# Introduction

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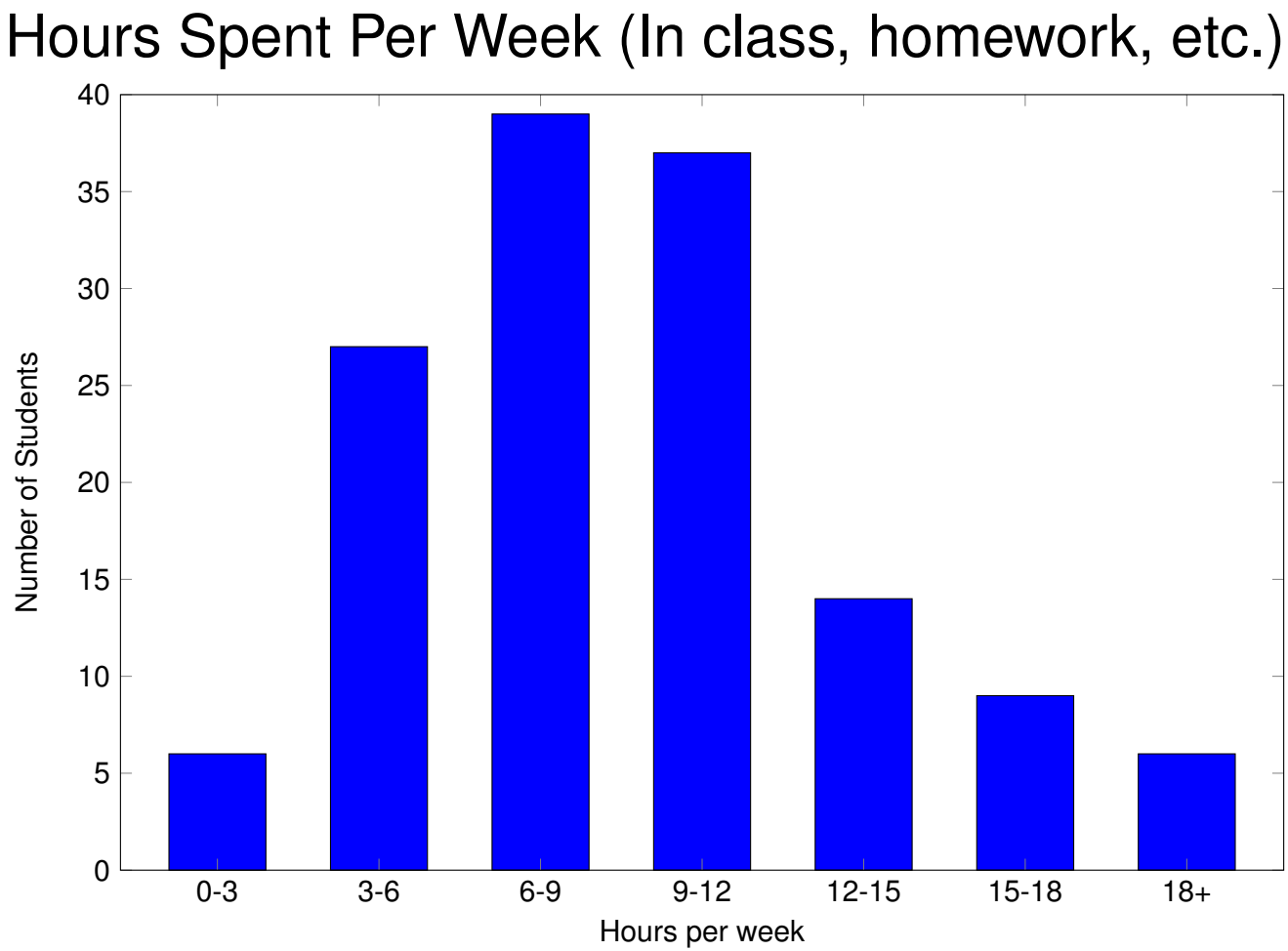
# Course Overview

- CS 2316's workload
- CS 2316's place in the curriculum
- Syllabus

# CS 2316 is "Hard"



# Student Impressions of Workload

- "Way too much work"
- "Going to class is very important!"
- "This course is literally a marathon of work with hardly any time to recharge between hw, tests, and timed labs"
- "Homeworks were very hard"
- "HW required a lot of time, but was very helpful for the course."
- "I thought the effort exerted was very fair."

# Expected Time Allotment

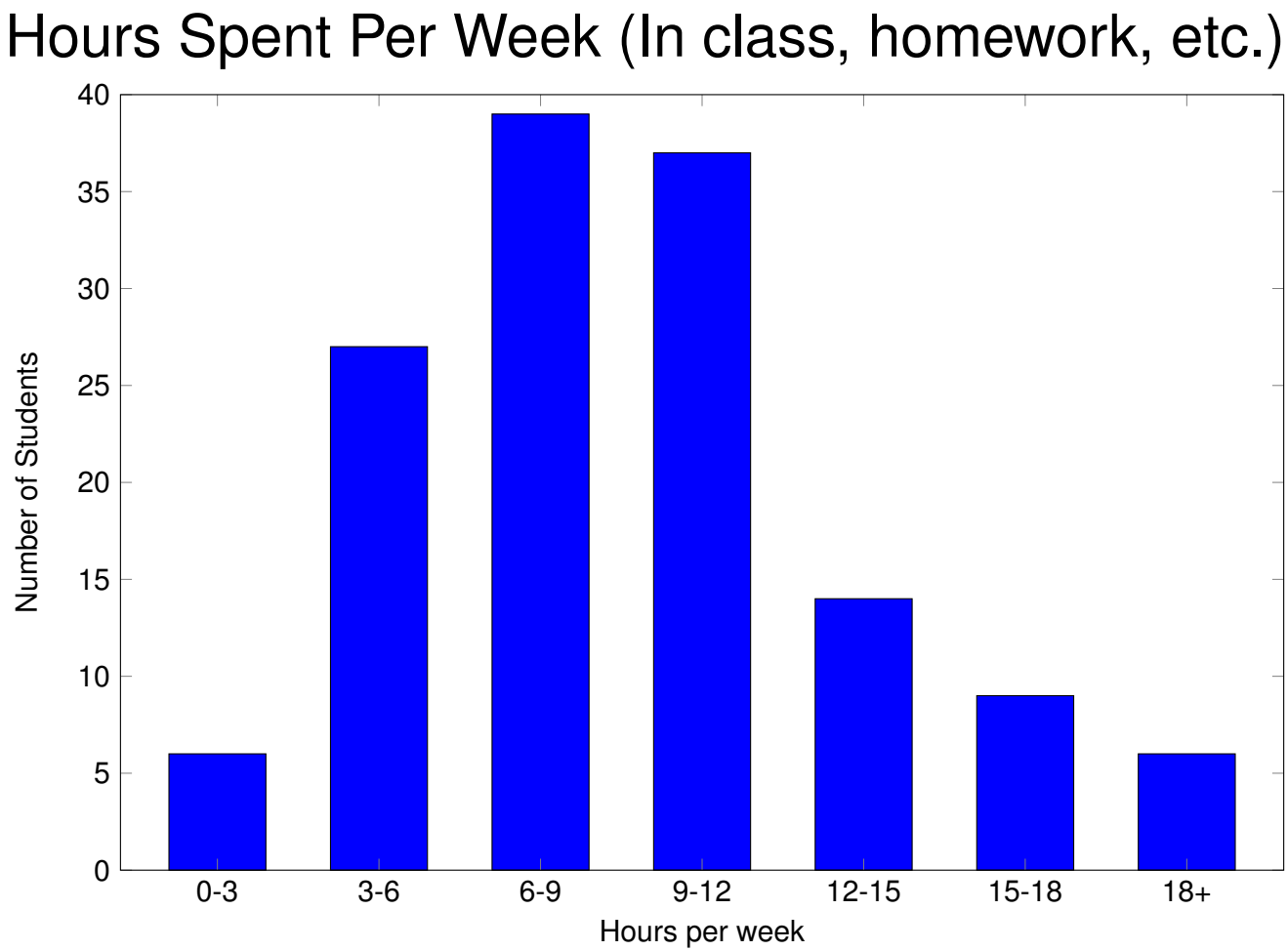
> *One semester credit is expected to require at least three hours of scholarly activity per week.*
>
> – `http://www.registrar.gatech.edu/faculty/fs_sch.php`

3 credit class = 9 hours a week ( 12 in summer)

2.5 hours of lecture (3 x 50min, or 2 x 1:45 = 3.5 hours in summer)
1.5 hour of recitation (unless you finish early)

At least 5 more hours (7 in summer) for reading, studying, and homeworks. Every week! (Some weeks will be more, some will be less.)

# Average CS 2316 Workload is 9 Hours per Week



# Your Semester Schedule

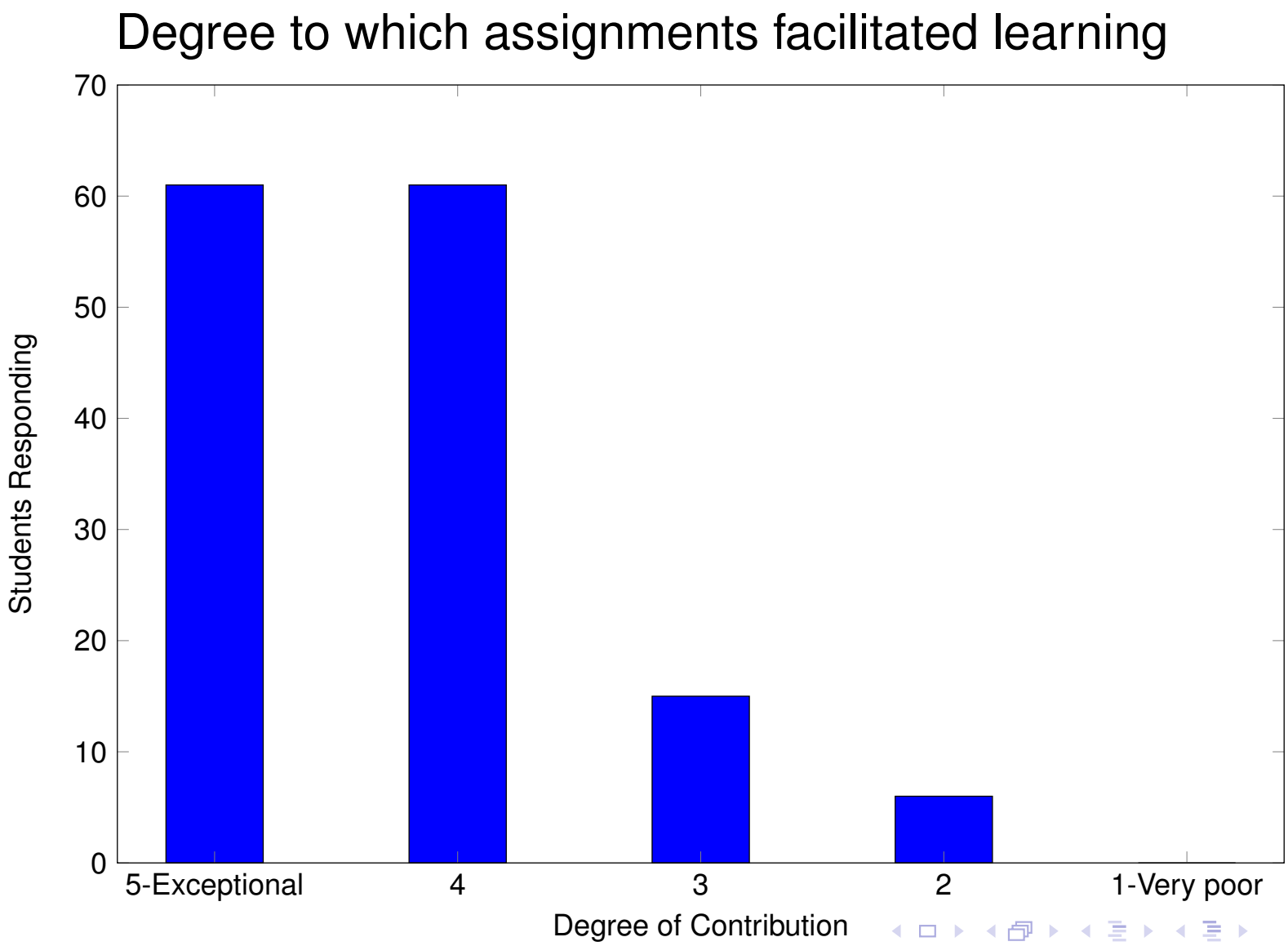
> *One semester credit is expected to require at least three hours of scholarly activity per week.*
>
> – `http://www.registrar.gatech.edu/faculty/fs_sch.php`

12 credit hours = 36 hours a week (49 hours in summer)

Full Time $\geq$ 12 credit hours (including summer)[1]

[1] `http://www.registrar.gatech.edu/students/semestersystem.php`

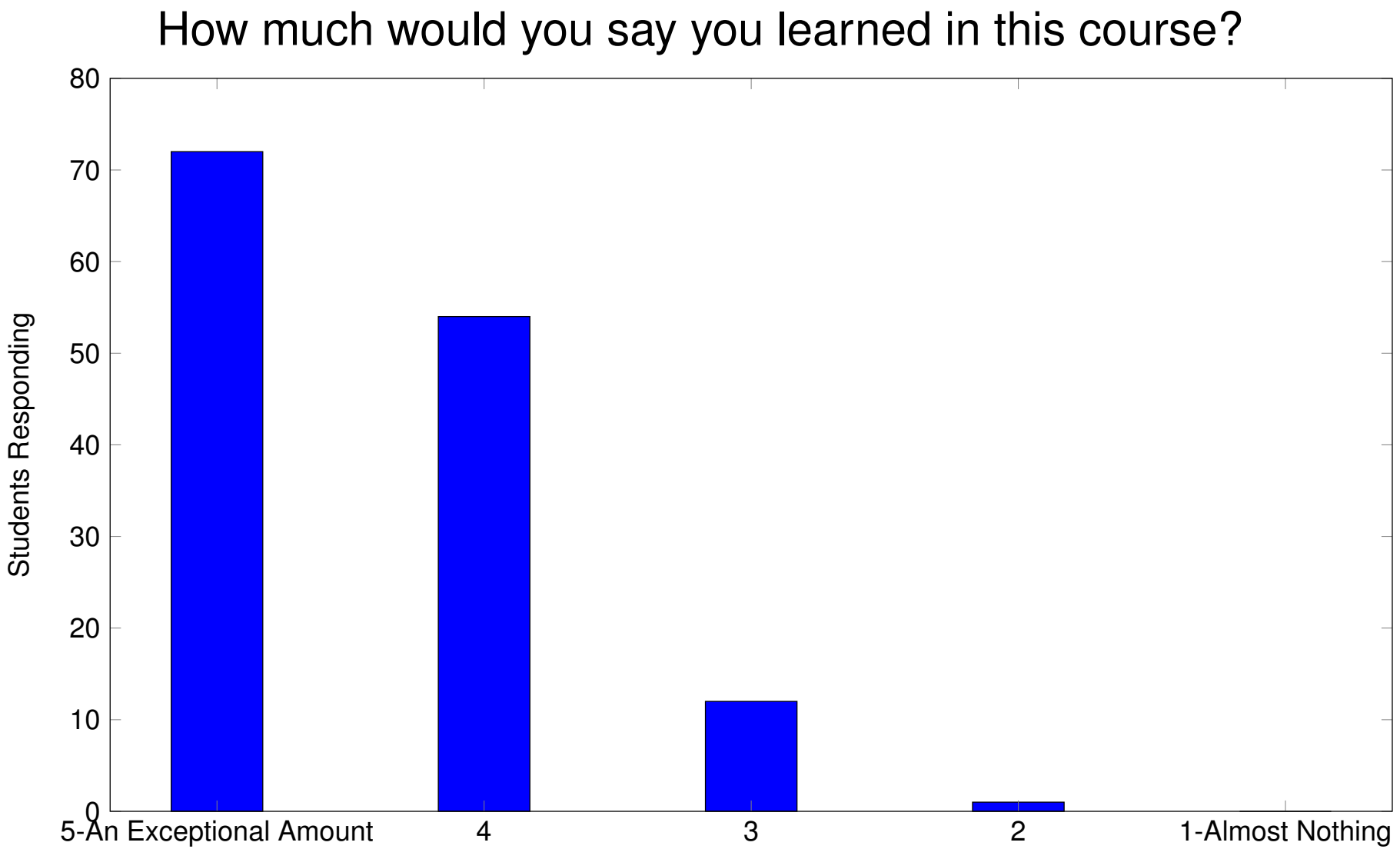
# Quality of Homeworks in CS 2316



# Student Impressions of the Homework

- "If you could effectively do the homeworks, the rest of the class was very doable."
- "All of the hard work we put into homework actually counted significant towards our final grade."
- "Homework taught skills."

# Return on Investment in CS 2316



# Student Impressions of ROI

- "learning real life applications"
- "I can see it helping me in the workplace in the future."
- "I did learn how to use Python and will use it later."
- "SQL, XML, GUI's are very useful topics to learn."
- "I feel like I know enough of Python to make it a resource in other classes and the workplace."

# Student Email

*I am working on a project using Python at my internship. It reads in two CSV files, compares the data using two for loops, and prints the data that have matches. I want to mention how neat it is to be using what I learned in CS 1301 and 2316 on a daily basis at my internship. It is a very rewarding and motivating feeling.*

# Student Emails

*This summer I've used python extensively for all sorts of tasks, from repository hooks to translating files from one XML schema to another, I've used it almost daily for weeks. Just wanted to let you know how much I appreciated your class and having a basis of python for this internship.*

*...[a program] I wrote for my company (Accenture) during my internship this summer. It analyzes two excel [files] and creates a new one with the information. This was previously done manually and led to many errors.*

# Georgia Tech's Colleges

- College of Architecture
- College of Computing
- College of Engineering
- Ivan Allen College of Liberal Arts
- College of Management
- College of Sciences

# Georgia Tech CS Requirement

All students at Georgia Tech must complete courses in math, science, humanities, social science, computing, and health & performance science.

Three classes fulfill the computing requirement (one of):

- CS 1301 Introduction to Computing (robots)
- CS 1315 Media Computation
- CS 1371 Introduction to Computing(matlab)

# Georgia Tech CS 1 Options

CS 1301 Introduction to Computing

- Taught in Python with robots.
- Taken by ISYE majors (as of 2011).

CS 1315 Media Computation

- Taught in Python, students manipulate media (images/sounds).

CS 1371 Introduction to Computing

- Taught in MATLAB.
- Taken by all School of Engineering students except ISYE.

# After CS 1 ...

Computer Science majors:

- CS 1331 Introduction to Object Oriented Programming
- CS 1332 Data Structures and Algorithms

Non-Computer Science Majors:

- CS 2316 Data Input/Manipulation
- Others (e.g., ECE has a two-course sequence after 1371)

# CS 1331 and 1332

CS 1331 Introduction to Object-Oriented Programming

- Taught in Java
- Introduces Object-Oriented Programming
- Reinforces and exapands on concepts and skills learned in CS 1301
- Required by all 8 CS major threads (more later)
- Prerequisite for CS minor

CS 1332 Data Structures and Algorithms

- Taught in Java
- Teaches data representation and manipulation
- Required by all but the People thread

# Minor in Computer Science

- CS 1331
- 15-19 semester hours of computer science coursework, 9 of which must be 3000 level or higher
- Choose one of seven tracks:
  - Devices
  - Information Internetworks
  - Intelligence
  - Media
  - People
  - Platforms
  - Theory

# The College of Computing

- College of Computing composed of three schools:
  - School of Computer Science
  - School of Interactive Computing
  - School of Computational Science and Engineering
- Undergraduate degrees (CS and CM) are "owned" by the college
- Classes are taught by professors from all three schools as well as Instructors and Lecturers (teaching professors) from the CoC Division of Computing Instruction (DCI)
- DCI faculty primarily responsible for foundation courses – 1000 and 2000 level courses

# CS: A "Threaded" Major

- A thread is a coordinated path through multiple courses so that the end result for the student is expertise in the area of the thread.
- Threads contain both CS courses as well as courses from outside Computer Science.
- A BS in Computer Science at Georgia Tech is defined as completing any two threads.

# The 8 CS Threads (1-4)

- Modeling & Simulation: Computing for representing the world, as in computational sciences. Examples include weather simulations, protein folding, crash simulations, epidemic modeling, etc.
- Devices: Computing meets the physical world, in such areas as robotics and real-time embedded systems such as cell phones.
- Theory: Fundamentals of computing, such as computer science theory. Examples include Algorithmic complexity, Automata Theory, Computability.
- Information Internetworking: Computing for storing, recalling, and communicating information. Includes aspects of databases, searching, and networking

# The 8 CS Threads (5-8)

- Intelligence: Computing as cognition, its representation and processes. Artificial Intelligence, Machine Learning are examples.
- Media: Computing for processing, creating, and presenting multimedia. Video compression, special effects, and image enhancement are examples.
- People: Computing meets people, including the design of human-centered systems. Examples include user interface design, recommender systems, social networks.
- Platforms: Computing across different kinds of hardware, with different characteristics and infrastructures. Computer architecture, operating systems, and programming languages.

# CS 2316

CS 2316 is a small sample of the Information Internetworking thread: Computing for

- storing, recalling (files, databases)
- and communicating information (GUIs).

Includes aspects of

- databases,
- searching (regular expressions, SQL queries), and
- networking (web services, web scraping).