

Computer Science 141

What is this course about?

An introduction to the fundamental concepts and practices of procedural programming.

Topics include data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging. Emphasis is placed on program design and problem solving techniques. The course also includes an introduction to the historical and social context of computing and an overview of computer science as a discipline.

What is computer science?

“Computer science is the **scientific** and **mathematical** approach to **computation**, and specifically to the design of **computing machines** and **processes**.”

-- Wikipedia

A computer scientist is a *problem solver*.

What is computer science?

“Computer science is no more about computers than astronomy is about telescopes.”

-- attributed to Edsger Dijkstra

What is this course about?

- Two big ideas in computer science: **algorithms** and **abstraction**.
- How computer science is relevant to you and the world today.
- Learning to program.
 - Programming is not computer science, but a useful skill for a computer scientist to have.

Syllabus

- Textbook: Sign up at zybooks.com (follow instructions on webpage).
- Collaboration: All homework should be done individually.
- Workload: 2-3 hours outside of class per hour in class. Do not leave assignments to the last minute.

Class conduct

- Be on time.
- Raise your hand to ask a question.
 - Corollary: Raise your hand a lot!
- Please raise your hand to be excused.
- Turn off the computer screens when asked.

Why Study CS?



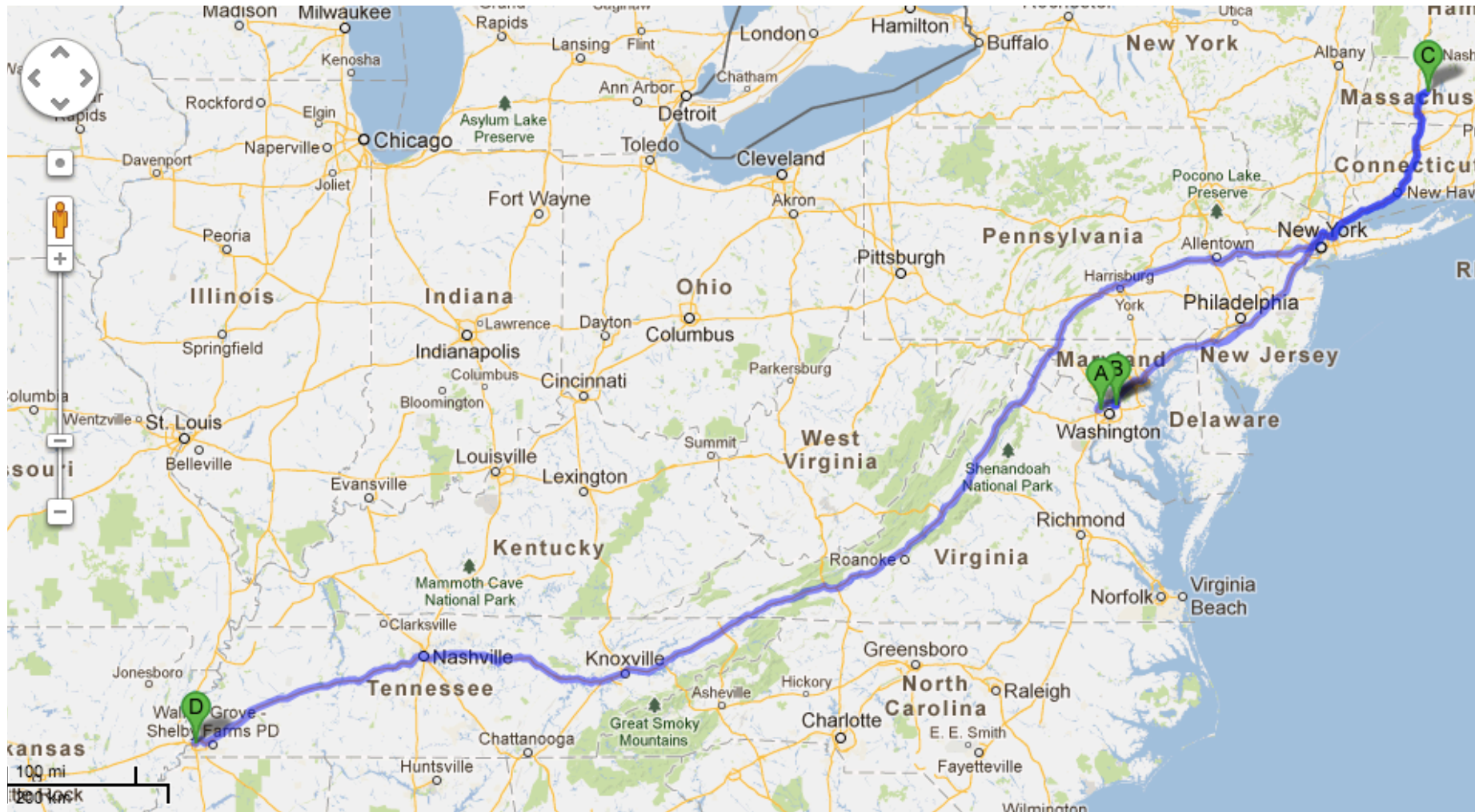
Why Study CS?

- Contribute to society
 - Combine with biology, chemistry, physics, math, business, economics, music, art...
 - Work in transportation, medicine, engineering, economics, entertainment, technical theater, record keeping, insurance...
- Get a job
 - <https://www.bls.gov/ooh/computer-and-information-technology/home.htm>

Why Study CS *at Rhodes?*

- Liberal arts background is great!
- Employers want to see:
 - Communication skills (verbal & written)
 - Strong work ethic
 - Teamwork skills (works well with others)
 - Initiative
 - Interpersonal skills (relates well to others)
 - Problem-solving skills

A little about me



A little about you

- Name
- Year at Rhodes (first-year, sophomore, etc.)
- Where you're from
- One of your favorite desserts

Algorithm:

A step-by-step procedure for accomplishing a specific task.

- Get in groups of 3-4.
- On a piece of paper, write an algorithm for making a peanut butter and jelly sandwich.

Abstraction:

"The essence of abstractions is preserving information that is relevant in a given context, and forgetting information that is irrelevant in that context."