CIS 657

Principles of Operating Systems

Engineering &
Computer Science
Syracuse University

Endadul Hoque
Assistant Professor

About Myself

2015 **PhD** from **Purdue University**

2016 **Postdoc** at **Northeastern University**

2017 **Assistant Professor** at **FIU**

2019 **Assistant Professor** at **Syracuse University**

PURDUE UNIVERSITY

Northeastern University

FIU

Syracuse

My Research

Security of Networked Systems

Secure the **core** of **public/private infrastructures**

Automated vulnerability detection

NDSS ‘18 | S&P ‘17 | DSN ’17 | ToN ’16 | SecDev ‘16

ICDCS ‘14 | WiSec ‘13 | 

Building Resilient Systems

SACMAT ‘19 | ICDCS ‘16 | 

CIS 657 – M001

Principles of Operating Systems

Mon Wed
2:15 PM – 3:35 PM

HBC Gifford
Auditorium

3 cr.

Blackboard

Course TAs

- Jiayu Li <jli221@syr.edu>
- Amin Fallahi <afallahi@syr.edu>
- Shihong Yang <syang60@syr.edu>

Each student will have one primary TA

TA help sessions will be posted on blackboard (course page)

Focus

Fundamentals of operating systems
and hands-on experience on OS programming

- Cover principles, design and techniques, policies, and mechanisms
  - process and memory management
  - resource scheduling, synchronization,
  - file system management, I/O, kernel services and so on.

Goals

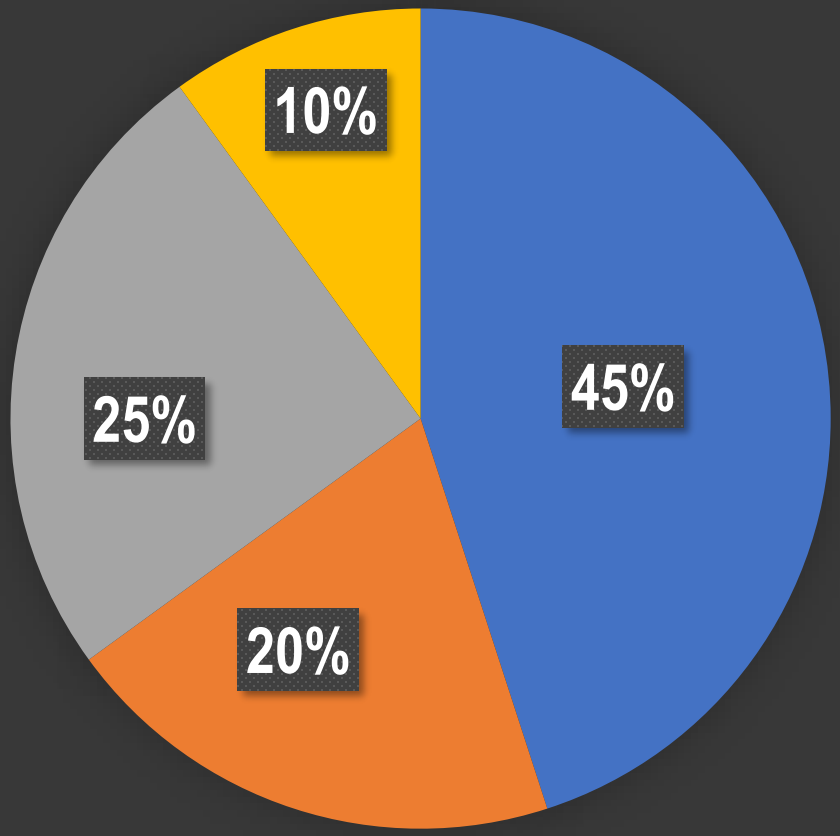
Engage students in

- Understanding design and implementation of an OS
  - design goals, abstractions, trade-offs
- Gaining **hands-on experience** with
  - User-space programming (on Linux)
  - kernel-space programming (on Nachos)

Learning Objectives

- Understand three high-level **abstractions**: virtualization, concurrency, and persistence
- Learn the design **principles**, **techniques** and **trade-offs**
- Learn the **policies** and **mechanisms** behind the existing components and abstractions of an OS
- Understand the guarantees and the limitations of existing mechanisms
- Gain **hands-on experience** with user-space programming on Linux (e.g., Ubuntu) and kernel-space programming on Nachos

Grading Breakdown



- Programming assignments
- Mid-term exam
- Final exam
- Participation/others

Syllabus

- Go through the syllabus

Visit course page periodically for announcements/updates

Check your **SYR email** associated with **Blackboard** frequently for course announcements/updates

Late Submission

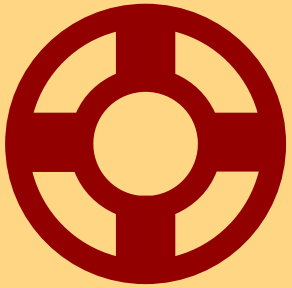
2^{2n}**%** points will be subtracted for n **late days** $(n = 1,2, \dots)$

Always Follow Instructions!

We will use an **Autograder** to grade programming assignments

Read assignment descriptions carefully

Remember … nobody will grade your submission manually. Make sure your submissions work as per the descriptions.



No help with debugging

This is not a course about learning
how to program in C or C++

Do not expect us to debug your code

TA Help Sessions

No additional meetings will be scheduled with any TA beyond the regular help sessions

TAs are there to help, ***not to do the work on your behalf***.

Remember…**They are not taking the course**!

Some Tips/Reminders

It compiled OR It ran ≠ It is correct

Just because a program compiled(!) or even ran once or many times correctly does not mean the program is correct. … The problem is ***usually*** right where you think it would be, in your code. You should debug it before you blame other components (say, compiler, OS).

Tip: When in doubt, try it out

If you aren't sure how some function or operator you are using behaves, there is no substitute for simply trying it out and making sure it behaves as you expect.

Tip: Coding

Be prepared to spend more than a little time to explore, understand and code things by yourself

enhoque@syr.edu

Email is the best way to reach me.
A best effort attempt will be made to respond within **48 hours on weekdays** during **normal working hours**. [Applies to TAs too]

Put "CIS:657" in the subject of your email.

Start early, plan carefully

No meetings will be accepted with the instructor
on the day assignments are due
or exams are scheduled

Make use of TA help sessions

Remember … *these sessions have limited hours*!

NO CHEATING WILL BE TOLERATED!

Behave responsibly!

Honest and ethical behavior is expected at all times

Help us help you!

Please respect everyone's time 

I wish all of you the very best and want you to have a great learning experience

Interested in research?

Endadul Hoque

 enhoque@syr.edu

 endadul.github.io

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