BOB JONES UNIVERSITY
EST. 1927

College of Arts & Sciences

CpS 230
Computer Systems
Fall 2024

Instructor:	Jordan Jueckstock
Office:	AL 76 *(3rd floor, left hall)*
Office Hours:	10:00-10:50am, weekdays
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Course Description:

Assembler language, interrupts, registers, memory addressing techniques, parameter passing mechanisms and the relationship between high-level languages and the computer.

Course Context:

This course fulfills the following objectives of the Computer Science department:

- CS1: Design and implement efficient solutions to problems in various domains.
- CS2: Demonstrate understanding of fundamental concepts in computer science, including:
  - Language translation
  - Limitations of computers
  - Stored program (a.k.a. von Neumann) architecture
  - Memory hierarchy
  - Quality data representation

This course further addresses the following learning outcomes of the engineering major:

- 1.3.12: Write programs
- 1.4.1: Apply additional depth of knowledge in engineering topics of interest to the student

Course Goals:

This course will help students to develop:

- Understanding of computer systems architecture
- Understanding of data representation in a computer
- Skill in programming Intel 64 / AMD64 processors in assembly with OS support
- Exposure to programming vintage IBM PC processors/systems in assembly *without* OS support
- Appreciation for the importance of assembly language

Course Textbook (Required):

Computer Systems: A Programmers Perspective (3rd Edition), by Bryant & O'Hallaron. Published by Pearson, 2016. ISBN-13: 978-0134092669

Schedule:

The anticipated schedule of lecture topics, class milestones, and due dates is maintained on the CpS 230 website at https://protect.bju.edu/cps/courses/cps230/schedule/.

Assignments:

Tests: taken in class; closed-book/notes unless otherwise announced
Quizzes: weekly, in-class, testing comprehension of reading and lecture material
Homework: take-home written exercises reinforcing key non-programming concepts/skills
Labs: small programming assignments introducing ideas to be applied later in programs
Programs: larger-scale individual programming assignments requiring original thinking to solve a nontrivial problem using newly-acquired concepts and skills
Team Project: a large scale team programming assignment that requires both mastery of the course material and extensive teamwork / communication skills

Grading			
#	*Category*	*Pts.*	*Total*
11*	Quizzes	10	100
4	Homework	20-40	100
10	Labs	10-25	150
2	Programs	50	100
3	Tests	100	300
1	Team Project	250	250
	Total		**1000**

Scale	
A	900+
B	800-899
C	700-799
D	600-699
F	0 – 599

* *Lowest grade dropped*

Grades are computed on a simple 10-point scale (see below) based on points earned out of 1000. Grades are not rounded up (or down—which probably should go without saying). Instead, all students are allotted 5 bonus "grace points" (which have the effect of rounding up, e.g., 695 to 700). The instructor reserves the right to confiscate these grace points, at his sole discretion and at any time, for repeated (or egregious) displays of disrespect to either the instructor or fellow students. *(Students who lose their grace points will be informed as soon as possible.)*

Deadlines / Late Work:
See the standard department late policy: https://cs.bju.edu/academics/policies/late-work-policy/. Note that a "free late" is an *earned privilege*, generally reserved for students who (a) have already established a track record of timely, quality submissions, (b) are experiencing an unanticipated/unavoidable scheduling hardship, and (c) proactively talk to the instructor about the situation before the posted due date.

The instructor reserves the right to change assignment due dates as deemed necessary. Assignments are due, electronically, by 11:59 pm of the date posted in the course schedule unless otherwise noted.

Due to grading constraints during finals week, the instructor reserves the right to shorten the late period for end of semester projects.

Accommodations:
Students needing accommodations due to a learning disability (visual, auditory, etc.) should provide an accommodation form obtained from the Academic Resource Center as soon as possible. Accommodations cannot be given without a form provided by the Academic Resource Center.

Getting Help:
Students struggling with an assignment or concepts in the class are strongly encouraged to ask the instructor for assistance either:

- in class *(usually best; someone else in class often has the same problem!)*
- during office hours (walk-in or by appointment)
- via email
- via Teams discussions

Academic Honesty and Integrity Policy:
See the CpS department policy: https://cs.bju.edu/academics/policies/academic-integrity-policy/.

The short version is:

- Never look at (or listen to verbal descriptions of, or touch 3D-printed representations of, or…) other students' code *unless* that code is *broken* (i.e., doesn't work) and you are the one helping them diagnose the problem
- Never write code with another student helping/coaching/shoulder-surfing you (personal help sessions are for discussing ideas and sketching diagrams, not writing production code)
- All helps received (from persons or articles or videos or whatever) must be documented (name/reference, kind of help received, time spent getting help) in your report *[caveat: standard language/library documentation, class notes/examples, or time spent with the instructor do not need to be included in "help received"]*

Students are expected to be familiar with this policy and its impact on student collaboration from experience in prior CpS classes taken at BJU. Students lacking such experience should contact the instructor *immediately* to make sure they understand the standards to which they will be held and to which they should hold other students with whom they interact.

Since the goal of the assignments in this course is to help students personally develop the skills covered and not merely to complete the tasks assigned, and since the use of AI to complete (or jumpstart) tasks effectively defeats that goal, you may not use generative AI tools (i.e. Chat GPT, Bing Chat, Google Bard, GitHub Copilot, etc.) in this course for any assignment without the professor's express, written permission.

Whenever granted permission to use generative AI tools for an assignment, students are required to document the help so received in the usual manner (source, purpose, and extent). They must additionally submit full transcripts of their AI tool interactions (i.e., all prompts entered, and all artifacts produced) along with the normal submission artifacts (code, report, etc.).

Copyright Policy: