Computer Science 360
Introduction to Computer and Network Security

Credit Hours: 3
Prerequisites: COMPSCI 230 with a grade of 'C' or better.

How can you contact me?
Name: Shiqing Ma
Email: shiqingma@umass.edu
Phone #: (413) 545-9266
Mailbox: TBA
Office Hours: By Appointment
Location: Zoom (link to be provided)

When and where does the class meet?
The course meets at the registrar-scheduled times: TBA. Lectures will be recorded on zoom/echo360.

Where do I find course materials?
The course has a Canvas page. You can find the link to Zoom and other resource on the course Canvas page. The slides, recorded lectures, forums for question and answer, assignments, and related external links will all be kept in Canvas. Canvas will be used for submitting assignments and returning grades.

What digital technology tools and equipment will you need for this course?
You will require the standard technology need for any CS course.

How will this course be delivered?
This course will be delivered both live in person and recorded via Zoom/Echo360. Some lecture sections will by synchronous via Zoom. Details to be provided in Canvas

What is this course about?
I am excited for you to join me and your fellow students on this journey of learning together as we delve into the topic of Network and Computer Security. Information security has shifted from a deeply technical discipline to a regular conversation in mass media, at home, and across disciplines. Given how much of our collective life is delivered online, the study of information security is fundamental to computer science, but most other disciplines and facets.

This course counts as a CS elective.

What are my hopes and vision for the course?

My hope is that you will come away from completing this course with a broad assessment of the field of information security, basic awareness of the underlying skills and demands of the field, and an opportunity to succeed in future coursework using the basics learned in 360. I envision this course as a supportive and inclusive learning community where we can share experiences, engage critically with relevant texts, ask big questions, and discuss our thoughts and ideas. This means that the success of this class and your own and your peers' learning relies on your thoughtful contributions. There will be readings, a project, creative assignments, and experiential and reflective learning experiences.

I also hope that you will actively engage with me and with each other. I invite your feedback on the course content, such as what's missing and what's redundant, the clarity or any confusion about the structure of the course and/or the assignments, and my facilitation of the course. Your feedback is invaluable to me as I care deeply about making your learning in this course a good experience for you.

> *From Brandi:*
> *I aim for my class to be a place where students can express themselves—open inquiry, voice doubt, or assert beliefs. This class is also a place for learning which requires open mindedness and personal reflection. In these settings it is important that all of us pay attention to the effect and intention of what is said and what is shared. It is important that we do not demean others or assume offensive motives—instead, seek to understand and learn from one another.*

Please know that I will always be here to help you. Email me to schedule a meeting or personal video chat with me.

What will you learn in this course?
- Introductions and logistics
- Basic Crypto
- Symmetric Encryption
- Hash functions
- Public key Crypto
- Kerberos
- Transport Laye Security
- Network attacks: BGP, DNS, TCP/IP
- Firewalls and intrusion detection systems
- Tracking and Monitoring
- Phishing and Malware

Course Materials
- Class Lecture – The primary course materials
- Slides - the basis of the lectures
- Textbook
  - Supplementary to the lectures
  - Basis for homework in the first half of the semester
  - Background definitions that supplement the lectures
  - Allow more lecture time to focus on concepts in greater depth

How will I assess your learning?

You will have a variety of ways to demonstrate your learning. This includes how and what you contribute to class discussions, how you engage with course readings and other texts, and how you complete homework assignments, readings, exams, papers, and other assigned materials. The overall grading rubric is below:
- Homework (4)   40%
- Exams   (3)   30%
  - 2 exams - open book – 2-hour time limit, 24 hours to complete
  - 1 final exam - open book - during final exam period
- Paper and Presentation   25%
  - Proposal video
  - Research paper
  - Presentation
- Participation, Forums, etc.   5%