar, spelling, and journalistic style. Ensure captions, headlines, and articles are accurate and polished. Edit photos as needed to meet publication standards.
- **Layout Design** – Use the Lifetouch Yearbook site to design visually appealing, readable, and cohesive pages. Incorporate articles, photos, and graphics that support the overall theme of the book.
- **Writing** – Develop strong writing skills by creating engaging captions, headlines, and feature stories that bring student life to the page.
- **Final Semester Project** – Submit 10–20 final spreads by the last class of the semester, showcasing your best work in photography, writing, design, and editing.

3611

CCP IT FUNDAMENTALS

Grades 10, 11, 12 / 1 Semester / .50 Credit / CCP (University of Cincinnati): 3 Credits

Prerequisites: Information Processing

Goals and Objectives: This course is an introduction to the field of Information Technology including technology concepts, terminology, hardware components and software applications. Students will be introduced to and asked to apply basic skills in the core areas of information technology such as programming, database management, networking, systems administration, and web development. As well as learning the basic research, problem solving and decision-making skills required to be successful in this field. The course emphasizes the role of technical communication, project management, languages, tools, models, and application architectures within the IT development process.

Students who desire to take the course must go through the CCP application process. Students who qualify for the CCP program and pass the course will receive CCP college credit awarded through the University of Cincinnati.

This course is equivalent to an AP level course in terms of St. Xavier high school credit.

Content and Methods: This is a survey course that will include a variety of methods including hands-on activities, use of various software, group projects as well as traditional texts and note taking. It is for students interested in exploring the various aspects of Information Technology (IT) and computer fields.

Evaluation and Grading: Lab assignments, presentations, group projects, traditional tests and a capstone project.

3631

CCP COMPUTER NETWORKING

Grades 10, 11, 12 / 1 Semester / .50 Credit / CCP (University of Cincinnati): 3 Credits

Prerequisites: Information Processing

Goals and Objectives: The CCP Computer Networking course explains, in a theoretical and practical framework, how communication occurs across a network. Students study such topics as computer/ network hardware, network media, topologies, protocols, security, network architectures, IP addressing,

and the Transmission Control Protocol/Internet Protocol (TCP/IP) model. Hands-on, active learning is required.

Students who desire to take the course must go through the CCP application process. Students who qualify for the CCP program and pass the course will receive CCP college credit awarded through the University of Cincinnati.

This course is equivalent to an AP level course in terms of St. Xavier high school credit.

Content and Methods: This course will include a variety of methods including hands-on activities, use of various software, group projects as well as traditional texts and note taking. It is for students interested in understanding how the internet works and what composes a home network.

Evaluation and Grading: Lab assignments, presentations, group projects, traditional tests, and a capstone project.

3621

CCP PROGRAMMING I

Grades 10, 11, 12 / 1 Semester / .50 Credit
CCP (University of Cincinnati): 3 Credits

Prerequisites: Information Processing

Goals and Objectives: The student will be introduced to computer programming and problem-solving methods using the Java programming language. He will be introduced to computer architecture, data representation, and programming process and structure.

Students who desire to take the course must go through the CCP application process. Students who qualify for the CCP program and pass the course will receive CCP college credit awarded through the University of Cincinnati.

This course is equivalent to an AP level course in terms of St. Xavier high school credit.

Content and Methods: Introduction to Java syntax, program development, and problem-solving techniques. This is an excellent first course for the student interested in learning more about computer languages and how computers function. Problem-solving and documentation skills are emphasized in classroom lectures and programming projects. Lab exercises, research, and homework cover practical and theoretical applications.

Evaluation and Grading: Programming assignments, homework, quizzes, and quarter exams**.**

3612

CCP WEB DESIGN

Grades 10, 11, 12 / 1 Semester / .50 Credit / CCP (University of Cincinnati): 3 Credits

Prerequisites: None. No previous experience is needed.

Goals and Objectives: This hands-on course provides students with introductory skills that will enable them to become proficient in web page construction. Students work with industry-standard software for website creation with HTML and other web-based coding applications. Topics covered include design, function, incorporating different types of media, website security, and user input. The final project will be a fully functional website for a client.

Students who desire to take the course must go through the CCP application process. Students who qualify for the CCP program and pass the course will receive CCP college credit awarded through the University of Cincinnati.

This course is equivalent to an AP level course in terms of St. Xavier high school credit.

Content and Methods: This project-based class will allow students to use their creativity when creating various webpages and websites.

Evaluation and Grading: This course will include hands-on activities, use of various software, group projects as well as traditional tests and note-taking.

3601

CCP ACCOUNTING

Grade 12 / 1 Semester / .50 Credit / CCP (University of Cincinnati): 3 Credits

Prerequisites: None.

Goals and Objectives: To give an introduction to the principles and methods of accounting; to emphasize an understanding of the underlying basic procedures to set up and operate a small business accounting system, to learn the skills necessary for the handling of the financial records of a small business; to introduce the student to automated data processing and its applications to accounting; to learn the necessary skills for the preparation of a federal tax return for a small business.

Students who desire to take the course must go through the CCP application process. Students who qualify for the CCP program and pass the course will receive CCP college credit awarded through the University of Cincinnati.

This course is equivalent to an AP level course in terms of St. Xavier high school credit.

Content and Methods: *Materials*: *Century 21 Accounting*, TI-84 graphing calculator, online workbook, and online business simulation packet. *Method*: Lecture, discussion, notes, group work, and homework. One or two class periods a week will be used as laboratory periods where students will work on assignments from the workbook, business simulation packet, and have the opportunity to consult with the teacher.

Evaluation and Grading: Chapter tests, homework assignments, business simulation packet, and quarter exams.
