Fall 2024

CS 288-001, 003, 005: Intensive Programming in Linux

Abdul-Rahman Itani

CS288 – 001 Fall 2024 3 Credits
Intensive Programming in Linux

Course Description
The course covers Linux programming with Apache Web server and MySQL database server using PHP, Python and C as primary programming languages. It consists of four stages: basic tools such as Bash and C programming, searching trees 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 for 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

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Office: GITC 4317C

Office Hours: M 01:00pm-02:20pm
R 01:00pm-02:20pm
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
• Discretionary:	4% of Total Grade	
• Pop Quizzes:	12% of Total Grade	
• Homework:	12% of Total Grade	
• Midterm:	36% of Total Grade	On Monday 10/21/2024
• Final:	36% of Total Grade	Between 12/15/2024 and 12/21/2024

Grades will be assigned as follows:
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A  [80% to 100%)
B+ [75% to  80%)
B  [70% to  75%)
C+ [65% to  70%)
C  [60% to  65%)
D  [50% to  60%)
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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
- Linux shell – Shell scripting
- Linux shell – Pattern matching with regular expressions
- Advanced C programming – Pointers
- Advanced C programming – Heap memory management

Stage 2) Advanced Tools and Techniques

- Review of basic sorting algorithms
- Review of advanced sorting algorithms
- Sorting with radix sort
- State space search – Uninformed search algorithms
- State space search – Informed search algorithms

Stage 3) End-to-End Web Application

- Web processing – Retrieve content from Web servers using Linux tools and shell scripting
- Web processing – Extract data from XHTML documents using the DOM API
- Web processing – Deploy and manage MySQL database server
- Web processing – Develop the data movement and transformation logic from source to target
- Web processing – Deploy and manage Apache Web server
- Web processing – Extract data from MySQL and produce interactive data visualization using PHP

Stage 4) Parallel Programming

- Extending the tools, techniques, and application 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 are required to have a working laptop with at least 150 minute battery life, webcam, and microphone to take an exam.
- 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 the 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.

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.