

STUDENT INFORMATION SHEET

CPSC 505, COMPUTING CONCEPTS FOR EDUCATORS, SUMMER 2024

Course Information

- **Days/Times/Place:**
32029 CPSC 589 403 MTWRF 8:00 – 9:30 AM CAS 136
5W1 June 10 – July 12
- **Web page :** <https://timoneilu.github.io/teaching/cs505/>
- **Prerequisites:** EDCI:575 or instructor permission.



Course Description

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Prerequisite: EDCI:575 or instructor permission. Comprehensive review of the undergraduate computer science curriculum for K-12 educators seeking licensure.

Course Rationale :

Due to the increasing importance of technology in the last few decades, the Ohio Department of Higher Education seeks to train K-12 teachers to teach computer science in their classrooms. Such instructors must be computer literate, able to supplement computer activities in the classroom, and engage students in developing their computer science literacy. Teachers with this licensure in turn become much more marketable in the competitive field of education. This course presents educators with the concepts tested in the OAE Computer Science (054) Exam required for such licensure.

Course Personnel

Instructor : Dr. Tim O'Neil
Contact Info : Office : CAS 221A Phone : (330) 972 – 6492 E-mail : toneil@uakron.edu
Office Hours : MTWRF 11:30 – 12:30 AM. I am also available by appointment.

Course Outline

Textbook : Mometrix Test Preparation. *OAE Computer Science (054) Secrets Study Guide: OAE Exam Review and Practice Test for the Ohio Assessments for Educators*. Mometrix Media LLC, 2024.

Topics :

<i>Programming Concepts</i>	<i>Concepts in Internet Programming</i>
<i>Concepts in Object-Oriented Design</i>	<i>Operating Systems Concepts</i>
<i>Concepts in Algorithmic Design</i>	<i>Networking Concepts</i>
<i>Concepts in Computer Organization</i>	<i>Overview of Advanced Topics</i>

Course Grading

Items :

18% each	Weekly quizzes/exams (5)
10%	Class participation

Approximate Scale :

A 88 – 100, B 75 – 87, C 62 – 74, D 49 – 61. Plus/minus grades assigned at my discretion.

DISCLAIMER: Save for changes that substantially affect implementation of the evaluation (grading) statement, this document is a guide for the course and is subject to change with advance notice.

Course Objectives

Course goals and objectives for this class are aligned to these CSTA (Computer Science Teachers Association) Standards; see <https://csteachers.org/teacherstandards/interactive/>.

Objective	CSTA Standard	Assignments/ Assessments
Students will understand the fundamentals of basic computer organization, efficient problem solving and structured programming.	1A, 1B, 1E	Miscellaneous Culminating Activities (i.e. Quizzes)
Students will demonstrate a sound understanding of many of the fundamental algorithms and data structures that lie at the heart of computer science.	1A, 1B, 1E	
Students will show the ability to reason clearly and understand why and under what conditions one algorithm may be superior to another.	1A, 1B, 1E	
Students will understand the object-oriented paradigm and how it relates to other models.	1A, 1B, 1E	
Students will understand fundamental principles and techniques for the design and analysis of computer algorithms.	1A, 1B, 1E	
Students will investigate and understand the properties of basic logic gates and flip-flops, as well as the design of arithmetic and sequential logic circuits and fundamentals of CMOS devices and circuits.		
Students will demonstrate a basic knowledge of the abstractions and services presented by an operating system as the basic building blocks of applications.	1A, 1B, 1E	
Students will exhibit a basic knowledge of the architectural features of present-day serial, scalar computing systems.	1A, 1B, 1E	
Students will exhibit a basic knowledge of the fundamental theory of automata and formal languages.	1A, 1B, 1E	
Students will exhibit a basic knowledge of some of the more significant languages which have been derived from the von Neumann model.	1A, 1B, 1E	
Students will understand basic concepts of parallel algorithm design and analysis, notably Flynn's taxonomy.	1A, 1B, 1E	
Student will display knowledge of the fundamental concepts of data networks in terms of the ISO layered architecture.	1C	
Students will understand the theoretical and practical aspects for the design and implementation of database systems.	1D	

Diversity Statement (per Faculty Senate)

This class, as well as the broader University of Akron community, respects diversity and strives for equity and inclusion of all students. Diversity includes how we as individuals identify along the lines of race, color, religion, sex, sexual orientation, gender identity or expression, age, national or ethnic origin, citizenship status, disability, status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, military status, genetic information, or status as a veteran. Inclusion and respect for diversity make the classroom and the larger community stronger and foster dialogue and democratic decision making. As part of ensuring this class is a safe space for all students, please avoid use of negative stereotypes and insensitive or hateful statements toward groups of people. Please respect your classmates' pronouns. Each of us is responsible for creating a safer, more inclusive environment. If you feel there is something I can do to make the classroom more inclusive please let me know either in person, via email, or by placing an anonymous note in my mailbox. For support services on campus, go to www.uakron.edu/ie/lgbtq or www.uakron.edu/zipassist.

Other

Familiarize yourself with the content at

<https://www.uakron.edu/oaa/faculty-affairs/what-students-need-to-know>

regarding the ethical use of AI tools, accessibility, Title IX and sexual harassment and violence.



Other Class Policies, Summer 5W1 Semester 2024

Registration/Drop/Withdrawal

- Students whose names do not appear on the university's official class list by **Friday June 14** will not be permitted to participate (attend class, take exams or receive credit).
- Students may drop a course online (without my signature) through **Friday June 14**. Courses dropped by this date will not appear on a student's transcript.
- Students may withdraw from a course online (without my signature) through **Tuesday June 25**. A "WD" will appear on the student's transcript.

Scholastic Honesty and Professional Integrity

- All work turned in for grade is to be exclusively the work of the student(s) whose name(s) appear(s) on the work. Incidents of academic dishonesty (such as cheating or plagiarism) will be handled in accordance with university policy by the Office of Student Conduct. In particular, the use of sources other than the textbook without citation, including other books, AI tools like ChatGPT and the World Wide Web, will be viewed as plagiarism. (If you're unsure of what constitutes plagiarism, consult the links on my home page.)
- Some of the materials in this course are possibly copyrighted. They are intended for use only by students registered and enrolled in this course and only for instructional activities associated with and for the duration of this course. They may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the TEACH Act (2002).

In-Class Conduct During Lectures

- Students are expected to attend all class meetings prepared (i.e. carrying the textbook, note paper, writing instruments, etc.) and participate. You may be dropped from this course and receive an "F" on your transcript for repeated absences (BOT Rule 3359-20-05D, effective 2/14/2013).
- All cell phones, etc., are to be turned off or switched to manner mode during class. Portable computers will be permitted until this privilege is abused.

In-Class Quizzes

- The use of electronic devices is forbidden during in-class exams. Food and drink are also banned.
- Students who leave the room during a quiz, or who use electronic devices during a quiz, may not continue working on that exam.
- Make-up quizzes will be given only under extraordinary circumstances. Arrangements should be made prior to the quiz and proof furnished.
- Students have one week from the return of a graded quiz to seek corrections from me regarding grading; after that no changes will be made to scores.

Homework and Programming Assignments

- There will be no extra credit assignment or do-overs so don't even ask.
- All class assignments must be submitted by 12:00 PM on **Friday July 11**. Nothing will be accepted after this time.
- Students have one week from the return of a graded assignment to seek corrections from me regarding grading; after that no changes will be made to scores.