Instructor: Dr. Ching-yu (Austin) Huang
Email: chuang@kean.edu   **Website**: http://www.kean.edu/~chuang
Office Hours: https://huang.youcanbook.me/ Tuesday - Thursday: 9:30 – 10:30 am; 3:30 – 4:30 pm
Class: Monday, Wednesday (2:00 - 3:15 pm), NAAB, Room 208
Prerequisites: **CPS 2232**   **Students without prerequisite(s) must withdraw from the class.**

Unit	Date		Topic	reading	Assignment	#
	1/18/21	Mon	**Martin Luther King Holiday**		**School closed**	
1	1/20/21	Wed	Overview class policy and OS, eve account	1, 2	**setup Linux account**	1
	1/25/21	Mon	Basic OS, intro to Unix, setup VM	2, 3	**setup VM**	2
2	1/27/21	Wed	Linux commands, vi, project 1	3, 4	**P1 starts**	3
	2/1/21	Mon	Client/Server, HTML form, PHP	4, 5		4
3	2/3/21	Wed	Scripting – Shell, Python, HTML inputs	5, 6		5
	2/8/21	Mon	Web cgi-bin in Python, upload files	6, 7		6
4	2/10/21	Wed	More commands, environment, process	7, 8		7
	2/15/21	Mon	**President Day Holiday**		**School closed**	
	2/17/21	Wed	Process, cron job, pipeline tasks, nohup, background, in Python	8, 9	**Project 1 due 2/20**	8
5	2/22/21	Mon	Integration - execute Linux programs on web, Python & PHP API	9, 10	**P2 starts – Java**	9
	2/24/21	Wed	Linux file system, GitHub Git	10, 11		10
6	3/1/21	Mon	Java programming in Linux	11, 12		11
	3/3/21	Wed	Java exception, I/O, CSV API, hash table	12, 13		12
7	3/8/21	Mon	**Midterm exam**		**Midterm exam**	13
	3/10/21	Wed	cgi-bin in Python, Shell, Cron, Java file I/O	13, 14		14
8	3/15/21	Mon	Java environment, classpath, Java lib	14, 15	**P2.1 progress**	15
	3/17/21	Wed	Recursion, debugging Java in Unix	15, 16	**Case study starts**	16
9	3/22/21	Mon	Object Oriented Programming, Project 2	16, 17		17
	3/24/21	Wed	Integrate Java and web cgi-bin,	17, 18		18
10	3/29/21	Mon	Timeout, sendmail & web, cron job		**Project 2 due 3/30**	19
	3/31/21	Wed	Basic C/C++	20, 21	**P3 starts – C++**	20
	4/1/21	Thur	**Last day to withdraw with 'W' grade**		**0% refund**	
11	4/5/21	Mon	C/C++, basic, functions, 1-D array, web cgi	21, 22		21
	4/7/21	Wed	C/C++, 2-D array, struct, memory, pointer	22, 23		22
12	4/12/21	Mon	C/C++, call by references, values, debug	23, 24	**P3 progress**	23
	4/14/21	Wed	C/C++. file I/O, exception handling, date	24, 25		24
13	4/19/21	Mon	Object Oriented Programming in C++	25		25
	4/21/21	Wed	Case study for Software development			26
14	4/26/21	Mon	Client/server programming, system service	27, 28	**Project 3 due 4/30**	27
	4/28/21	Wed	Summary, performance comparison	28	**Monday schedule**	28
15	5/3/21	Mon	Case study presentation day 1			29
	5/5/21	Wed	Case study presentation day 2			30

Late revision: 1/6/2021

CPS 3525/5990   Programming in the Unix/Linux Environment   Dr. Huang

- **Content**: This course covers three main components: 1. Unix/Linux system & commands, 2. scripting and complier languages, and 3. Integration of web and Linux programs. This course emphasizes both concepts and hands-on experiences. A lot of programming.
- **Textbook**: The UNIX Programming Environment. Kernighan, B. and Pike R. Prentice Hall, 1983. **ISBN-13**: 978-0139376818
  - Systems Programming in Unix/Linux. Wang, K.C., Springer, 2018. **ISBN-13:** 978-3319924281
  - Linux Command Line and Shell Scripting Bible. 3rd Ed. Blum, R. Wiley, 2015. **ISBN-13:** 978-1118983843
- **Objectives**: Upon completion of this course, students will be able to:
  A. Explain and demonstrate the Unix/Linux commands, process, utilities and tools.
  B. Utilize script and compiler languages to write applications in a Unix/Linux system.
  C. Design and develop automated programs in a Unix/Linux system.
  D. Develop and integrate web applications with programs with Unix/Linux.
- **Course Grading:** **1** Midterms (200 pts), **3** projects (200, 200, 250 pts), **1** case study presentation (150 pts)

Class Policies:

- **This is a hands-on course. Students are required to bring personal laptop every class.**
- Instructional Methods: lecture with slides, student presentations, class discussions and exercises, and project creations.
- **A**: >=940, **A-**: 939-890, **B+**: 889-840, **B**: 839-800, **B-**: 799-760, **C+**: 759-720, **C**: 719-680, **D**: 679-640, **F**: below 640 (C or better is needed for CS and IT majors.)
- It is students' responsibilities to verify all the scores posted on **the class website** that is announced on the first day of the class.
- **Assignments should be used MySQL connecting through a Linux server that is announced on the first day of the class.**
- Mid-Term Progress information will be provided to students by the instructor via KeanWise.
- No late work will be accepted without permission in advance from the instructor. Late work is penalized.
- No make-up exams are provided without documentation of medical or family emergency. Please arrange your schedule for the next 16 weeks to arrive in class on time and prepared.
- Attendance and participation are required.
- All work turned in under your name must be your own. **No credit will be given for an assignment or homework that is copied – in part or in total – from another person**.
- Exam policy: During class examinations, if a student leaves the classroom for any reason during the exam time, **the exam must be turned in before the student departs, concluding the exam for that student**. The student cannot resume the exam on return later. You may not make or take a phone call, text or access the internet during class or a test.
- **Classes may not be audio or digitally captured**, unless permission has been granted by the instructor for that specific class.
- **Public posting of course materials from this class is prohibited**. Materials presented in the classroom are for the personal use of registered students during the semester only. Homework, programs, and other classwork should not be shared, distributed or publicized in any way, for the protection of other students and in respect of the intellectual property rights of the faculty and copyright owners.

Important University Policies and Information:

- The Kean Academic **Calendar** can be found online at https://www.kean.edu/offices/registrars-office/academic-calendar
- **Tutoring and learning Support services**: http://www.kean.edu/content/tutoring-services
- Students should review the **Student Code of Conduct**, as it discusses expectations of appropriate conduct in the classroom: https://www.kean.edu/KU/Code-of-Conduct
- Students are responsible to review and understand the University Academic Integrity Policy available via the following link: https://www.kean.edu/academic-integrity
- Read Kean **Students Rights and Responsibilities** at https://www.kean.edu/offices/disability-services/rights-and-responsibilities
- Register for the university's **emergency notification system** at https://www.kean.edu/offices/university-police-0/campus-alert
- Students must have a **valid Kean email account**. You can request one at https://www.kean.edu/~ocisweb/forms.htm
- **Academic Early Alert information** will be provided to students by the instructor via KeanWise. Please see the 2020-2021 Undergraduate or Graduate Catalog for more information
- **Title IX**: Title IX of the Education Amendments of 1972 (Title IX) prohibit discrimination on the basis of sex in education programs or activities. Sexual harassment in any form will not be tolerated at Kean University. Sexual harassment by students should be reported to the Office of Affirmative Action Programs, Office of the Vice President for Student Affairs or the Office of Community Standards and Student Conduct immediately. Information about the University's Sexual Misconduct Policy may be found at the following: https://www.kean.edu/offices/policies/sexual-misconduct-policy
- **Americans with Disabilities Statement:**
  Kean University is an affirmative action, equal opportunity institution. Students with documented disabilities who may need special instructional accommodations or who may need special arrangements in the event of an evacuation should notify the instructor as soon as possible, no later than the second week of the term. Students may contact the Office of Disability Services in Downs Hall Room 122 or call 908-737-4910 to discuss special needs.
- **Diversity & Non-Discrimination Statement:**
  Kean University is committed to establishing and maintaining a diverse campus community through inclusive excellence and equal opportunity. Kean's commitment to access and equity is designed to prepare each graduate to not only thrive but climb higher in a diverse world. As an affirmative action, equal opportunity institution we work to support a campus-wide agenda to foster a community that both values and promotes the diversity and equity of all students, faculty, staff, administrators, and beyond. Kean adheres to the New Jersey State Policy Prohibiting Discrimination in the Workplace; for more information on Kean's non-discrimination policy and procedures, and protected categories under the policy, please visit: https://www.kean.edu/offices/affirmative-action.

Syllabus Updates: **Instructor reserve the right to change the syllabus at any time throughout the semester**. All changes will be announced in class and a new syllabus will be electronically available to all students. If you are enrolled in this class past the add/drop date you are subjected to all rules in this syllabus.