

CS288 – 007

Fall 2025

3 Credits

## Intensive Programming in Linux

### Course Description

The course covers Linux programming with the Apache Web server and MySQL database server, using Bash, C, PHP, and Python as the primary programming languages. It consists of four stages: basic tools such as Bash and C programming, tree searching and matrix computing, end-to-end web applications, and extending computational applications to run on multiple machines. The course provides students with hands-on experience in programming relatively large applications.

### Course Prerequisites

- CS100 (Roadmap to Computing)
- CS114 or CS116 (Introduction to Computer Science II)
- CS280 (Programming Language Concepts)

### Instructor: Dr. Itani

Email: itani@njit.edu

Office: GITC 4317C

Office Hours: M 10:00am-12:50pm  
R 10:00am-11:20am  
and by appointment.

### YWCC Tutoring Program

The Ying Wu College of Computing at NJIT is committed to helping its students thrive and succeed academically. The YWCC tutoring program is a key part of that commitment. For more information, please visit undergraduate tutoring at: <https://computing.njit.edu/undergraduate-tutoring-1>

### Grading Formula

• Midterm 1:	32% of Total Grade	On Tuesday 10/07/2025
• Midterm 2:	32% of Total Grade	On Tuesday 11/04/2025
• Final:	36% of Total Grade	Between 12/14/2025 and 12/20/2025

Grades will be assigned as follows:

A	[80% to 100%)
B+	[75% to 80%)
B	[70% to 75%)
C+	[65% to 70%)
C	[55% to 65%)
D	[45% to 55%)

### Textbook

Kernighan and Ritchie, The C Programming Language, 2nd Edition. Prentice Hall 1988.  
ISBN: 0-13-110370-9 (Hardcover), or 0-13-110362-8 (Paperback).

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### Course Outline

#### Stage 1) Fundamental Knowledge

- Linux essentials, shell scripting, and pattern matching with regular expressions
- Advanced C programming—pointers and heap memory management

#### Stage 2) Advanced Tools and Techniques

- Review of basic sorting algorithms
- Review of advanced sorting algorithms
- Radix sort for non-comparison-based sorting
- State space search—uninformed and informed search algorithms

#### Stage 3) End-to-End Web Application

- Deploy and manage the MySQL database server and the Apache web server
- Download and validate web content to ensure XHTML compliance
- Extract data from XHTML documents using the DOM API
- Transform and load extracted data into MySQL
- Generate interactive HTML visualizations from MySQL data using PHP

#### Stage 4) Parallel Programming

- Extend tools, techniques, and applications to run on parallel systems

### Policies

- Class attendance is mandatory. The final grade will be reduced by 1% for every unexcused absence.
- LockDown Browser and Respondus Monitor will be used to ensure the integrity of all exams. Students must have a laptop with 150+ minutes of battery life, webcam, and microphone for exams.
- You must bring a valid government or university issued Photo ID to all exams.
- There are no make-up exams. Students who fail to take an exam will receive a score of zero. If you miss a midterm because of a documented special circumstance you may, at the instructor's discretion, receive an imputed grade based on the final exam.
- Use of Generative AI, such as ChatGPT, is prohibited for any work affecting the overall course grade.

### Religious Observances

NJIT is committed to supporting students in observing religious holidays. Students must notify their instructor in writing of any conflicts between course requirements and religious observances by the end of the second week of classes. Reasonable accommodations will be provided for students who meet this deadline. This policy applies only to absences for religious observances.

### Statement on Academic Integrity

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online site inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at [dos@njit.edu](mailto:dos@njit.edu).