Bowdoin Computer Science

Reasons to study Computer Science

- Computing is part of everything we do!
- Expertise in computing enables you to solve complex problems
- Computing enables you to make a positive difference in the world
- Computing offers many types of careers
- Computing jobs are here to stay

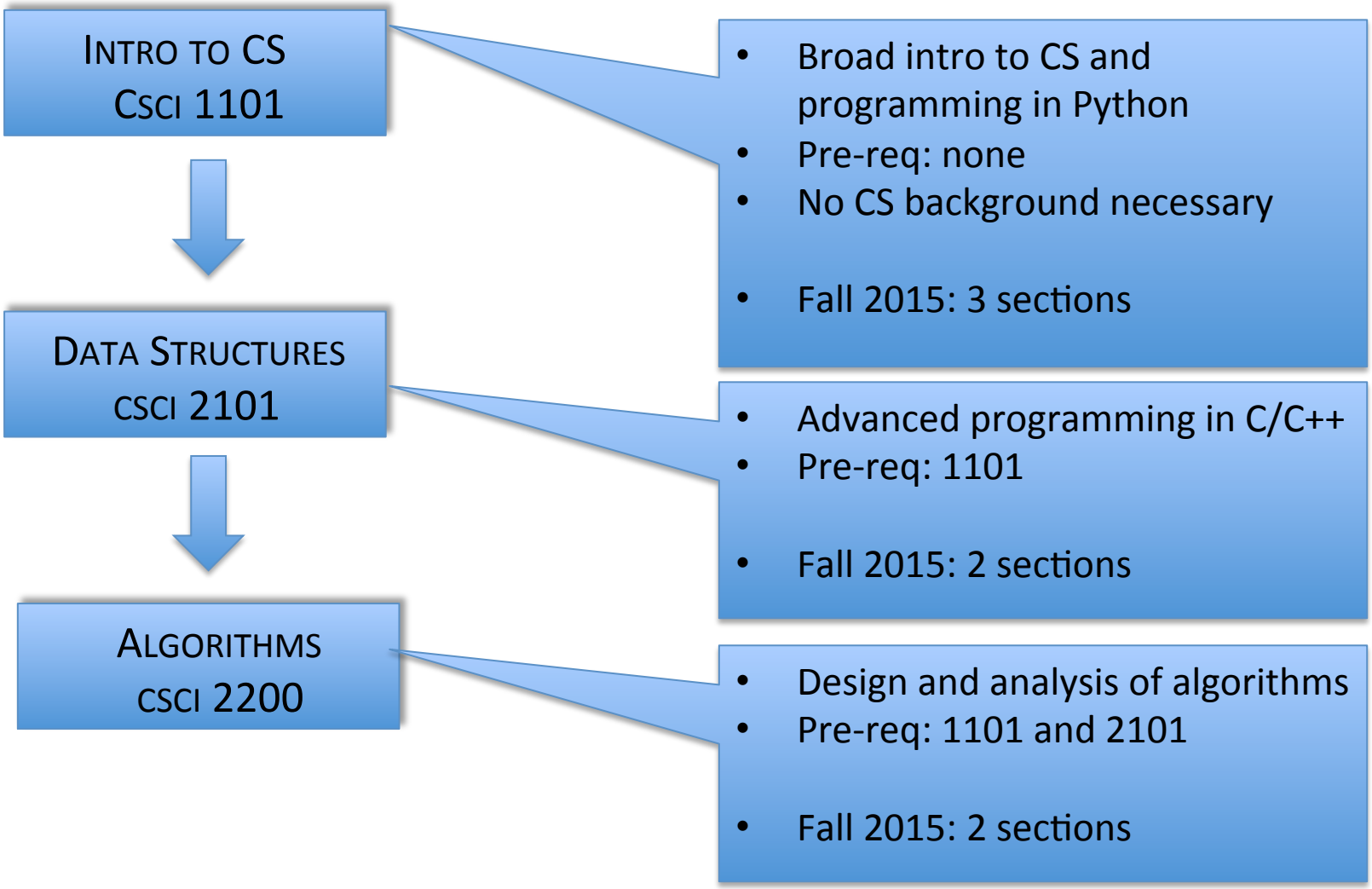
From http://computingcareers.acm.org/

Reasons to study Computer Science

- Knowledge of computing helps you even if your primary career choice is something else
- Computing offers great opportunities for creativity
- Some knowledge of computing is becoming a sign of well-roundedness
- Future possibilities in computing are without boundaries

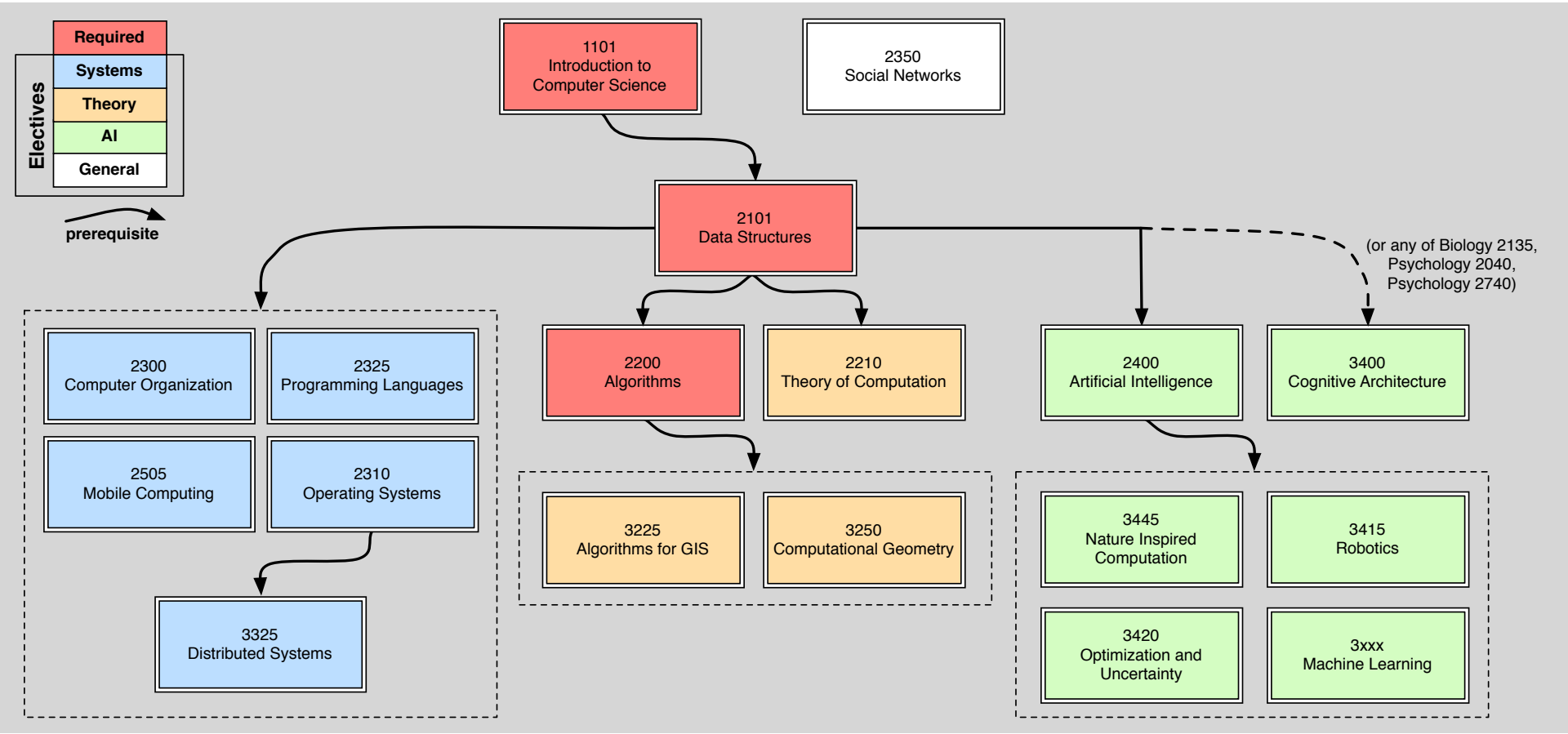
From http://computingcareers.acm.org/

The CS intro sequence



The CS Major

10 classes: 1101, 2101, 2200 + 7 electives



The CS minor:

5 CS classes: 1101, 2101 + 3 electives

The interdisciplinary Math-CS major:

CS: 1101, 2101, 2200 + 3 electives
Math:…

Entry-level computing-related classes

Intro to CS
CSCI 1101

- Introduction to problem solving using computer programming

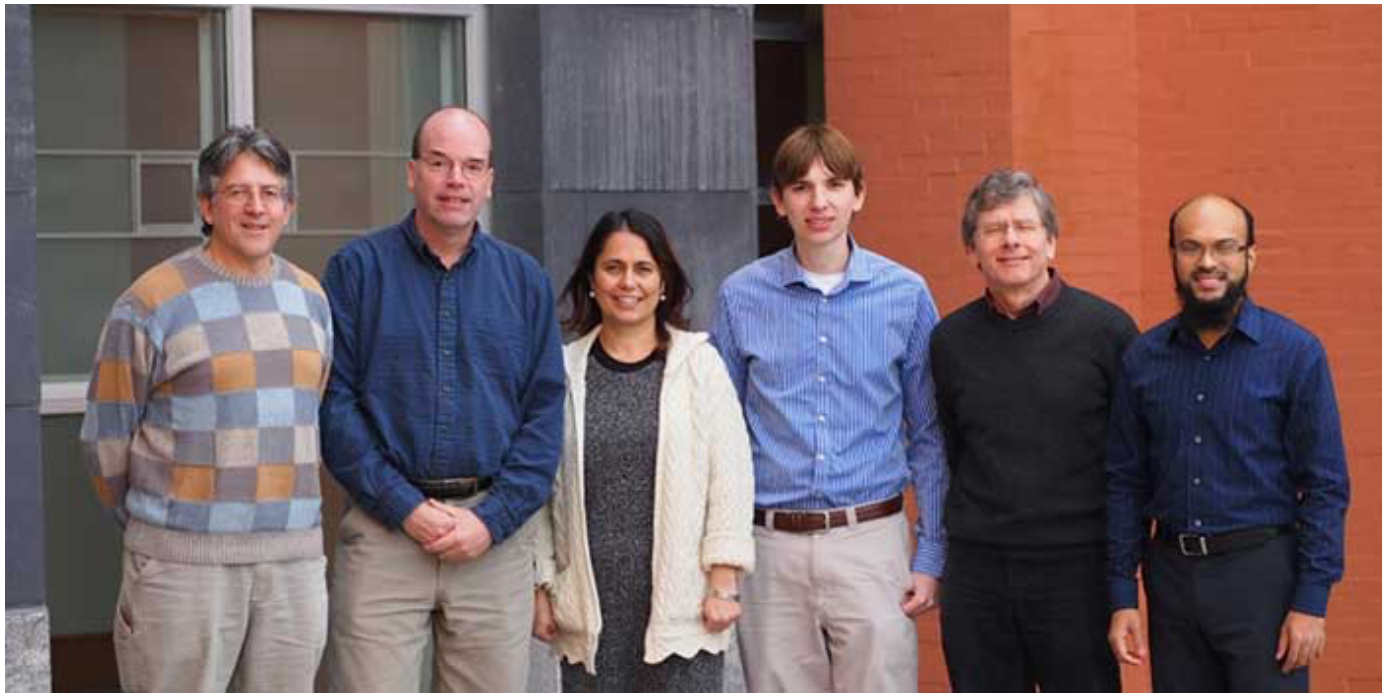
Required for CS major/minor

Intro to DCS
INTD 1100

- Study of values, behavior and technologies associated with digital environments
- Includes some Python programming and web apps

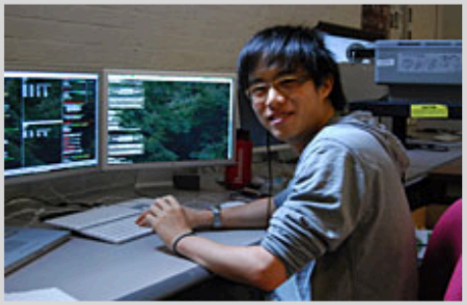
Both offered in Fall'15

CS Faculty



Sean Barker (visiting)
Eric Chown
Clare Congdon (visiting)
Allan Harper (visiting)
Mohammad Irfan (joint with DCS)
Steve Majercik
Bill Silver (research associate)
Laura Toma

Research



. every summer 10-15 summer research students

Research

Sean Barker

Distributed systems, cloud computing, sustainability

Projects

- Designing sustainable smart homes through analysis of smart meter data
- Resource management in data centers (ie memory sharing in virtual machines)
- On-demand live migration in cloud-based databases

Research

Eric Chown

Cognitive modeling, soccer-playing robots

Projects

- Bowdoin's NorthernBites team competing in RoboCup

Research

Clare Congdon

Machine learning, bioinformatics

Projects

- Find patterns in noncoding DNA sequence that appear to have been conserved across evolutionary time
- Find the most plausible evolutionary relationships among species
- Virtual Simulation of the Lobster Fishing Industry in the Gulf of Maine

Research

Allen Harper

Human-computer interaction, eye tracking

Projects

- Predict how well a user performs a task based on eye movement. Classify users into performance groups.

Research

Mohammad Irfan

Computational game theory, social and economic networks, CS and art

Projects

- Modeling influence in economic networks
- Analyzing Kandinsky's art through geometric primitives
- Authentication of Jackson Pollock's paintings

Research

Steve Majercik

Nature-inspired computational techniques, swarm intelligence and particle swarm optimization, computation and the arts.

Projects

- Jazz improvisation tool using particle swarm optimization (with Frank Mauceri, Music Dept)

- Swarm-based path creation in dynamic environments for search and rescue

Research

Laura Toma

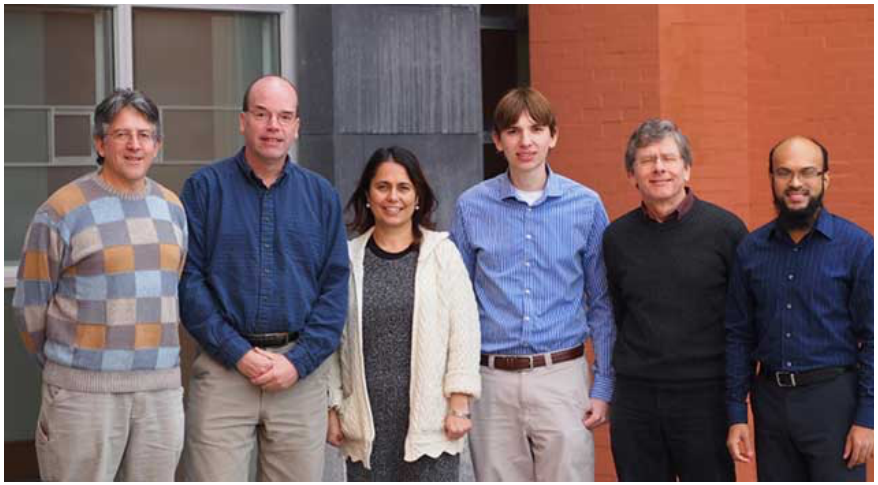
Terrain processing in GIS; algorithm engineering; algorithms for large data; high-performance computing

Projects

- Flow, flooding, watersheds, shortest path surfaces, visibility

- ..on very large data
- ..in parallel using MPI

Computer Science



Location: Searles, 2nd floor

Come talk to us!

CSCI 1101
Introduction to Computer Science

Introduction to problem solving and algorithmic thinking using computer programming. Provides tools and skills that can be used in any discipline. (Note: class is required for CSCI majors and minors, unless they place out).

Topics:

- Problem solving
- Algorithm design
- Fundamentals of programming

High-level questions:

- How do we design an algorithm to solve a problem?
- What kinds of problems can we solve with an algorithm?
- How can we use a computer to code and run an algorithm?

Example activities:

- Build interactive games like Pong and 2048
- Animate scenes and pictures
- Encrypt text messages
- Build a spell checker

Technology used:

- Programming in Java (or Python)