



AUBURN

UNIVERSITY

SAMUEL GINN
COLLEGE OF ENGINEERING

COMP 2210

Course Overview – Dr. Hendrix

Contacting me

Instructor

Dr. Dean Hendrix

Office: 3127B Shelby Center

Phone: 334-844-6305

Email: dh@auburn.edu

Office Hours: 1:00 – 2:00pm MW

Contacting me

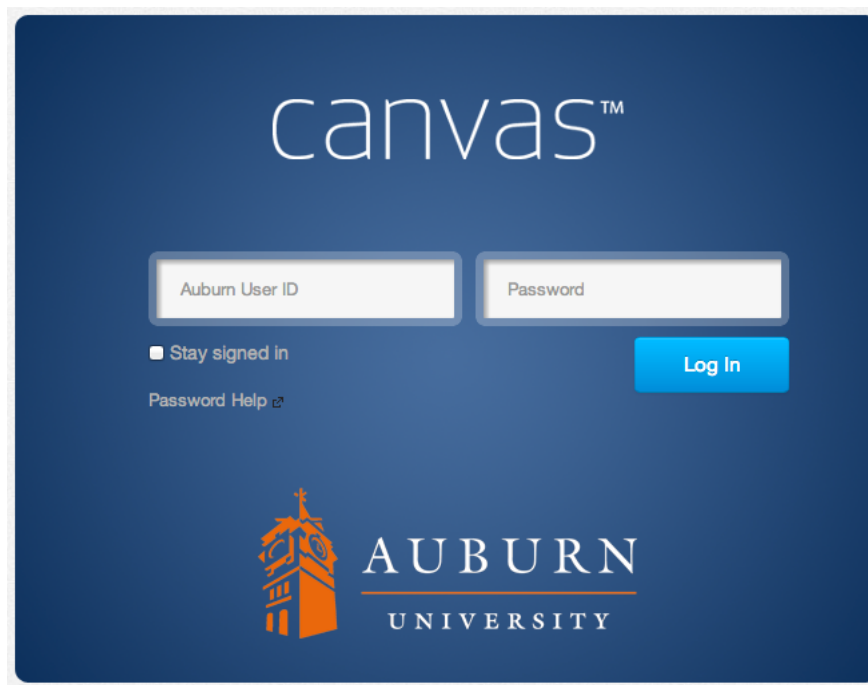
E-mail is best. dh@auburn.edu

Please DO NOT send messages through Canvas.

Drop by during office hours or make appt.

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.

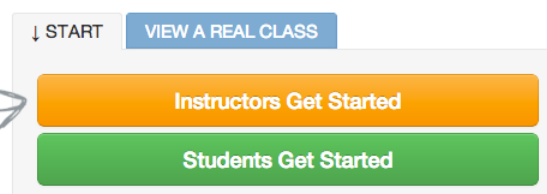


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Course text

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)

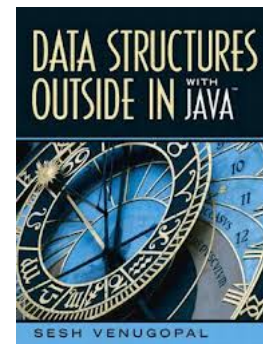
Welcome **Book** Software Documentation Examples FAQ Contact

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.
[Download Java Structures \(PDF\)](#)

Support for labs
Most chapters of the book conclude with a workable lab on the same subject. Many of these labs are used at Williams. You can download support files [here](#).

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



Development environment

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

Required: Java SE 7 or 8 JDK

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

Recommended: jGRASP (latest release)

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

Assignment grading

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

Web-CAT

Automatic Grading Using Student-written Tests



Login to the Web Center for Automated Testing (Web-CAT):

User Name:

Password:

[Forgot your password?](#)

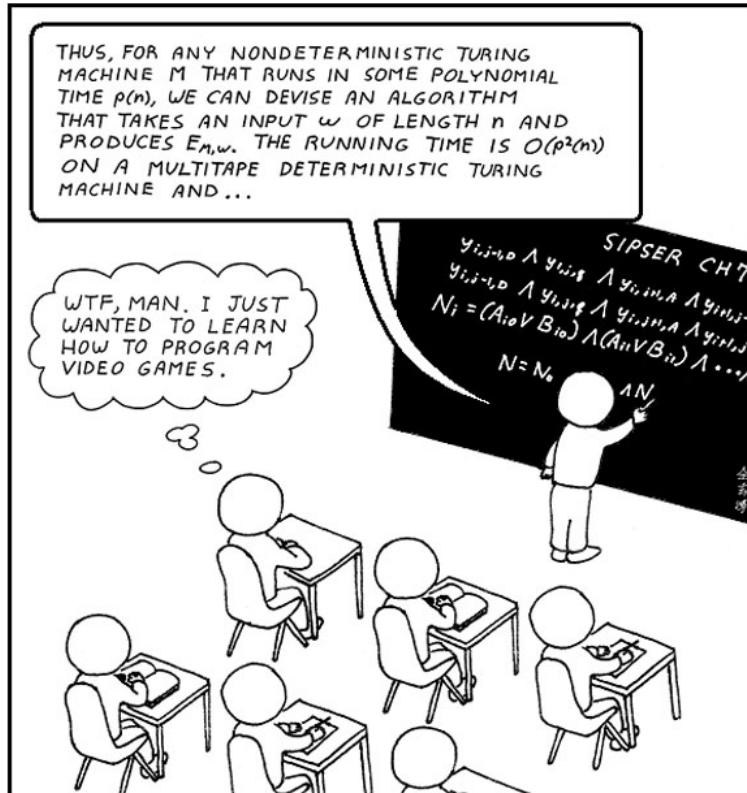
Engineering account

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 content



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



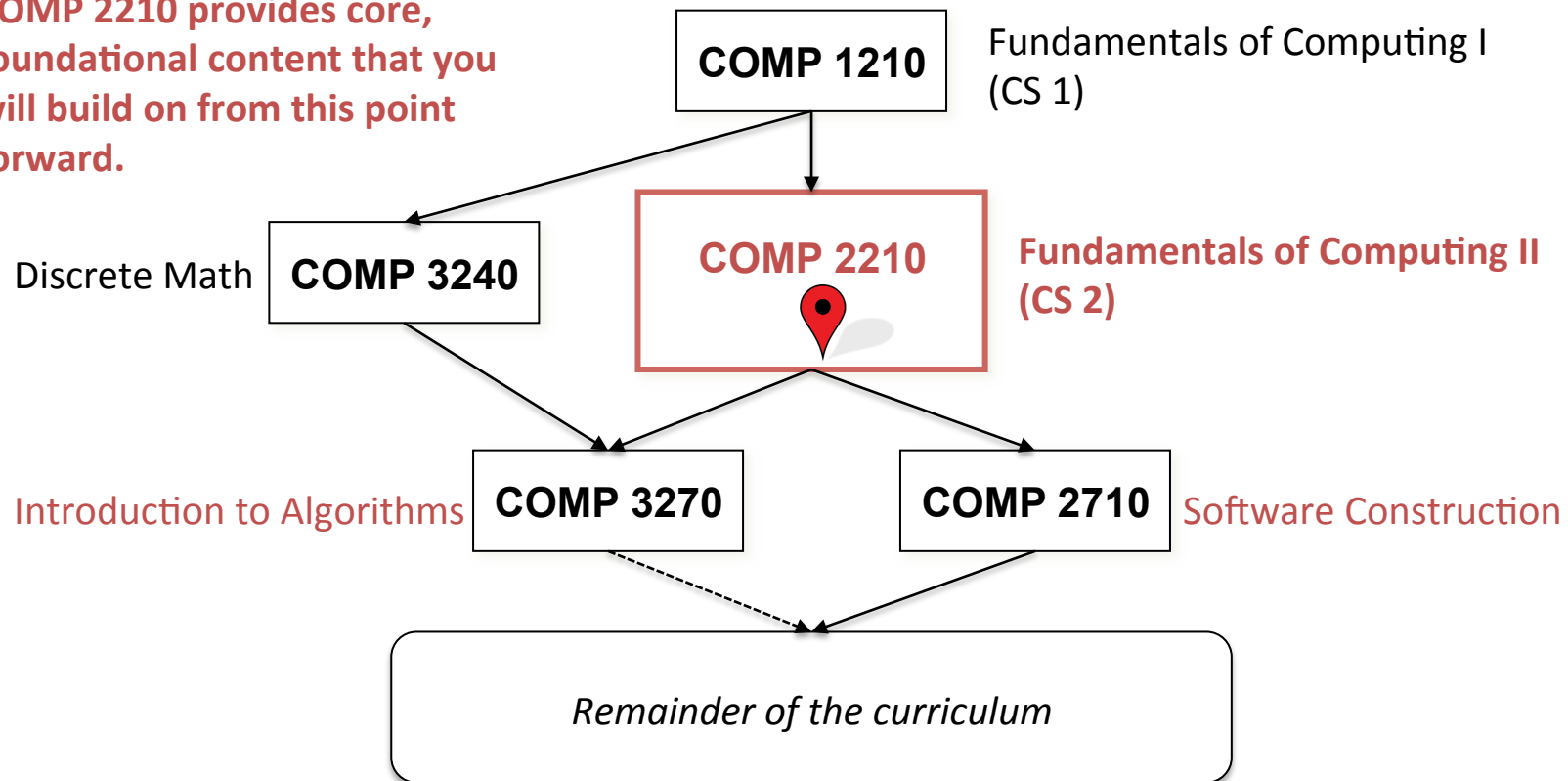
Don Knuth

"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

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



Course content



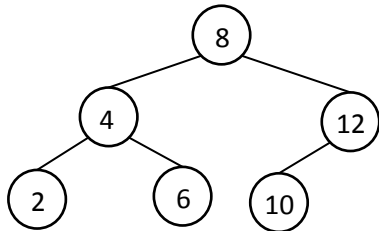
Niklaus Wirth

Data structures + Algorithms = Programs

Methods of storing data

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.



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

```
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;  
}
```

```
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.

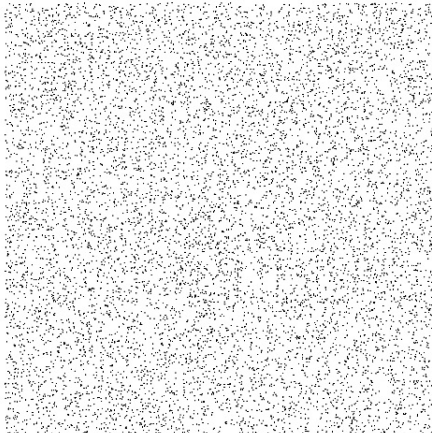
Fred Brooks

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.

Program input (~100K points)



Program A



~ 3000 years

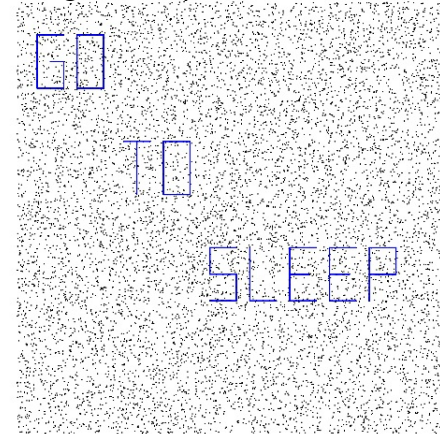


Program B



~ 3 minutes

Program output



Good advice

Do your own work.

From The Auburn Creed:

I believe that this is a practical world and that I can count only on what I earn.

Therefore, **I believe in work, hard work.**

I believe in honesty and truthfulness, without which I cannot win the respect and confidence of my fellow men.

Engage in this class.

Attend all the lectures, stay for the entire time, take notes.

Attend the labs, unless you truly have nothing left to do on an assignment.

Participate in the discussions on Piazza.

Get help when you first discover that you need it.

Manage your time well.

Monitor the calendar.

Make yourself a schedule for each assignment, complete with milestones and deadlines.

Prepare each week for the exams; don't try to cram at the end.