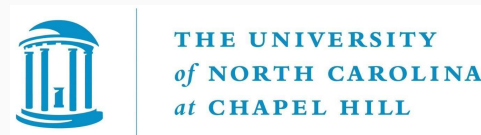# Why COMP 211?

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.

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!

At UNC

- 311: Computer Organization (Memory layout)
- 433: Mobile Computing Systems (C)
- 475: 2D Graphics (C++)
- 530, 630, 730: Operating Systems (C)
- 541: Digital Logic & Computer Design (Memory layout)
- 740: Computer Architecture (C)
- Various special topics classes (590 or 790)
- Research

In Industry

- Web browsers (C++)
- Windows or Linux core (C)
- AAA game engines (C++)
- Embedded systems (C)
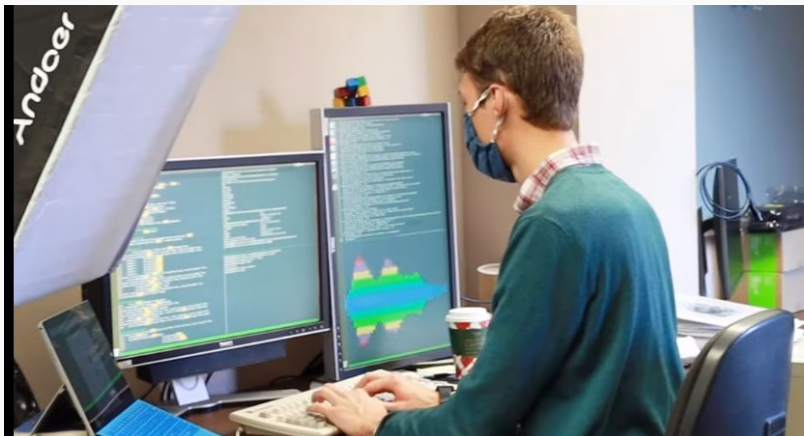- GPU-accelerated systems (CUDA)
- Real-Time Systems (C)
- …

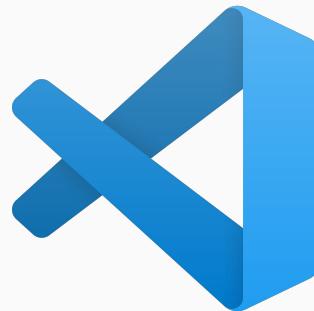# Tools of the trade

Goal 3 of 3

Bonus reasons

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

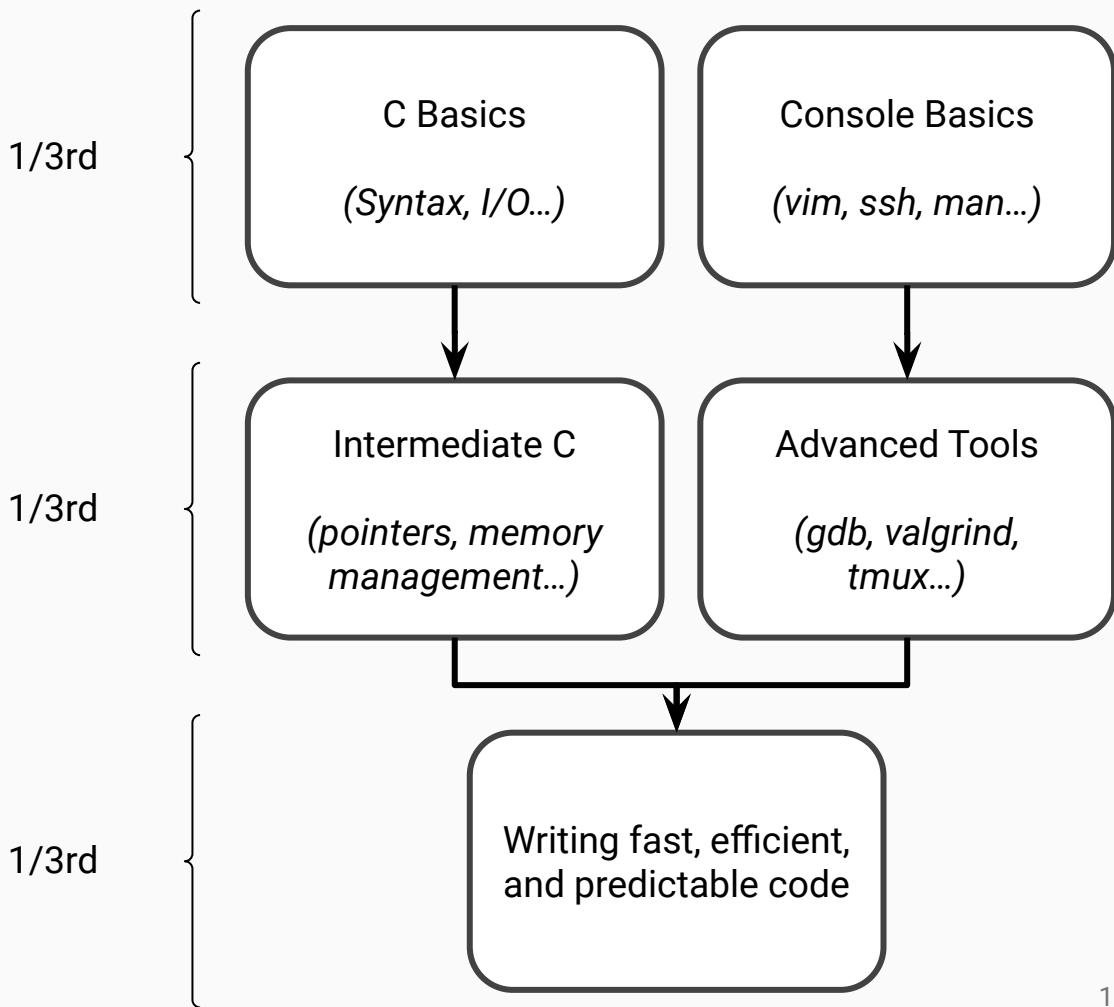Get to use tools that are as efficient as you dream to be.

<10 MiB RAM

~1 GiB RAM

General Schedule

Subject to change.

1/3rd

```
┌─────────────────┐      ┌─────────────────┐
│   C Basics      │      │  Console Basics │
│                 │      │                 │
│ (Syntax, I/O…)  │      │ (vim, ssh, man…)│
└────────┬────────┘      └────────┬────────┘
```

1/3rd

```
┌─────────────────┐      ┌─────────────────┐
│ Intermediate C  │      │ Advanced Tools  │
│                 │      │                 │
│(pointers, memory│      │(gdb, valgrind,  │
│ management…)    │      │    tmux…)       │
└─────────────────┘      └─────────────────┘
```

1/3rd

```
        ┌─────────────────────┐
        │ Writing fast, efficient,
        │ and predictable code │
        └─────────────────────┘
```

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Course Logistics

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

Link to Syllabus

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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Twitter: @JJBakita
Web: https://cs.unc.edu/~jbakita

Old Well, University of North Carolina at Chapel Hill, Winter 2017