

Health Informatics Curriculum



College or Career?...Why Not Both?

Advanced Career combines college-ready academics with authentic, hands-on projects.

The New Approach

Advanced Career

A rigorous and relevant blend of technical and academic skills in authentic projects

- Advanced Training
- Community/Technical College
- Jobs *(more options)*
- College

The Old Approach

COLLEGE TRACK

→ College

OR

CAREER TRACK

→ Jobs
→ Training

Schools are under pressure to better prepare students for a wide array of postsecondary options. The workforce of today and tomorrow demands a higher level of skill — people who grasp complex problems, understand technology and troubleshoot problems.

Advanced Career (AC) answers both of these needs. By fusing a rigorous academic core with challenging project work and advanced technology in a career pathway program of study, AC courses give students a greater depth of knowledge and skills and prepare them for more options after high school.

Advanced Career provides:

- ready-to-implement AC course work for students
- comprehensive training for teachers
- access to tools and technology for project-based learning
- end-of-course assessments
- opportunity for industry certification and/or dual credit

Health Informatics.....

The United States spends more on health care than any other industrialized country, placing a burden on U.S. businesses and the economy. As the United States seeks ways to improve the quality of health care, increase efficiency and reduce costs, there is a critical shortage of workers with skills to support this effort. The industry needs workers who can design, manage and use technology to analyze data and information that can inform better health-care decisions and, in turn, improve the delivery of health-care services.

The health informatics pathway introduces students to the discipline through a series of authentic projects that merge information science, computer science and health care. Through real-world projects, students use information technology, data analysis software and statistics to address a range of health related topics. Students will: a) use a variety of technologies and software that can be applied not only to the field of health care but also to other career fields; b) collect, analyze and prepare data reports targeted to a specific audience; c) read, understand and synthesize related documents that deal with critical health topics in the health field; and d) make sense out of data that can serve to inform the general welfare and quality of health care in the nation. Students will also learn about the array of careers available in the field of health informatics.



Health Informatics was developed by SREB and the Ohio Association of Career-Technical Superintendents as a part of a multi-state consortium to improve career and technical education in this country.

For more information about other Advanced Career curricula, visit sreb.org/AC.

Advanced Career Health Informatics Curriculum

Health Informatics will appeal to students who have an interest in using technology and software to analyze data about health care and related fields, resulting in better decisions by consumers and health-care providers.

Course 1: Data and Use

This foundational course focuses on the use of data and databases within the health field. Students explore the following questions using project-based and problem-based scenarios. What are data? What are the sources of data in the medical and health informatics fields? How can we use data? How do we make sense of data? How may we apply data to our own lives? Students interact with professionals in the health informatics field through interviews or on-site and/or virtual field trips.

Course 2: Transforming Data into Information

In this course, students study ways to use data to address both patient and industry needs in the health-care field. Students use software such as Microsoft Access, Excel and Balsamiq to collect and analyze data, develop a health-care registry, create a mobile app mockup and develop forms and systems to solve health-care problems. The following questions are addressed through project or problem-based scenarios: How can technology and analysis create better information to inform better decisions? How can we use technology tools to create information from data? How can we use technology to improve public and individual health? How can we use technology to protect patient privacy?

Course 3: Transforming Information into Knowledge

This advanced course allows students to make improvements in the health-care field by designing solutions using the information, knowledge and technology tools available to health informatics professionals. Students are engaged in the following activities: building a system of sharing information among health-care facilities; using social media tools to reduce diseases in foreign countries; exploring voice recognition software; using a motion-based video gaming console for rehabilitation; and exploring clinical decision rules for improving patient care.

Course 4: Problems and Solutions

In this advanced course, students study and design solutions to problems facing health-care systems. Students explore the following questions through project or problem-based scenarios: How can the health-care system work more efficiently and economically? How do we address health-care issues in rural locations? How can various community organizations work together to improve the health of the community? Students interact with professionals in the health informatics field through interviews or on-site and/or virtual field trips.

Key Features of Advanced Career

Fully Developed Pathway Programs

Advanced Career encompasses a coherent sequence of four ready-to-implement AC courses; comprehensive training for teachers; access to tools and technology for project-based learning; and end-of-course assessments. To ensure fidelity from site to site, each course has a syllabus that includes instructional philosophy, instructional delivery and support systems, assessment and a recommended grading system.

Advanced Career (AC) Programs of Study

Each Advanced Career program of study (POS) is a progression of non-duplicative courses joined with a college-ready academic core and aligned from high school to postsecondary studies. The integration of academic and technical content in the POS prepares students for more options after high school graduation, offers opportunity for dual credit and leads to an industry-recognized credential, advanced training, or an associate's or bachelor's degree. The high-skill, high-wage career fields represented among the AC programs of study are important to the economy.

Project-Based Learning

Each course is designed around project-based units — featuring essential questions, project descriptions, authentic roles and tasks that require students to utilize an industry-recognized decision-making process. Assignments in AC courses encompass essential elements of good project-based learning to engage students in an extended process of asking questions, using resources and developing answers. Students collaborate and work in teams and develop important 21st-century skills.

Blended Learning Experiences

AC course work creates rigorous blended learning experiences for all students. Students apply their academic and technical skills to real-world projects in ways that advance their literacy, math, science and technical knowledge and skills, and that strengthen their habits of behavior and mind for success.

Technology and Software

Students employ industry-standard data acquisition hardware and software systems to complete authentic tasks simulating the work of professionals in the field.

Assessments

Each project unit includes formative and summative assessments. Each course has an end-of-course assessment that measures both academic and technical achievement with the performance level needed for jobs, advanced training and postsecondary credit-bearing courses. In addition, students and teachers complete surveys about what works or does not work in the AC course. This serves to inform continuous improvement of the AC program.

Counseling for Careers

Student and parent orientation to the AC program of study highlights the career field, including requirements for jobs and postsecondary study in the career field. Each AC course has a career and education exploratory component. Counselors trained to support the AC program will assist students in developing a career and education plan aligned with students' goals and aspirations.

Teacher Selection, Professional Development and Support

Teachers are selected who have strong math skills and experience in the pathway career field. Staff development is essential and includes an intensive two-week summer institute for teachers to prepare them to teach each course and to use a project-based approach. They will perform students' assignments and use the tools developed by national industry partners. A support team including the principal, counselor and academic teachers in literacy, math and science learn how to support AC teachers and students in course implementation.

Dual Credit and Industry Certification

Courses three and four in the AC program offer the potential for dual credit when a state or district has an established process for approving such courses. Each AC program of study also offers opportunities for industry certification for students who complete the program.

Collaboration and Partnerships

Ongoing relationships among education, business and other stakeholders are central to AC pathway programs. Representatives from industry and postsecondary institutions have helped shape the curriculum design and technical content. Serving as an expert panel, they have collaborated with secondary and postsecondary educators and state education agency staff to identify authentic learning experiences for students that can lead to additional opportunities after high school. Organizations represented in the development of the Health Informatics Pathway Program include:

American Red Cross Blood Services	Nationwide Children's Hospital	Owens Community College
Battelle Memorial Institute	Ohio Association of Career and Technical Superintendents	Samaritan Regional Health System
California State University Cardinal Health	Ohio Department of Education	SAS Software
Clinical Solutions	Ohio Dominican University	Sinclair College
Columbus State College	Ohio State University	Southern Regional Education Board
Cuyahoga Community College	Ohio State University School of Health and Rehabilitation Sciences	Stark State College
Fisher Titus Hospital	Ohio State University Wexner Medical Center,	Summit Behavioral Health
Johns Hopkins University	Department of Biomedical Informatics	U.S. Department of Health and Human Services
Kent State University	Ohio Wesleyan University	University of Minnesota
Licking Memorial Hospital		University of Northern Kentucky
Midwest Community College Health Informatics Technology Consortium		