Welcome to Compsci 201

• Data Structures and Algorithms

• Go to the class webpage
  • [www.cs.duke.edu/courses/spring12/compsci201](http://www.cs.duke.edu/courses/spring12/compsci201)
  • Start looking around
After This Class

• You will know
  • What material is covered in Compsci201
  • The course logistics

• You will be ready
  • To start coding in Java!
What is Computer Science?

• “It is the art of designing efficient and elegant methods of getting a computer to solve problems, theoretical or practical, small or large, simple or complex.”

• C.A.R. (Tony) Hoare
Course Material

• Toolkit - for getting a computer to solve problems
  • Efficient and elegant methods
    • Data structures and algorithms
  • Understanding tradeoffs
    • How long will this algorithm take?
    • How much space will this data structure use?
Course Material

• Toolkit is applicable for any programming language
  
  • Java
Course Material

• Data Structures and Algorithms
  • Data Structures - the organization of data and its storage allocations in a computer
  • Algorithms - A process or set of rules to be followed in calculations or other problem-solving operations
Course Material

- Analysis, use, and design of data structures and algorithms using an object-oriented language like Java to solve computational problems. Emphasis on abstraction including interfaces and abstract data types for lists, trees, sets, tables/maps, and graphs. Implementation and evaluation of programming techniques including recursion. Intuitive and rigorous analysis of algorithms.
Course Material

- Tradeoffs
  - How do we measure speed of code?
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Logistics

• See the course webpage for full details!

• [www.cs.duke.edu/courses/spring12/compsci201](http://www.cs.duke.edu/courses/spring12/compsci201)
Course Logistics

• Textbook

![Textbook Image](image-url)
Course Logistics

- Programming assignments - 40%
- APTs - 10%
  - Required - 3%
  - All others - 7%
- Classwork/Recitation - 15%
- Midterms - 20%
  - Feb 13 - 10%
  - Mar 27 - 10%
- Final - 15%
Course Logistics

• Late Policy
  • 24 hours  -  10% penalty
  • > 24 hours  -  50% penalty
  • > 2 weeks  -  100% penalty
Course Logistics

• Grading Policy
  • Grading errors MUST be reported to gradTA and faculty within 3 days of reported grade
  • See website for how to report errors
Course Logistics

• Recitation
  • Fridays from 10:05-11:20
  • Weekly review and practice of course material
  • Pre-work posted on website due before recitation
    • There is an assignment for this Friday
Course Logistics

• Honor Code
  • Don’t cheat
  • Write your own code
  • Acknowledge help
  • Don’t cheat
Important dates

- Exam 1 - February 13
- Exam 2 - March 27
- Final - April 3
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• You will be ready
  • To start coding in Java!
• Java
  • Statically typed language
    • Variables have types defined at compile time
      • int i;
      • double d;
      • String s;
Code

- Java
  - Object-Oriented Programming (OOP) language
    - Code is in a Class
    - Code is in a function/method
public static void main(String[] args){
    System.out.println("Hello 201");
}
class Example{

    public static void main(String[] args){

        System.out.println("Hello 201");

    }

}
class Example{

public static void main(String[] args) {

    System.out.println("Hello 201");

}

}
class Example{
    public static void main(String[] args) {
        System.out.println("Hello 201");
    }
}
• Algorithmic Problem Solving and Testing

• Let’s do one!
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Homework

- There is a recitation assignment on the webpage due BEFORE recitation on Friday
  - Setup and start coding in Java