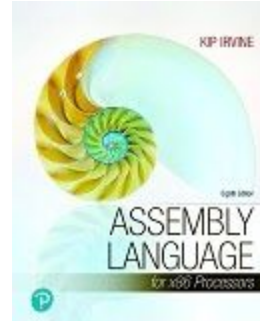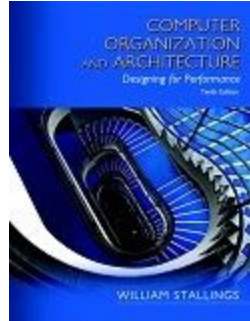**Section Info**

Monday 5:30 pm-10:15 pm West Building W310

Versions

- Version 0.0 - 1/22/2020 - First Release

Book Information

There are two books for the course:

Computer Organization & Architecture, William Stallings, Pearson/Prentice Hall, 10th Edition
^^ if you do homework at home, you can leave this book at home

Assembly Language for x86 Processors, Kip Irvine, Pearson/Prentice Hall, 8th Edition
^^ because the labs will be in Assembly Language, bring this one to class
(looks like the bookstore is only carrying the eBook, but a paper copy exists from publisher)

Author's Website with Visual Studio Assembly Library: http://kipirvine.com/asm/

Instructor

Name: Stephen T. Brower   **Office:** West Building W324
Work # (908) 526-1200 x8259   **preferred email:** stephen.brower@raritanval.edu

Note:

==*For those that had a class with Brower before, take note: there is a VERY different Late/Life Happens policy than in the past. Even different than the Fall 2019 semester*==

Website

Website has information on any changes to office hours (example: none during Spring Break). The site has a link to the class page for this course where you can get the Syllabus and Class Schedule. The website does not require you to logon to either Lion's Den or Canvas

See: http://rvccmccs01.raritanval.edu/~sbrower/

Spring 2020 Office Hours (1/21 - 5/4)

- Monday 2:00 - 3:00
- Wednesday 3:00 - 5:30 (except 3rd Wednesday)
- Thursday 5:00 - 6:30
- AND by appointment

Which Email to use and Email Response Time

If you have a question or you need an assignment "returned to you" in Canvas, the preferred (fastest) way to contact the instructor is via his preferred email**:** stephen.brower@raritanval.edu

Over the last several semesters, I found the email system embedded in Canvas frustrating. So please email me at: stephen.brower@raritanval.edu

The goal is to respond in less than 24 hours.

Occasionally there are known exceptions such around Thanksgiving where a response may take a little longer. If the instructor knows ahead of time there will be a period of unavailability longer than 24 hours, that will be communicated to the class.

Course Overview

This course, which is required for Computer Science students, focuses on the components of computer architecture: storage, data types and structure, instruction set and addressing modes. The course examines the way these components are interconnected and the nature of information flow between them. Students will use Assembler language to reinforce these concepts.

General Education Learning Outcomes

At the conclusion of the course, students will be able to:
1. Apply creative and critical thought in designing computing solutions that demonstrate knowledge of the computer architecture
2. Apply quantitative reasoning to interpret data used in solving problems

Course Learning Outcomes

At the conclusion of the course, students will be able to:
1. Describe the main components of computer systems that define its architecture (CPU, storage, memory, instruction sets, and addressing modes)
2. Discuss the way the main components of computers are interconnected
3. Recognize assembly language syntax while reading and analyzing assembly language programs

4. Design, develop and test programs using MS Assembly Language commands while featuring various basic Assembly Language operations (data/program transfer, arithmetic instructions, indirect memory, addressing, procedures and stack operations)
5. Design, develop and test programs in the MS Assembly Language that include strings, arrays, macros, and conditional processing (Boolean instructions, loops)

Course Management, Structure and Pace

This course meets once a week for approximately five hours total. Attending all lectures is essential for success in this course because this reinforces and explains the material presented in the textbook. Additional programming techniques, which may not be found in the book, will be demonstrated in class and during project/lab time. In order to develop your skills properly and to thoroughly understand the concepts, students should plan on putting in at least two hours of study time for every hour spent in class for lecture. Additionally, students should plan study time of another half hour for every hour spent in lab. Attendance, participation in class, and completing assigned class work, homework, and computer work are your responsibility and are all critical for success in the course. Students who are successful in this class typically spend approximately 7 hours outside of class each week working on the subject. This includes reviewing class notes, reading and studying the textbook, doing written homework and reviewing assembly code.

To stay updated, especially if you are absent, read through syllabus/schedule regularly. It is your responsibility to acquire information and assignments from Canvas, your classmates, or from your instructor.

Course Routine:

Most nights will be broken into 4 segments: Architecture Lecture, Assembly Lecture, Lab Lecture, Lab

Architecture Lecture: This lecture will be on the Computer Architecture material.

Assembly Lecture: This lecture will be on the Assembly Language material and will include demonstrations in Assembly Language. Students are encouraged to experiment in Assembly

Lab Lecture: The Instructor will introduce the Lab for the evening. It will vary week to week how long the introduction will take. It could be as short as a few seconds or as long as 15 minutes.

Lab: This is lab time to work on the Assembly Language Labs and Project. Almost every week there will be an assembly lab. During lab time take as many breaks as you need.

Grade Determinants:

Item	Percent
Homework	10%
Assembly Labs	25%
Architecture Labs	5%
Assembly Project	10%
Exam #1	15%
Exam #2	15%
Final Exam	20%

Grade % Range
A   89.5-100.0+
B+   86.5-89.4
B   79.5-86.4
C+   76.5-79.4
C   69.5 - 76.4
D   59.5 - 69.4
F   0 - 59.4

Software

The computer labs have the "Visual Studio 2019 Professional" software needed to complete the in-class labs. The Author's Library and sample project has to be installed; a .zip file is in Canvas that contains all of the files needed.

If you own a computer that can run the Visual Studio 2019 software, the author of the Assembly book, Kip Irvine, has installation/running notes on his web page: See http://kipirvine.com/asm/ and then click on "Getting Started with MASM and Visual Studio 2019". The Author's Library and sample project has to be installed; a .zip file is in Canvas that contains all of the files needed.

The Author's Library is compatible with "Visual Studio 2019 Professional" and "Visual Studio 2019 Community".

The "Visual Studio 2019 Community" version is free from Microsoft (see
https://visualstudio.microsoft.com/downloads/)

There are only 8 computers in the open lab in the West Building that have Visual Studio 2019.
The Open Lab on the second floor of the West Building is open 6 days a week. See the hours
posted outside the Open Lab.

Homework

Homework will only be from the Architecture book and the page/question numbers will be
posted in Canvas.

Homework must be submitted electronically via Canvas :
● Typed in assignment
● Typed and saved as a .docx or .rtf file and attached to assignment
● Handwritten, scanned/photo'd and the image attached to assignment

See below for the Late Policy(don't be late) and the Cheating Policy (don't cheat)

Assembly Labs

The Assembly Labs will be distributed on paper in class and will also be posted in Canvas, but
not until class time.

The Assembly Labs correspond to the chapters covered in the Assembly book. They are the
"In-Class Labs". The intent is that the labs can be completed in about 2-3 hours. Some labs
have multiple parts.

To submit the lab the *.asm file(s) must be attached to the assignment in Canvas. This way the
instructor can run the assembly code.

Assembly Labs are due by the end of class (10:15pm)

See below for the Late Policy(don't be late) and the Cheating Policy (don't cheat)

Architecture Labs

The problem based questions that would have been part of the homework, will now be done
during class time as a "Architecture Lab". Only about half of the weeks will have an Architecture
Lab.

The Architecture Labs will be distributed on paper in class and you will return the paper. These
Architecture Labs can be done in small groups (2-3 per group)

The Architecture Labs are due by the end of class (10:15pm)

See below for the Late Policy(don't be late) and the Cheating Policy (don't cheat)

Assembly Project

The Assembly Project will be distributed on paper in class and will also be posted in Canvas.

Unlike the Assembly Labs which can be done in 2-3 hours, the Assembly Project will be a larger more complicated program which will take longer to write. Students in the past ignored this warning, waited until the night it was due, were unable to complete it in time, and complained that Brower is a lousy instructor.

To submit the project the *.asm file must be attached to the assignment in Canvas. This way the instructor can run the assembly code.

See below for the Late Policy(don't be late) and the Cheating Policy (don't cheat)

Exams

The schedule has the dates/times of the exams.

Exam 1 will be closed note / closed book / no electronic devices and will be on Architecture and Assembly. The Architecture part will be Short Answer and "Problem" type questions. The Assembly part will have questions that will be either to hand write a few lines of assembly code or some code will be provided and you have to describe the output and/or show the contents of the registers in hexadecimal.

Exam 2 will be an open note / open book / open computer "hands on" exam in Assembly.

The Final Exam will be closed note / closed book / no electronic devices. The format will be like Exam 1.

Late Policy

According to the RVCC Catalog, students are not to be penalized for 1 week of absences. To accommodate this, at the end of the semester the lowest "Homework" grade, the lowest "Assembly Lab" grade, and the lowest "Architecture Lab" grade will be dropped.

"Life Happens"

According to the RVCC Catalog, students are not to be penalized for 1 week of absences. To accommodate this, at the end of the semester the lowest "Homework" grade, the lowest "Assembly Lab" grade, and the lowest "Architecture Lab" grade will be dropped. That handles life happens.

Cheating Policy

You must work alone on the Homework, Assembly Project, and Assembly Labs. Cheating is not allowed. All parties involved in cheating will be dealt with according to the school's policy on cheating. The penalty can range from 0 on the assignment to F for the course.

For the assembly, asking the instructor for hints is not considered cheating. If the Academic Support Center provides tutoring for Assembly and they "assist" you in the debugging, that is not considered cheating.

For the Architecture Labs, groups of 2-3 students are allowed, but a group can't copy from another group. Eavesdroppers will be heckled.

NOTE: you have permission to use the instructor's demo .asm files, in whole or in part, for your labs and projects

Extra Credit

Some exams/assignments contain extra credit questions/opportunities. Other than that, no extra credit opportunities will be provided.

For example, if you choose not to submit ANY homework and then in April you ask for "Extra Credit" to make up for the missed homework, the answer is NO.

Classroom Behavior

Cell Phones: For the "lectures" please silence cell phones. It is understood that there may be times when emergency calls occur or the "pick me up at the airport" call needs to happen. For those calls please step into the hallway to take the call. During lab time, you can turn the sounds back on the cell phones.

Talking: For the "lectures" please don't talk. It is understood that you may need to turn to a neighbor for the occasional question like "what slide is he on?" or "which file is that?" or "what page # did he say?" and that's fine. It is the full conversations that are distracting not only to me but to the class as a whole. For the Lab Time you can talk all you want, but "indoor voices" please.

Language: The instructor will try his darn-doodliest to not swear during class time but an occasional expletive may slip out. Please try your darn-doodliest not to swear but don't fear reprisals if an occasional expletive slips out.

Proper Use of Computers:

Lecture: the instructor is easily distracted by typing and would prefer that computers are not used during the lecture. **Printing during lecture is extremely distracting and very upsetting.** Pointing and laughing at the monitors is very distracting. If class members repeatedly distract the instructor, then all computers and laptops must be closed down.

Lab: During lab time everyone should be working on the labs/project. None of the labs/research projects require social media sites.

Class Attendance

Students are expected to attend all classes for every course in which they are enrolled. To accommodate students' reasonable, personal situations that might prevent them from attending classes, each student is entitled to excused absences amounting to the equivalent of one week's class time in a semester. Absences in excess of this standard are handled individually by each faculty member. A student with absences amounting to one-fifth or more of the term's lecture or laboratory classes is subject to administrative withdrawal by the Dean of Instruction upon the recommendation of the faculty member.

Note: sometimes attendance is taken based on what graded items were not returned. If you come in late and see that graded items were returned, please wait for a break or Lab Time to get your graded items

Student Handbook

You are responsible for all policies stated in the Student Handbook.
See: http://commons.raritanval.edu/studentserv/conduct/pages/Policies_and_Documents.aspx

Withdrawal Procedure
See school's webpage for Spring 2020 Withdrawal and Refund Schedule and Refund Info (see:
https://commons.raritanval.edu/admin/finance/Documents/Spring%202020%20WithdrawalRefundSchedule%20and%20Enrollment_Payment%20Calendar.pdf)

(see: https://commons.raritanval.edu/admin/finance/Pages/refund_info.aspx)

Class Schedule

Please see the Class Schedule for the listing of lecture topics and timing of homework / labs / project / exams

Syllabus Part 2-College Policies

Please see the "Syllabus Part 2-College Policies" document

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