

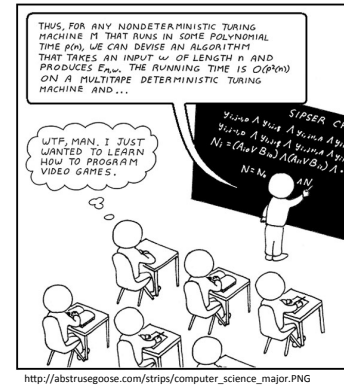


SAMUEL GINN
COLLEGE OF ENGINEERING

COMP 2210

Spring 2014 - Dr. Hendrix

Course content



http://abstrusegoose.com/strips/computer_science_major.PNG

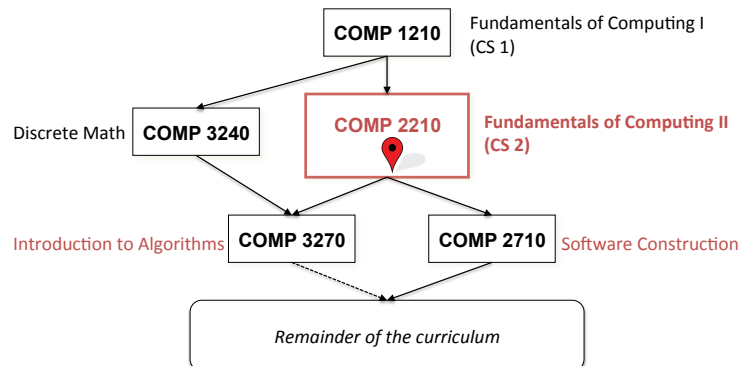


Don Knuth

"If you find that you're spending almost all your time on theory; start turning some attention to practical things; it will improve your theories. If you find that you're spending almost all your time on practice, start turning some attention to theoretical things; it will improve your practice."

Excellent advice! You'll have plenty of opportunities to practice this in 2210.

2210 in the curriculum



Course content

COMP 2210 provides core, foundational content that you will build on from this point forward.



Niklaus Wirth

Data structures + Algorithms = Programs

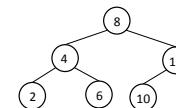
Methods of storing data

Methods of solving problems

12	2	6	10	8	4
0	1	2	3	4	5

Examine each array element in turn, remembering the smallest seen so far. Return the last value that was remembered.

```
public int min(int[] a) {
    int m = a[0];
    for (int i = 1; i < a.length; i++) {
        if (a[i] < m) m = a[i];
    }
    return m;
}
```



Start at the root of the tree and go left as far as possible. Return the value in this node.

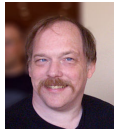
```
public int min(TreeNode t) {
    TreeNode m = t;
    while (m.left != null) {
        m = m.left;
    }
    return m.value;
}
```

Course content



Bad programmers worry about the code. Good programmers worry about data structures and their relationships.

Linus Torvalds



Smart data structures and dumb code works a lot better than the other way around.

Eric Raymond



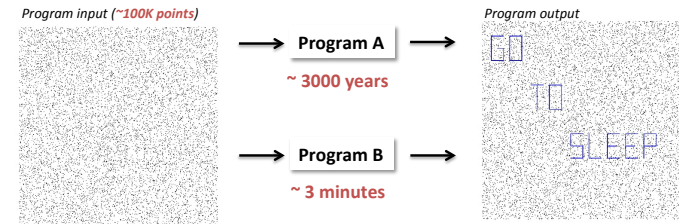
Show me your flowchart and conceal your tables, and I shall continue to be mystified. Show me your tables, and I won't usually need your flowchart; it'll be obvious.

Fred Brooks

Course content

Example problem: Pattern recognition.

Given a set of two-dimensional points as input, highlight all the points that participate in a specified pattern (e.g., collinear). Assume you have a machine that executes 1 billion instructions per second.



Programs = Data Structures + Algorithms

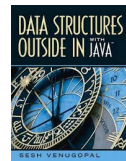
Course text

There is no specific text that is required for the course, but you do need a good CS 2 textbook.

Two good recommendations:

Bailey, Duane A. (2007). *Java Structures – Data Structures in Java for the Principled Programmer* (v7 edition). <http://www.cs.williams.edu/JavaStructures/Book.html> (FREE)

Venugopal, S. (2006). *Data Structures Outside-In with Java* (1st ed.). Prentice Hall. ISBN 0-13-198619-8.



Home Book Software Documentation Examples FAQ Contact

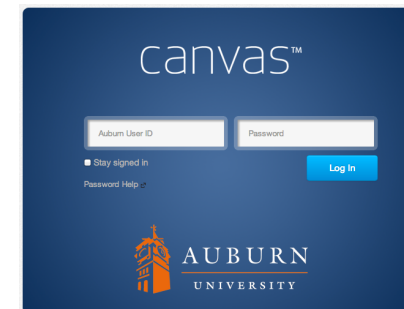
Java Structures, the Book

Data Structures in Java, for the Principled Programmer
You are free to download Java Structures, the book, for educational use. You may read the book on-line, or print off copies for use on your campus, at cost.

Copyright: Java Structures (JSTC)
Support for sale:
Several chapters of the book coincide with a workable lab on the same subject. Many of these labs are used at Williams. You can download support files here.

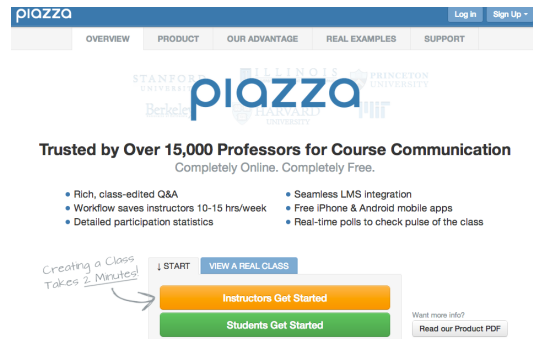
Class materials

Course lecture notes and assignments will be available in Canvas.



Class discussions/Q&A

Discussions and general questions about course content will occur in Piazza.



i>Clicker

All students who wish to receive class participation points are required to have their own i>clicker classroom response device. The i>clicker can be ordered online or purchased at area bookstores.



You must register your i>clicker no later than Tue Jan 14

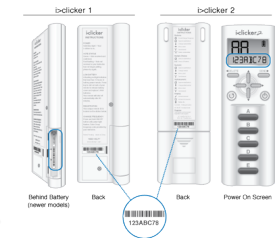
<http://www.iclicker.com/support/registeryourclicker/>

Student ID: Use your TigerMail ID

username@auburn.edu

Just the first part!

Remote ID: Look on back of device.



Development environment

You will need a Java development environment in order to complete the assignments in this course.

Required: Java SE 7 JDK

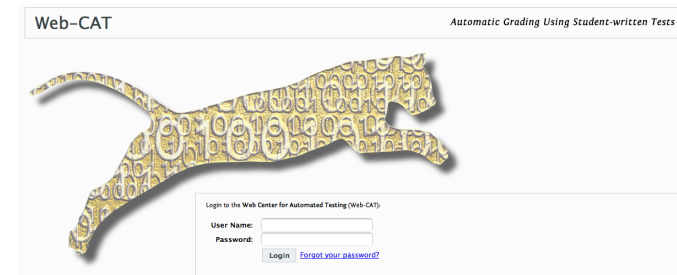
<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

Recommended: jGRASP 2.0.0_08 beta 4

<http://www.jgrasp.org/>

Assignment grading

Programming assignments will be graded, in part, using Web-CAT.



Engineering account

You will need an account on the Engineering Network for this course.

In addition to your AU computer account, you will need an engineering account in order to access the computers in the Shelby 2122 lab. These accounts are generated automatically from course rolls. However, you may need to "sync" your password by going to the OIT My Account page. After you login, click Update Password; enter your password and confirm it (note that you do not need to change your password); be sure "Sync with TigerMail Live Services" is selected and then click Update.

<https://oitappstemp.auburn.edu/myaccount/>

Course syllabus

You are responsible for everything in the syllabus.

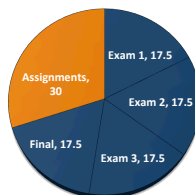
Course grading

Ignore the percentages in shown in Canvas; do the math yourself.

Your *numeric score* for the course will be determined according to the following formula where EXAMS is the arithmetic average of your individual exam scores, ASSIGN is the arithmetic average of your individual programming assignment scores, and PART is the fraction of two points corresponding to the percentage of possible participation points that you earned.

$$\text{numeric score} = \text{EXAMS} * 0.7 + \text{ASSIGN} * 0.3 + \text{PART}$$

Your *letter grade* for the course will be calculated as follows. If EXAMS \geq 60 and ASSIGN \geq 60, then your course letter grade will be assigned per the numeric score above and the standard 10-point scale (90-100 = A, 80-89 = B, etc.). If EXAMS < 60 or ASSIGN < 60, then your course letter grade will be an F.



E1	E2	E3	Final	EXAMS	ASSIGN	W.Avg	PART	N.Score	Grade
85.00	83.00	75.00	75.00	79.50	75.00	78.15	2.00	80.15	B
88.00	89.00	88.00	87.00	88.00	90.00	88.60	1.53	90.13	A
90.00	90.00	90.00	90.00	90.00	85.00	88.50	1.32	89.82	B
60.00	65.00	54.00	50.00	57.25	100.00	70.08	2.00	72.08	F
100.00	100.00	100.00	100.00	100.00	59.00	87.70	2.00	89.70	F
90.00	90.00	90.00	90.00	90.00	90.00	90.00	0.00	90.00	A

Contacting me

Instructor

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Office Hours: 8:30am – 10:00am MWF

Contacting me

E-mail is best. dh@auburn.edu

Please DO NOT send messages through Canvas.

Drop by during office hours or make appt.