ARIZONA STATE UNIVERSITY

CSE 534 SLN 92212 — Advanced Computer Networks — Fall 2019

Instructor:	Dr. Violet R. Syrotiuk (`syrotiuk@asu.edu`; office BYENG 434)
Lectures:	TBA
Office Hours:	TBA
URL:	`http://www.public.asu.edu/~syrotiuk`
TA:	TBA

Course Description

CSE 534 is a graduate course in computer networks. The goals for this class are:

- To become familiar with the state of the art in networking research: network architecture, protocols and systems.
- To gain practice in reading research papers and critically understanding the research of others.
- To gain experience with experimentation on physical networking equipment, based on design and analysis of experiments.

In the past two decades, the Internet has grown from a research tool to a fundamental part of society. In this class we'll explore why the infrastructure was designed this way, and the underlying principles and design decisions. We'll explore the pros and cons of the current design, and give some thought to how we can make the Internet better in future.

Topics will include:

- IoT, smart cities, and more generally, content oriented networking,
- software defined networking, *i.e.*, SDN, SDX, and, more generally, the "softwarization" movement in networking,
- wireless and mobile networking, including vehicular networking, drones, sensors, robotics, 5G (including, *e.g.*, new directions in millimeter wave and software defined radios (SDRs)),
- cloud, edge, and fog networking, and adding optical networking in data centers, and
- testbeds for IoT, wireless, and wired networks in this country and around the world.

Prerequisites: CSE 434 or equivalent; experience with networking equipment is helpful.

Evaluation Procedure (Tentative)

Critiques:	5%	Critiques due before each class
Participation:	5%	Your participation in discussions in class
Labs:	15%	$3 \times 5\%$ each, on experimentation on physical network systems
Projects:	45%	$3 \times 15\%$ each, planned on NDN, SDN, and one of your own design
Quizzes:	30%	$3 \times 10\%$ each, on the labs, projects, and papers read
	100%	

Labs	Out	Due	Projects	Out	Due	Quizzes	Date
L1	mm/dd	mm/dd	P1	mm/dd	mm/dd	Q1	mm/dd (in class)
L2	mm/dd	mm/dd	P2	mm/dd	mm/dd	Q2	mm/dd (in class)
L3	mm/dd	mm/dd	P3	mm/dd	mm/dd	Q3	mm/dd (in final exam)

Critiques and In-Class Participation

We will read at least one paper for discussion in each class. You will need to spend at least one hour reading each paper, and making notes. This only works if you come to class ready to discuss the papers in detail; this is the expectation. *Do not take this course unless you are willing to read.*

Before each class, you must submit a short critique on the required reading. To submit your critique, follow the critique submission link. Critiques will be accepted until midnight of the day before class. All later submissions will be automatically rejected. Critiques over the maximum number of words will be rejected. It is not possible to make up a missed critique.

Class participation is not based solely on attendance. Attendance is a necessary but not a sufficient condition for good class participation. The general policy is that a student will automatically receive a deduction of one letter grade for each 3 classes missed. If you have any concerns about not being able to regularly attend class please discuss this with the instructor as soon as possible. Beyond attendance, class participation is evaluated by observing how prepared you are to discuss papers in class.

Labs and Projects

A large part of this course involves hands-on experience with real networking equipment, local or remote. Labs will give you exposure to topics in design and analysis of experiments (DOE), and future Internet architectures. Projects provide an opportunity for more in-depth work.
Detailed instructions will be provided with each individual lab and project.

You may need to spend time preparing for each lab or project, as well time working on the equipment. *Do not take this course unless you are willing to spend time in the lab, too.*

Use of Canvas on `myASU`

We will use Canvas in this course. The Discussion Groups are a good place to advertise for study groups, ask questions of other students, *etc.* We'll try respond to questions within 24 hours.

Do not ask our TA for an extension on a lab or project as s/he is not authorized to grant them. Late labs and projects will **not** be accepted, except on a documented emergency basis. For consideration of an extension you must contact the instructor *prior* to the due date.

At times, there may be issues that arise with the equipment which may prevent you from completing a lab or project on time. In such a case an extension will be granted to the entire class.

ASU Code of Conduct and Academic Integrity Policy

Plagiarism or any form of cheating in any assigned work is subject to serious academic penalty; this may range from a grade of zero for the work to failure of the course. To understand your responsibilities as a student read:

- Student Code of Conduct and Student Disciplinary Procedures: `http://students.asu.edu/srr/code`
- Student Academic Integrity Page: `http://provost.asu.edu/academicintegrity`
- See also the content under the "Collaboration: What is and is not permitted" folder under the *Syllabus & Course Information* tab on Blackboard.