Why COMP 211?

Spring 2023 | COMP 211-002 | Joshua Bakita
Who am I?

Joshua Bakita
https://jbakita.me

UNC CS BS’18
UNC CS MS’19
5th year PhD student

Researching real-time GPU scheduling & architecture with Dr. James Anderson.
Team 211-002

Kangda Wei (TA)  Amin Zamani (LA)  Andrew Byerle (LA)  Kenan Poole (LA)  Ryan Good (LA)

Tom Xu (LA)  Yufan Liu (LA)
Key Goals

- Write fast, efficient, and predictable code by understanding memory, no matter the programming language.
- Understand C well enough to prepare you to use it in work, research, and classes.
- Get a grasp on the (coolest) tools of the trade (like vim, tmux, gdb, valgrind, man, etc).
A Word from Industry

Matt Corallo (@TheBlueMatt)

➔ UNC BS’14
➔ Now Engineer at Block/Spiral
➔ 10th known Bitcoin core contributor
➔ Projects:
  ◆ Bitcoin core
  ◆ rust-lightning: Rust implementation of Lightning Network protocol
  ◆ BitcoinJ: Java library for bitcoin
Write fast, efficient, and predictable code

Goal 1 of 3
Understand C

Goal 2 of 3
### Understand C

**You might need it!**

<table>
<thead>
<tr>
<th>At UNC</th>
<th>In Industry</th>
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<tbody>
<tr>
<td>311: Computer Organization (Memory layout)</td>
<td>Web browsers (C++)</td>
</tr>
<tr>
<td>433: Mobile Computing Systems (C)</td>
<td>Windows or Linux core (C)</td>
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<tr>
<td>475: 2D Graphics (C++)</td>
<td>AAA game engines (C++)</td>
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<tr>
<td>530, 630, 730: Operating Systems (C)</td>
<td>Embedded systems (C)</td>
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<tr>
<td>541: Digital Logic &amp; Computer Design (Memory layout)</td>
<td>GPU-accelerated systems (CUDA)</td>
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<tr>
<td>740: Computer Architecture (C)</td>
<td>Real-Time Systems (C)</td>
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<td>Various special topics classes (590 or 790)</td>
<td>...</td>
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<tr>
<td>Research</td>
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Tools of the trade

Goal 3 of 3
Tools of the trade

Bonus reasons

Impress your friends, colleagues, and interviewers with your command-line-fu.

Get to use tools that are as efficient as you dream to be.

Vim

<10 MiB RAM

~1 GiB RAM
General Schedule

Subject to change.

1/3rd

C Basics
(Syntax, I/O…)

Console Basics
(vim, ssh, man…)

Intermediate C
(pointers, memory management…)

Advanced Tools
(gdb, valgrind, tmux…)

1/3rd

Writing fast, efficient, and predictable code
Course Logistics

Via the syllabus: https://cs.unc.edu/~jbakita/comp211-syllabus.html
(Limited paper copies available up front.)
Thanks!

Questions?

Come chat with me now, or drop by my office tomorrow morning! (Sitterson 311, 8:30-11:30 AM)

Contact:
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