

# **CompSci 6**

## **Programming Design and Analysis I**

**<http://www.cs.duke.edu/courses/fall06/cps006>**

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# Announcements

- ❖ **Read for next time Chap. 1, Chap 2.1-2.2**
- ❖ **Assignment 1**
- ❖ **Reading Quizzes on Blackboard**
  - **Typically due at beginning of class**

# What is Computer Science?

- ❖ **Computer science is no more about computers than astronomy is about telescopes. - Edsger Dijkstra**
- ❖ **Computer science is not as old as physics; it lags by a couple hundred years. However this does not mean that there is significantly less on the computer scientist's plate than on the physicist's: younger it may be, but it has had a far more intense upbringing! - Richard Feynman**



# Scientists and Engineers

- ❖ **Scientists build to learn, engineers learn to build.**  
**- Fred Brooks**

- ❑ Duke alum
- ❑ Chair of UNC's  
Computer Science  
Department
- ❑ Turing Award Winner

CompSci 6



# Computer Science and Programming

- ❖ **Computer Science is more than programming**
  - ❑ Called *Informatics* in many countries
  - ❑ Elements of both science and engineering
  - ❑ Elements of math, physics, cognitive science, music, art, and many other fields
- ❖ **To some programming is an art, to others a science, to others an engineering discipline.**

# Computer Science is a young discipline

- ❖ **First computer science department formed in 1962**

**PURDUE**  
UNIVERSITY

1962



**Samuel D. Conte**  
Professor emeritus of computer science and mathematics was the founding department head of the nation's first computer science program. October 1962.

# What Is Computer Science?

- ❖ **What is it that distinguishes it from the separate subjects with which it is related? What is the linking thread which gathers these disparate branches into a single discipline? My answer to these questions is simple --- *it is the art of programming a computer.* 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

- ❖ **Turing Award Winner**
- ❖ **Knighted by Queen Elizabeth**





# Young People Can Have a Big Impact

## ❖ Who are these people and what did they do at the given age?

- ❑ Shawn Fawing (19 years old)
- ❑ Marc Andreessen (21 years old)
- ❑ Claude Shannon (21 years old)
- ❑ Linus Torvalds (21 years old)
- ❑ Dmitry Sklyarov (26 years old)
- ❑ Tim Berners-Lee (35 years old)
- ❑ Jim Ellis (Duke alum) (23 years old)
- ❑ Richard Stallman (37 years old)

# What is Computer Science?

## ❖ Artificial Intelligence



CompSci 6 Roomba



Mars Rover



CMU's Sandstorm

# What is Computer Science?

## ❖ Animation



# What is Computer Science?

## ❖ The Organization of Data, and Searching

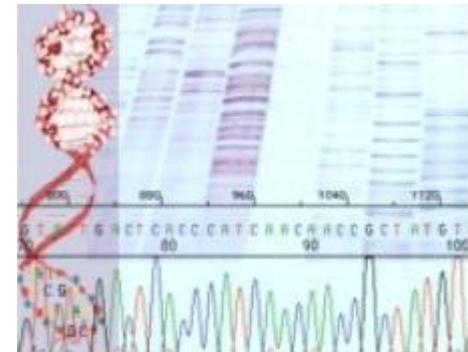


Did you mean: [computer science](#)



# What is Computer Science?

## ❖ Medicine, Genomics



# What is Computer Science?

## ❖ Devices



# Why is Programming Fun?

- ❖ **What delights may its practitioner expect as a reward**
  - ❑ First is the sheer joy of making things.
  - ❑ Second is the pleasure of making things that are useful.
  - ❑ Third is the fascination of fashioning complex puzzle-like objects of interlocking moving parts.
  - ❑ Fourth is the joy of always learning.
  - ❑ Finally, there is the delight of working in such a tractable medium. The programmer, like the poet, works only slightly removed from pure thoughtstuff.

Fred Brooks

# Problem Solving

- ❖ **Nim**
- ❖ **DivToZero**
- ❖ **HingedDoor**



# A Java Program

```
public class HelloCompSciClass
{
    public static void main(String [] args)
    {
        // display a greeting
        System.out.println("Hello, CompSci 6!");
    }
}
```

# About the Java Program

- ❖ What is the name of the class?
- ❖ What is the name of the method?
- ❖ What is printed?
- ❖ What does the “;” mean?
- ❖ What does “`public static void`” mean?
- ❖ What is “`String [] args`”?

# Environment we will use

## ❖ **Eclipse – an Integrated Development Environment**

- ❑ **Editor**
- ❑ **Compiler**
- ❑ **An output console**
- ❑ **Visualization of files and folders**
- ❑ **Submission of programs (Ambient)**

## ❖ **See CompSci 6 page for installing on your computer**