

Kenneth P. Dietrich School of Arts and Sciences
College in High School

2024-2025

Introduction to Information, Systems, and Society
INFSCI 0010--3 Credits

Description: The course aims to provide a comprehensive overview of current key topics in computing and enable students to acquire essential skills in programming and database management. It covers a range of contemporary topics, such as interface design, human-computer interaction, cybersecurity, the Internet of Things, misinformation, and the relationship between human and machine decision-making. Additionally, the course emphasizes the development of basic skills, including programming, binary numbers, creating a functioning database, and manipulating digital media. It is designed for students with minimal prior technical coursework and does not require any previous programming experience. By successfully completing this course, students will meet the Quantitative and Formal Reasoning requirements of the School of Arts & Sciences.

Prerequisites: None.

Grading: The grading in this case is based on assignments, quizzes, and exams.

Evaluation: 40% – Exams (2 equally weighted, non-cumulative)
40% – Four Homework Assignments
20% – In-class labs

Grading Scale:

99-100 = A+	88-89 = B+	78-79 = C+	68-69 = D+
94 - 98 = A	84-87 = B	74-77 = C	64-67 = D
90 - 93 = A-	80-83 = B-	70-73 = C-	60-63 = D-

Textbook: No textbook is required as many of the topics are current, with readings, slides, videos, and web-based document resources provided.

Course Requirements:

- Create a digital media representation of self
- Build a basic interface as part of team
- Build and use a simple database to store and access information
- Analyze data from a Kaggle data site and conduct some basic data analysis
- Develop an understanding of your decision-making profile based upon taking some simple inventories.
- Review and analyze cybersecurity policies and procedures

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The following topics are covered in the University of Pittsburgh INFSCI 0010 course:

1. Interface and design

- What is design?
- What are guidelines for a good interface?
- What is the user experience?
- What are prototypes?
 - Low Fidelity
 - High Fidelity

2. Basic technologies and how they work

- Computers
 - Storage of data
 - Processing of information
 - Various devices
- Networks
- Local area networks
- The internet
- What made “the” Web?
 - HTML, HTTP, and URLs

3. Internet of Things (IoT)

- What is it?
- How does it affect business and society?

- Applications of IoT
 - Smart homes, smart cities
- Exposure to large data sets from Kaggle

4. Decision-making and algorithms

- How do humans and computers differ in decision making?
- Review of various sorting algorithms
- An analysis of speed of performance of algorithms

5. Some basic skills to use and manage technology

- Databases and how they work
- Programming languages
- Binary numbers
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6. Basics of machine learning

- Introduction of artificial intelligence
- Applications of artificial intelligence
- Using a basic ML program

Related educational materials:

High school teachers are encouraged to use the following educational modules while teaching the course. The modules can be downloaded from the SADET project website:

https://www.sis.pitt.edu/lersais/research/sadet/module_menu.html

Relevant SADET Modules
Module A.1: Digital Data Safety
Module A.2: Taking Reasonable Precautions (Digital Security)
Module A.3: Protecting Digital Data Rights
Module C.4: Data Privacy and the Law
Module C.1: The Mind of the Hacker

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Academic Integrity: All College in High School teachers, students, and their parents/guardians are required to review and be familiar with the University of Pittsburgh's Academic Integrity Policy located online at <https://www.as.pitt.edu/faculty/policies-and-procedures/academic-integrity-code>.

Grades: Grade criteria in the high school course may differ slightly from University of Pittsburgh standards. A CHS student could receive two course grades: one for high school and one for the University transcript. In most cases the grades are the same. These grading standards are explained at the beginning of each course.

Transfer Credit: University of Pittsburgh grades earned in CHS courses appear on an official University of Pittsburgh transcript, and the course credits are likely to be eligible for transfer to other colleges and universities. Students are encouraged to contact potential colleges and universities in advance to ensure their CHS credits would be accepted. If students decide to attend any University of Pittsburgh campuses, the University of Pittsburgh grade earned in the course will count toward the student grade point average at the University. At the University of Pittsburgh, the CHS course supersedes any equivalent AP credit.

Drops and Withdrawals: Students should monitor progress in a course. CHS teacher can obtain a Course Drop/Withdrawal Request form from the CHS office or Aspire. The form must be completed by the student, teacher and parent/guardian and returned to teacher by deadlines listed. Dropping and withdrawing from the CHS course has no effect on enrollment in the high school credits for the course.