Spring 2024
CSCI-1
Introduction to Computer Science
Syllabus

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Response time: < 24 hours
Office Hours: MW 10am-12pm, TTh 2-3pm (PHY-81), or by appt
Section Number: 52000

Unit(s): 3
Dates: 1/8/2024 – 5/15/2024
Class Meeting: Wednesday 1-3:20pm
Location: Hybrid: On Campus/Zoom
Classroom: PHY-82/Zoom
https://scccd.zoom.us/j/88574825704?pwd=dEpkc0VOMXZEeEJaaEN6SlZRdUhDUT09

Prerequisites: MATH 103 – Intermediate Algebra
Advisory: ENGL-125 – Writing Skills for College and ENGL-126 Reading Skills for College

Course Description: This course is an introduction to computer science with emphases on critical thinking skills and programming concepts. Topics include deductive reasoning, social and ethical implications, computer hardware and software, programming concepts and methodology. The course is designed for computer science majors and nonmajors. PREREQUISITE: Mathematics 103 or equivalent. ADVISORY: English 1A or English 1AH. (A, CSU, UC).

Note: this course is offered in a hybrid format. There will be a recorded lecture available at the beginning of the week. Students are expected to work on zyBooks activities before our class meeting, where we work on class activities in small teams. Class time is offered in a two-way interactive format, meaning that students have the choice of joining on campus or via Zoom. Please note that live attendance is required each week (in person or online). It is up to each student how they would like to attend each week. Note we will be working on labs in small groups and we will combine students who are in person and online. Note also that students are required to attend the midterm exam (Thursday, October 5, 2023) and the final exam (Thursday, December 7, 2023) on campus. Please let me know if you have any questions.

Course Goals and Student Learning Outcomes:
Upon completion of this course, students will be able to:
- Demonstrate critical thinking and reasoning skills to solve problems.
- Develop small computer projects to meet requirements.
- Write computer programs using fundamentals, including basic data types and control structures, to implement an algorithm.
- Demonstrate teamwork and interpersonal group skills.

Objectives:
In the process of completing this course, students will:
- Describe the organization of computer systems and networks, including hardware architecture and systems software
- Briefly review major developments in the history of computer science
- Use condition and repetition programming structures

- Explain forms of protection of intellectual property
- Develop flowcharts or pseudocode to implement simple algorithms
- Describe efforts to ensure data and information security
- Write simple sequential programs
- Demonstrate knowledge of professional ethics and responsibilities
- Explain the impact of computer technology on privacy
- Determine logical argument validity
- Describe processes and practices in software engineering

Student Learning Outcomes are statements about what the discipline faculty hope you will be able to do at the end of the course. This is NOT a guarantee: the ultimate responsibility for whether you will be able to do these things lies with you, the student. In addition, the assessment of Student Learning Outcomes is done by the department in order to evaluate the program as a whole, and not to evaluate individual faculty performance.

Required or Recommended Textbooks and Materials:

Textbooks:

Required:

1) zyBooks, register and connect via Canvas before first meeting (cost: $58).
   1. Click on your zyBooks link in your learning management system
   (Do **not** go to the zyBooks website and create a new account)
   2. Subscribe

2) Runestone Academy Registration (free resource) – instructions in Canvas

Optional Supplemental Textbooks:

Computer Science: An Overview, 13th Ed., by J. Glenn Brookshear & Dennis Brylow, Pearson
An Invitation to Computer Science, 8th Ed., by Michael Schneider & Judith Gersting, Cengage

These optional texts are not necessary but will be good supplementary resources for those interested. Older versions are useful.

Learning Management System: CANVAS:

Canvas (https://scccd.instructure.com/) is used to post announcements, course information, programming assignments, and grade. You will submit your programming assignments on Canvas.
To log-in Reedley College CANVAS:

Username: Your 7-digit student ID number.
Password: If you have not previously changed your password, it is:

First name initial (upper case) + *last name initial* (lowercase) + *date of birth* (mmddyy)
Example: John Smith born on July 9th of 1988 Password =Js070988

Computer Lab:

Scratch (scratch.mit.edu), repl.it, Notepad++, Python IDLE 3.9, Thonny, Microsoft Office/Google Sheets are used for this class.

Topics:

A. Social Issues and Professional Practice (SP)
    a. Social Context (3 hours)
        i. Social implications of computing
        ii. Impact of social media
        iii. Growth and control of the Internet
        iv. Digital divide
    b. Analytical Tools (0.5 hour)
        i. Ethical argumentation
        ii. Stakeholder analysis
    c. Professional Ethics (1.5 hours)
        i. Professionalism
        ii. Codes of ethics
        iii. Accountability, responsibility, and liability
        iv. Maintaining awareness of consequences
    d. Intellectual Property (0.5 hour)
        i. Digital rights management
        ii. Software piracy
    e. Privacy (2 hours)
        i. Implications of widespread data collection
    f. Professional Communication (1.5 hours)
        i. Reading, understanding, and summarizing technical material
        ii. Writing effective technical documentation and materials
        iii. Dynamics of oral, written, and electronica team and group communication
        iv. Utilizing collaboration tools
    g. History (2 hours)
        i. History of computer hardware, software, networking
        ii. Pioneers of computing
        iii. History of the Internet

B. Architecture and Organization (AR)
    a. Digital Logic and Digital systems (0.5 hour)
        i. Overview of computer architecture
        ii. Multiple representations/layers of interpretation
    b. Machine Level Representation of Data (1 hour)
        i. Bits, bytes, and words
        ii. Numeric data representation and number bases
        iii. Representation of non-numeric data
    c. Assembly Level Machine Organization (1 hour)
        i. Basic organization of the von Neumann machine
        ii. Assembly/machine language programming
    d. Memory System Organization and Architecture (0.5 hour)
        i. Storage systems and their technology
        ii. Main memory organization and operations

C. Information Assurance and Security (IAS)
    a. Foundational Concepts in Security (0.5 hour)
        i. Concepts of risk, threats, vulnerabilities, and attack vectors
        ii. Authentication and authorization, access control
        iii. Concept of trust and trustworthiness
    b. Threats and Attacks (0.5 hour)
        i. Examples of malware

ii. Denial of Service (DoS) and Distributed Denial of Service (DDoS)

c. Network Security (0.5 hour)
   i. Network specific threats and attack types
   ii. Use of cryptography for data and network security

d. Cryptography (1.5 hour)
   i. Mathematical preliminaries
   ii. Cryptographic primitives
   iii. Symmetric key cryptography
   iv. Public key cryptography

e. Information Management Concepts (0.5 hour)
   i. Information systems as socio-technical systems
   ii. Basic information storage and retrieval concepts

f. Database Systems (0.5 hour)
   i. Approaches to and evolution of database systems
   ii. Components of database systems

D. Operating Systems (OS)
   a. Overview of Operating Systems (2 hours)
      i. Role and purpose of the operating system
      ii. Functionality of a typical operating system

E. Programming Languages (PL)
   a. Introduction (1 hour)

F. Software Development Fundamentals
   a. Algorithms and Design (4 hours)
      i. The concept and properties of algorithms
      ii. The role of algorithms in the problem-solving process
   b. Fundamental Programming Concepts (12 hours)
      i. Basic syntax and semantics of a higher-level language
      ii. Variables and primitive data types
      iii. Expressions and assignments
      iv. Conditional and iterative control structures

Tentative Schedule:

Subject to Change:
This syllabus and schedule are subject to change. If a student is absent from class meeting, it is the student's responsibility to check on any changes made while you were absent.

	Assignment Points	Date
Week 1: Intro to Computer Science & Algorithms	**33**	**1/8/2024**
zyBooks Participation Activities	10	1/11/2024
Lecture Video Available		1/8/2024
Mini-Quiz	3	1/12/2024
Class Meeting		1/10/2024
Class Activity: PBJ Challenge	10	1/14/2024
Schedule One-on-One	10	1/14/2024
Week 2: More on Algorithms	**29**	1/15/2024

Read Seven Big Ideas of Computer Science		
zyBooks Participation Activities	14	1/19/2024
Lecture Video Available		1/15/2024
Mini-Quiz	5	1/19/2024
Class Meeting		1/17/2024
Class Activity: Algorithms	10	1/21/2024
Week 3: Pseudocode and Flowcharts	**50**	1/22/2024
zyBooks Participation Activities	12	1/25/2024
Lecture Video Available		1/22/2024
Mini-Quiz	4	1/26/2024
Class Meeting		1/24/2024
Class Activity: Pseudocode and Flowcharts	10	1/28/2024
Week 1-3 zyBooks Challenge Activities	24	1/28/2024
Week 4: Computer Science History, Numbering Systems	**44**	1/29/2024
zyBooks Participation Activities	5	2/1/2024
Lecture Video Available		1/29/2024
Mini-Quiz	4	2/2/2024
Class Meeting		1/31/2024
Class Activity: Bits Bytes	10	2/4/2024
Project 1a: Flowchart/Pseudocode of Scratch Project	25	2/4/2024
Week 5: Computer Hardware	**52**	2/5/2024
zyBooks Participation Activities	8	2/8/2024
Lecture Video Available		2/5/2024
Mini-Quiz	4	2/9/2024
Class Meeting		2/7/2024
Class Activity: Hardware	10	2/11/2024
Project 1b: Scratch Project	30	2/18/2024
Week 6: Operating Systems	**17**	2/12/2024
zyBooks Participation Activities	4	2/15/2024
Lecture Video Available		2/12/2024
Mini-Quiz	3	2/16/2024
Class Meeting		2/14/2024
Class Activity: Operating Systems	10	2/18/2024
Week 7: The Internet and Web	**22**	2/19/2024
zyBooks Participation Activities	8	2/22/2024
Lecture Video Available		2/19/2024
Mini-Quiz	4	2/23/2024
Class Meeting		2/21/2024
Class Activity: Internet	10	2/25/2024
Week 8: Privacy & Web Programming	**19**	2/26/2024
zyBooks Participation Activities	5	2/29/2024
Lecture Video Available		2/26/2024
Mini-Quiz	4	3/1/2024
Class Meeting		2/28/2024
Class Activity: Privacy	10	3/3/2024
Week 9: Midterm Exam	**100**	3/4/2024

Optional Questions & Answers Session		3/5/2024
Midterm Exam	100	3/7/2024
Week 10: Data & Information Security	**71**	3/11/2024
zyBooks Participation Activities	7	3/14/2024
Lecture Video Available		3/11/2024
Mini-Quiz	4	3/15/2024
Class Meeting		3/13/2024
Class Activity: Encryption	10	3/17/2024
Project 2: Basic Website	50	3/17/2024
Week 11: Societal Impact & Ethics	**22**	3/18/2024
zyBooks Participation Activities	8	3/21/2024
Lecture Video Available		3/18/2024
Mini-Quiz	4	3/22/2024
Class Meeting		3/20/2024
Class Activity: Copyright and Open Source	10	3/24/2024
Week 12: Logic and Deductive Reasoning	**44**	4/1/2024
Lecture Video Available		4/1/2024
Mini-Quiz	4	4/5/2024
Class Meeting		4/3/2024
Class Activity: Logic & Reasoning	10	4/7/2024
Logic & Reasoning Activity: Fallacies	10	4/8/2024
Project 3: Logic and Reasoning Paper	20	4/14/2024
Week 13: Introduction to Python	**31**	4/8/2024
How To Think Like a Computer Scientist Reading	9	4/11/2024
Lecture Video Available		4/8/2024
Mini-Quiz	4	4/12/2024
Class Meeting		4/10/2024
Class Activity: Intro to Python	10	4/14/2024
How To Think Like a Computer Scientist Problem Set	8	4/14/2024
Week 14: Python Arithmetic Expressions & Data Types	**42**	4/15/2024
How To Think Like a Computer Scientist Reading	14	4/18/2024
Lecture Video Available		4/15/2024
Mini-Quiz	4	4/19/2024
Class Meeting		4/17/2024
Class Activity: Expressions, Data Types	10	4/21/2024
How To Think Like a Computer Scientist Problem Set	14	4/21/2024
Week 15 Branching	**68**	4/22/2024
How To Think Like a Computer Scientist Reading	9	4/25/2024
Lecture Video Available		4/22/2024
Mini-Quiz	4	4/26/2024
Class Meeting		4/24/2024
Class Activity: Conditionals	10	4/28/2024
How To Think Like a Computer Scientist Problem Set	20	4/28/2024
Project 4a: Design for Python Project	25	4/28/2024
Week 16: Loops	**36**	4/29/2024
How To Think Like a Computer Scientist Reading	10	5/2/2024

Lecture Video Available		4/29/2024
Mini-Quiz	4	5/3/2024
Class Meeting		5/1/2024
Class Activity: Loops	10	5/5/2024
How To Think Like a Computer Scientist Problem Set	12	5/5/2024
Week 17: Programming Languages & Software Development	**56**	5/6/2024
zyBooks Participation Activities	6	5/9/2024
Lecture Video Available		5/6/2024
Class Meeting		5/8/2024
Class Activity: Languages (lowest dropped)	-	5/10/2024
Project 4b: Python Project	50	5/10/2024
Week 18: Finals Week	**114**	5/13/2024
Professionalism	14	
Final Exam 1pm	100	5/15/2024
TOTAL	850	

Evaluation:
Students will be evaluated on the basis of their performance on various assignments according to the following scale. The instructor reserves the right to adjust scores as it may be required throughout the semester.

Points in the course total 850 and are distributed as follows:

zyBooks participation activities	129
Class activities	150
zyBooks challenge activities	88
Exams; Mini Quizzes	260
Projects	200
Professionalism, 1:1 Meeting	24

Final grade is assigned using following scale:

761+ points	A
676 – 760 points	B
591 – 675 points	C
506 – 590 points	D
< 506 points	F

Attendance
Attendance for onsite and synchronous online meetings will be taken at beginning of each class. Students who leave before the end of class will be marked tardy. For synchronous online meetings you are expected to have your camera turned on and will have the best experience if you use earbuds/headphones. Please make sure to stay muted until you have a question or something to add so as to cut down on background noise.

Students will be dropped from the class if they fail to attend the first class meeting of the semester. During the semester up to final drop date, any student who missed two weeks of class meetings (cumulative) will be dropped from this class (i.e. 4 classes).

Make-up tests are limited to students who have planned with the instructor **prior** to the announced testing date or those students who have been excused by High School Attendance Office. Exam material is constructed from class discussions, assigned readings, guest lectures, video presentations, and special

assignments. **Unless the student receives prior approval from the instructor, no make-up tests will be allowed.**

Grading Policy

zyBooks Participation Activities:

ZyBooks participation activities must be completed before announced due date (Thursday for full credit). These activities allow you to actively engage each week's content. Points will be attributed according to the number of responses required and the percentage of the activities a student completes before class. Reference the following rubric:

Percentage Completed	Before Class Meeting Points Awarded	After Class by End of Week Points Awarded
90%+	100% of points	90% of points
80%+	90% of points	80% of points
70%+	80% of points	70% of points
60%+	70% of points	60% of points
50%+	60% of points	50% of points
25%+	40% of points	30% of points
13%+	20% of points	10% of points

These assignments are linked electronically in Canvas.

zyBooks Challenge Activities:

Three assignments in the course are made up of zyBooks challenge activities, which are distributed in the assigned zyBooks chapters. These activities assess learning of content and students have unlimited attempts to get correct answers. These assignments are linked electronically in Canvas.

Class Activities:

Class activities serve as the lab component of the class. Students will work in pairs or small groups and should usually be able to complete the lab assignment at end of the two-hour lab period. If groups need more time, the lab can be completed outside of the meeting time and are due on Sundays. Turn in the lab assignment on LMS-Canvas. Submit any programs as .py files.

Projects:

There will be four projects that will be completed outside the class sessions. The projects are focused on the topics of algorithms (Scratch), web development (Basic website), logic and reasoning (fallacy essay) and programming (Python). All but the last project are individual. Projects 1 and 2 are administered in two deliverables (a design and an implementation). Students can work on the Python programming projects in pairs and complete a peer evaluation. Rubrics are presented in Canvas.

Mini-quizzes and Exams:

There are (mostly) weekly min-quizzes and two exams. All are timed. See course calendar for timing, content covered, and points allotted. Mini-quizzes review content from lecture videos. A specifically designed alternate test can only be arranged if you have an excuse verified and request before the exam is administered.

Late Policy

Points will be deducted for late zyBooks challenge activities at 5% per day late, up to one week late (not excepted more than one week late). zyBooks challenge activities are to be submitted electronically from the zyBooks site. Class activities and projects will not be accepted late.

College Policies:

Cheating & Plagiarism, see Cheating and Plagiarism under Campus Policies

Cheating and plagiarism is prohibited in the class. Incidents of cheating and plagiarism will result a failing grade on the particular assignment in question. Please see Student Conduct Standards at https://www.reedleycollege.edu/about/about-us/policies-and-procedures/student%20conduct%20standards.html for more information about academic integrity.

Each student is expected to assist in the overall environment of the classroom making it conducive to learning.

A note on the use of AI

It is crucial to address the potential perils associated with the misuse of Artificial Intelligence (AI) in academic settings. Using AI to cheat not only undermines the learning experience but also violates the principles of academic integrity.

Perils of AI Cheating:

- Ethical Breach: Utilizing AI to cheat goes against the core values of honesty, integrity, and personal responsibility in academic pursuits.
- Short-Term Gains, Long-Term Consequences: While AI might provide a temporary advantage, the long-term consequences include a lack of genuine understanding, hindering your overall academic and professional development.
- Violation of Academic Policies: Most educational institutions have strict policies against cheating. Using AI to gain an unfair advantage can lead to severe academic penalties and damage your academic record.
- Missed Learning Opportunities: The primary purpose of education is to foster genuine understanding and skill development. Cheating with AI denies you the opportunity to acquire essential knowledge and skills.

My Expectations:

I, as your instructor, emphasize the importance of upholding academic integrity. I trust you will approach your studies with honesty, diligence, and a commitment to genuine learning.

Remember the true value of your education lies not just in grades but in the skills, knowledge, and ethical foundation you acquire. Resist the temptation to misuse AI for academic dishonesty, and instead, channel your efforts towards becoming proficient, ethical computer scientists.

Let's create an environment where academic excellence is synonymous with integrity.

Accommodations for Students with Disabilities

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the Reedley College Disabled Students Programs & Services (DSP&S) Department at (559) 638-0332. You can find more information at https://www.reedleycollege.edu/student-services/disabled-student-programs-and-services/index.html.

Reedley College is committed to creating accessible learning environments consistent with federal and state law. To obtain academic adjustments or auxiliary aids, students must be registered with the DSP&S office on campus. DSP&S can be reached at (559) 638-3332. If you are already registered with the DSP&S office, please provide your Notice of Accommodation form as soon as possible.

Important College Dates Spring 2024

Class begins	Monday	01/08/2024
Last day to drop a full-term class for a full refund	Friday	01/19/2024
Last day to register	Friday	01/26/2024
Last day to drop this class to avoid a “W” in person	Friday	01/26/2024
Last day to drop this class to avoid a “W” online	Sunday	01/28/2024
Last date to drop this class	Friday	03/08/2024
Spring recess (no classes held)	Mon-Fri	03/25-29/2024
No classes, campus is closed		
Martin Luther King, Jr. Day observed	Monday	01/15/2024
Lincoln Day observance	Friday	02/16/2024
Washington Day observance	Monday	02/19/2024
Good Friday	Friday	03/29/2024
Final Exam	Thursday	05/14/2024