

CISY 254-51x Data Structures

Summer 2018 - CRN: 32753

Syllabus v0.2

Section Info:

Section 51x - CRN 32753

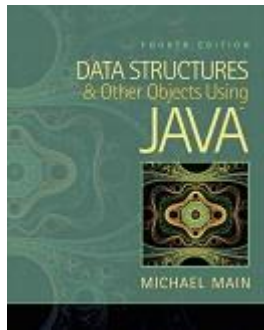
Monday/Thursday 6:00 pm - 9:30 pm West Building W213

Versions

- Version 0.2 - 5/29/2018 - changed formatting to follow accessibility rules
- Version 0.1 - 5/18/2018 - First Release
- Version 0.0 - 5/18/2018 - First Draft

Book Information

Data Structures & Other Objects Using Java, Michael Main, 4th Edition



Picture of book:

Figure 1 Cover of Book

Instructor

Name: Stephen T. Brower

Office: West Building W324

Work # (908) 526-1200 x8259

preferred email: stephen.brower@raritanval.edu

[...for those who had Brower before the Spring 2015 semester, this is a NEW email...]

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Instructor Website

Website has information on any changes to office hours (example: no office hours during week of 7/2)

Website has a link to the class page for this course where you can get the Syllabus and Class Schedule. Website does not require you to logon

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

Summer 2018 Office Hours (6/11 - 8/16)

- TBD
- AND by appointment

Course Overview

Prerequisite: CISY 105 Foundations of Computer Science or CISY 242 Object Oriented Programming:

This course introduces students to the fundamental data structures used in Computer Science. The data structures covered include linked lists, doubly linked lists, stacks, queues, trees, and graphs. Algorithms that manipulate these data structures are discussed and used in laboratory work. Students are introduced to the run-time analysis of algorithms and basic algorithms for searching and sorting.

General Education Goals:

After completion of this course, students will be able to:

1. design and develop data structures that efficiently address program requirements (G.E. 1)
2. analyze the data structures used in computer applications and the issues surrounding their implementation (G.E. 2, 4)
3. apply quantitative reasoning to analyze the performance of data structure algorithms in order to efficiently solve problems (G.E. 7)

Course learning outcomes:

At the conclusion of the course, students will be able to:

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1. compare and contrast the basic data structures used in Computer Science: lists, stacks, queues, trees and graphs
2. identify and implement the basic operations for manipulating each type of data structure
3. create data structures using Java
4. analyze the run-time analysis of algorithms and express them using $O()$ notation
5. apply recursion to data structure operations
6. identify the appropriate data structure for a given problem
7. analyze algorithms to search or sort the data in various data structures (arrays, queues, stacks, etc.) and interpret their run-time performance
8. create and execute test plans which include the testing of boundary conditions

Software / Computer Requirements

If you do not own a computer, you can use the Open Lab on the second floor of the West Building which is open 5 days a week. See the hours posted outside the Open Lab

If you own a computer you can download the Java JDK and either NetBeans or TextPad which will replicate the setup that we have on campus. There are links from the instructor's Course Web Page with some information.

Canvas, will be used for distribution of files and notes.

Course Routine

Classes will usually consist of 3 possible segments: Lecture, Lab Lecture, and Lab Time

Lecture

A majority of the lectures will be on topics within Data Structures. Some of the lecture will be the theoretical nature of Data Structures, which will include a number of crudely drawn pictures, a discussion of algorithms that act on Data Structures, and in some cases Pseudocode.

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Lab Lecture

the Lab Lecture will be an introduction to the week's lab which could be a review of the topic(s) introduced in the Lecture or simply "here".

Lab

There are two kinds of labs: *Data Structure Labs* and *Programming Labs*. *Data Structure Labs* will be paper-based group exercises related to the Data Structure topics from the lectures. *Programming Lab* will be for individual work using the computer to implement Data Structures in Java to solve problems. During Lab time, take as many breaks as needed.

If you finish the lab early, you should look ahead on the Class Schedule to work on the next programming project (if posted) or do the next homework that is due

"Most nights", Lecture will be first and may end with the Data Structures Lab. The remaining class time will be lab time for Programming Labs and Programming Projects.

Grade Determinants:

Item	Percent
Homework	10%
Data Structure Labs	10%
Programming Labs	20%
Programming Projects	20%
Mid-Term Exam	15%
Final Exam	25%

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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

Homework

The Homework will be posted in Canvas. Homework must be submitted electronically via Canvas :

- Typed and saved as a **.docx** or **.rtf** file with lastname as part of filename and attached
- Handwritten, scanned/photo'd and the image, with lastname as part of filename, attached

This will be the first semester using Canvas, homework is to submitted via the assignment in Canvas - if Canvas (or the way it has been configured) proves to be troublesome the submission method may change

See below for the Late Policy (-10% a calendar day) and the Cheating Policy (don't cheat)

Data Structure Labs

For classes that introduce new Data Structures, the Data Structure Lab on a topic may be a drawing showing a series of operations on a Data Structure.

The instructor will review the Data Structure Lab before the beginning of lab time.

Most Data Structure Labs will be paper based, can be done in small groups, and are due at the end of the class in which they are distributed

See below for the Late Policy (-10% a calendar day). Since the Data Structure Labs are group-based, the Cheating Policy as stated below isn't applicable.

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Programming Labs

Programming Labs will be programs written independently in Java to implement a Data Structure to solve some problem.

All of the Programming Labs have some assumptions for clean input so that the focus can be on the writing and use of the data structure. For example assuming a number entered is a number.

Some Programming Labs have been abbreviated to be done in the class-time allotted and those abbreviated labs are due at the end of the class by 9:30 pm and ones submitted after 9:30 pm will receive a Late Penalty because extra time was taken.

Some Programming Labs have not been abbreviated and there is some wiggle-room on the submission. Wiggle-room will be indicated on the lab assignment.

The instructor will review the Programming Lab before the beginning of lab time.

This will be the first semester using Canvas, so the .java* files are to be submitted as attachments to the assignment in Canvas - if Canvas (or the way it has been configured) proves to be troublesome the submission method may change

*alternatively, a .zip file of the folder that contains the .java files or a .zip of the NetBeans project.

See below for the Late Policy (-10% a calendar day) and the Cheating Policy (don't cheat)

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Programming Projects

The idea behind Programming Projects is that they are more complex than labs and are used to demonstrate mastery of Data Structures. A number of them also do not have the assumptions for clean input that the Programming Labs have.

A reminder that Java is in the open Lab in the West Building which is open 5 days a week during the summer. Java is also available for download from the Oracle WebSite. See the instructor's website for more information.

This will be the first semester using Canvas, so the .java* files are to be submitted as attachments to the assignment in Canvas - if Canvas (or the way it has been configured) proves to be troublesome the submission method may change

*alternatively, a .zip file of the folder that contains the .java files or a .zip of the NetBeans project.

See below for the Late Policy (-10% a calendar day) and the Cheating Policy (don't cheat)

Exams

Note the Class Schedule for the dates of the exams. If you are late for the exam, you will only have the time until the scheduled end of the exam.

Exams must be taken on days assigned. If you know ahead of time that you cannot make an exam, ask the instructor to arrange for the exam to be left in the testing center or to arrange another time.

About a week before each exam, a 'information' sheet on the exam will be distributed. That information sheet will cover the format and content of the exam.

Failure to notify the instructor that the Midterm exam will be missed will result in a makeup that *might* be harder, *not by design, but by consequence of being different*. Missing the Final Exam will result in a 0 on the Final Exam so that grades can be submitted on time before fleeing the state.

The Midterm Exam will be one hour long; the Final Exam will be two hours long. Both exams will be closed note /closed book / closed computer, and cumulative up to that point.

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The Midterm Exam might be scheduled after the lecture for the evening. The Final Exam will begin at the same time as the class normally does(6:00), so make note of the exact exam times posted on the class schedule.

Cheating Policy - *Don't cheat!*

Cheating is not allowed on Homework, Programming Labs, Programming Projects, and Exams. All parties involved in cheating will receive a 0 and will be reported to the dean. Excessive cheating within the class can result in an F for the course. Excessive cheating at RVCC can result in expulsion. Consult your student manual.

NOTE: you have permission to use the instructor's demo .java files, in whole or in part, for your programming labs and programming projects (just cite that in a comment in the code) and you have permission to use the code the instructor writes on the whiteboard (just cite that in a comment in the code) and you have permission to use the code in the book, in whole or in part (just cite that in a comment in the code).

NOTE: if you are getting a compilation error, turning to your neighbor and asking them what the error means is ok. As for the neighbor giving an answer to a compilation error question, these are examples of ok answers: 'you misspelled the variable name' or 'you're missing a ;' or 'you shouldn't have a ;' or 'you're missing (a) curly brace(s)...no the curlier curly brace' or 'you know the code is on the slides' or 'you know the code is in the book' or my favorite answer: 'the instructor wrote the code on the board, didn't you write it down?'

Late Policy

For those that had a class with Brower before the Spring 2015 semester take note: this is a different policy then in the past

Assignments will not be accepted after being 1 week late.

Assignments received after the due date and time will be considered late and will be penalized 10 points per calendar day. Assignments 7 calendar days late will receive a 0 and the 0 will be used in the calculation of your average. Assignments will not be accepted after being 7 days late. **Late Assignments will not be accepted after 8/9**

"Life Happens" - for Homework, Data Structure Labs, Programming Labs, and Programming Projects you are allowed 1 "Life Happens" for each category. A Life Happens allows an

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assignment to be submitted **one week late** and be considered on time. Life Happens cannot be used more than 1 week after an assignment is due.

Note: you have to actually submit an assignment to be graded for the Life Happens. You cannot just say "life happens" and expect to see 100 on the grade book.

"Life Happens" cannot be used after 8/9. That means no Life Happens for the last Project

Extra Credit

Some exams/homework/labs/projects 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 August you ask for "Extra Credit" to make up for the missed homework, the answer is NO.

Additional Policies

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.

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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:

During 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.

During Lab:

During lab time everyone should be working on the labs/projects/homework. None of the labs/projects/homework 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

Delayed Opening

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If the College announces a delayed opening at any location due to inclement weather or other emergency situation, all offices will be closed and all College classes and/or other activities will be suspended at that location until the delayed opening time. Classes scheduled to begin before the delayed opening time that have 60 minutes or more of instruction time remaining at the delayed opening time will begin at the delayed opening time and conclude at the regularly scheduled ending time. Classes scheduled to begin before the delayed opening time that have fewer than 60 minutes of instruction time remaining at the delayed opening time will be canceled. Classes scheduled to begin at or after the delayed opening time will meet as scheduled.

Translation/Adjustment for this class:

Based on past history (18 years for me), night classes do not delay beyond 5:30

Reasonable Accommodation

Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course MUST provide documentation of accommodations from the RVCC office of Disability Services, C143. No accommodations will be made without this documentation.

Student Handbook

You are responsible for all policies stated in the Student Handbook.

See: http://commons.raritanval.edu/studenterv/conduct/pages/Policies_and_Documents.aspx

and: <http://globaldatebooksonline.com/flipbooks/rar/>

Withdrawal Procedure

See school's web page for Summer 2018 Withdrawal and Refund Schedule and Refund Info (see:

https://commons.raritanval.edu/admin/finance/Documents/Summer%202018%20WithdrawalRefund%20Schedule%20and%20Enrollment_Payment%20Calendar.pdf)

Note: last day to withdraw is 7/31

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

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Class Schedule

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

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