



Foundation of Computer Science with C++

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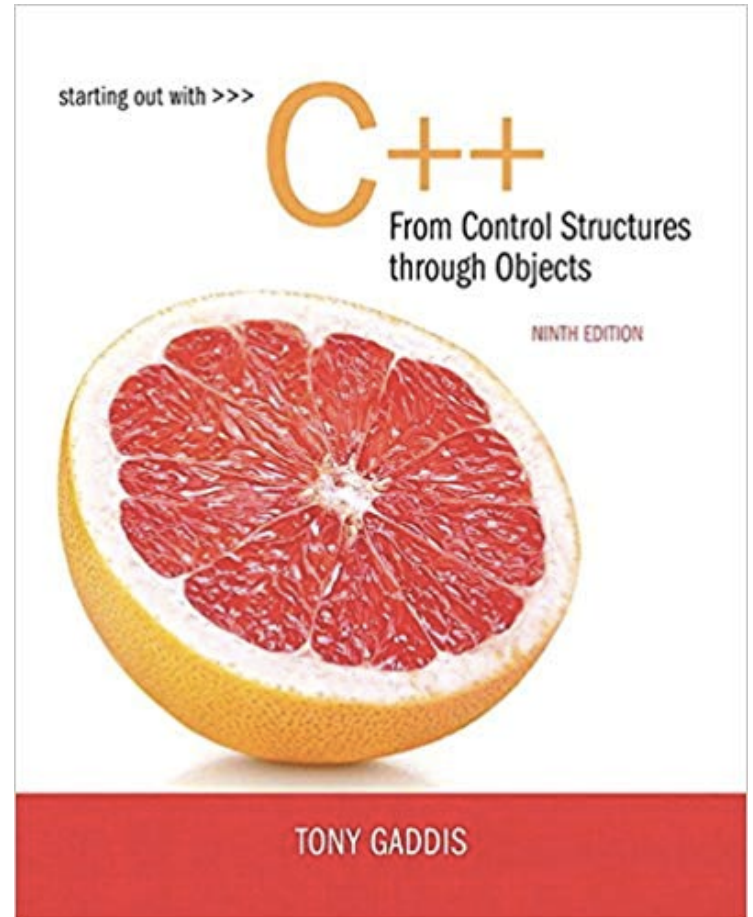


Your Instructor

- Instructor: Dr. **Kafi** Rahman
- Office: **VH2242**
- Email: kafi@truman.edu
- Office hours: Monday and Wednesday;
1:20pm to 6:20pm
 - Please email if you want to set an appointment at a different time

Useful Information

- Class website:
 - Blackboard
- Syllabus
- Course book:
 - Starting out with C++





Important Information

- Final Exam Schedule
 - <http://www.truman.edu/registrar/schedules-and-calendars/>



Software and Platforms

- C++11
 - clang and llvm version 4.0 or later
- GCC should also be fine for this course
- Linux server or Code::Blocks IDE
 - If you can manage to use Code::Blocks IDE on your laptop — that's fine.



What You Will Do In This Course

- Mostly, you will think deeply about algorithms.
 - You will wrestle with difficult abstractions of information and form your thoughts in the computational mode of expression.
- You will do this while learning how to write programs to aid this thinking and exploration.
- The process will be challenging, but very rewarding to be accomplished



Characteristics of a Truman Student

- Ask **questions** and passionately **seek knowledge**
- Strive for **personal integrity** and professional excellence
- Demonstrate courageous, visionary leadership qualities
- Act **ethically, responsibly**, and with reflective judgement
- Understand and articulate well-reasoned arguments
- **Welcome and value** new and diverse perspectives
- Live emotionally and physically **healthy** lives; and
- Give generously of their time, talents, and financial resources to causes in which they believe.



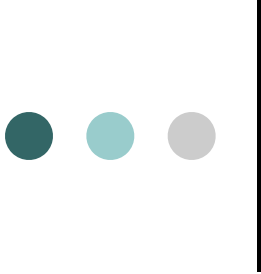
Academic Integrity

- Do —s
 - discuss the mechanics of editing, compiling, and running a program
 - discuss the mechanics of file names, uploading
 - discuss the mechanics of using the shell, printing
 - discuss the general strategy for completing an assignment use code from me or Gaddis, original or modified, without attribution
- Don't —s
 - look at any portion of another student's code or writeup
 - show any portion of your code or writeup to another person
 - discuss the details of any assignment, in person or electronically
 - copy code from any source other than me and Gaddis
- Should —s
 - cite any source of ideas other than me or Gaddis this means if you looked something up on the web, you should let me know the URLs



Concept of Computer Science

- Science is understanding nature through observation
 - About things like bowling balls, black holes, antimatter, electrons, comets, etc.
- Math and Computer Science are about things like numbers, graphs, functions, lists, etc.
 - Computer Science is a useful tool for processing numbers and solving real world problems.



Concept of Computer Science (contd.)

- Computer scientist designs and develops programs to solve problems
- Operations involved in designing computer programs
 - Formal and mathematical properties
 - Studying the behavior of the programs to determine whether they are correct and efficient
 - Hardware realizations
 - Designing and building computer systems that are able to execute the developed programs



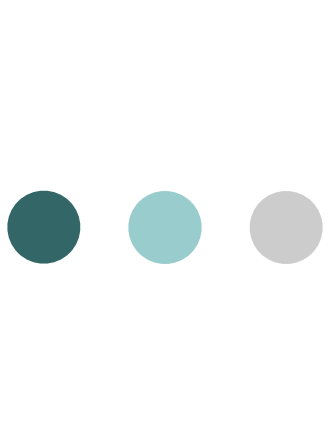
Computer System

- Computer systems are made of
- Hardware
 - input devices
 - output devices
 - primary and secondary storage
 - CPU
- Software
 - System software application software (apps)
 - this course is about writing apps



Software Programming

- Software programming and development is a major area of computer science
- Software programming, or software engineering, is the process of designing, building, testing, and using software



How Computer Programs Work

Demo



More Information

- <http://www.codeblocks.org/>
 - Information about the open source, cross platform, free C++ IDE
- <https://en.wikipedia.org/wiki/Clang>
 - Information about clang
- <https://en.wikipedia.org/wiki/LLVM>
 - Information bout llvm
- <http://www.landofcode.com/programming-intro/source-code.php>
 - Source code to programs

