

# OPERATING SYSTEMS LABRATORY

Spring 2021

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<b>Instructor:</b>	Amir Hossein Rouhani Seraji	<b>Code:</b>	7332
<b>Email:</b>	<a href="mailto:ah.rouhaniseraji@gmail.com">ah.rouhaniseraji@gmail.com</a>	<b>Unit:</b>	1

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**Course Pages:** Please check this website two or three times a week

- <https://rouhani-class.github.io/oslab>

**Discussion Group:** Every student has to be a member of our Telegram Channel and Telegram Group for our discussion and daily announcements.

- [Telegram Channel](#).
- [Telegram Group](#).

**Teaching Assistant:**

- Mehran Moeini Jam.
- [Mohammad Hossein Khoshechin](#).
- Mehdi Movahedian.

**Prerequisites:** An undergraduate-level understanding of operating systems concepts.

**Objectives:** This course is primarily designed for undergraduate students. In this course you will be learned how to work and administrating unix-like operating systems, system programming , and writing shell scripts. We do not emphasize on using a specific distro of unix-based operating systems, if you are currently working with one of them and you are familiar with using unix-based operating systems , then you are free to use your favorite distro. And if you are not familiar with them , then we will teach you how to start using them. The topics which will be covered are :

- History of Unix and Linux Operating Systems
- Introducing Linux and Unix Distributions
- Bootstrapping Scenario
- File systems
  - File Systems Directories
  - File/Directories Commands
  - Group and User and Ownership Management
  - Permissions
  - Mounting
- Processes Management
  - Forking System

- Processes Management Commands
- Foreground and background Processes
- Signaling and Signal Handling
- Inter-Process Communication (IPC)
- Multi-Threading
  - Pthread Programming
- Shell Scripting
  - Key Files
  - Variables
  - Operators
  - Shell Programming

**Main References:** Our Lectuers are mainly based-on these books.

- Willam Shotts, *The Linux Command Line a Complete Introduction*, No Starch Press, 2nd ed, 2019.
- Evi Nemeth, Garth Snyder, and etc, *Unix and Linux System Administration Handbook*, Addison-Wesley, 5th ed, 2018.
- W. Richard Stevens, Stephen A. Rago, *Advanced Programming in the Unix Environment*, Addison-Wesley, 3rd ed, 2013.
- Stephen Kochan, Patrick Wood, *Shell Programming in Unix, Linux and OS X*, Addison-Wesley , 4th ed, 2017.

**Grading Policy:** 5 Homeworks each one has (20%) of your Final grade, No Final and Mid-term Exam.