

# Trustworthy Computing

**ECE 544/644**

**(Fall 2019)**

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Class Hours: Tuesday, Thursday 1.00PM-2.15PM

Lecture Room: ELAB 303

Instructor: Prof. Aura Ganz ([ganz@ecs.umass.edu](mailto:ganz@ecs.umass.edu))

Office: Knowles Engineering Building 309F

Office Hours: Tuesday and Thursday, 2.30pm-3.30pm

Teaching Assistants: TBD

URL: Moodle

Prerequisites: Senior or Graduate student, an introductory course in Computer Networks and good programming ability.

Textbook: Network Security Essentials: Applications and Standards (4th edition) (Paperback), William Stallings, Prentice Hall, 2010, ISBN : 978-0136108054

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## Course Objectives

The main objectives of the course are:

1. To make students realize the practical risks and concerns in network security
  2. To introduce a coherent framework for understanding network security
  3. To introduce essential security concepts and techniques used to secure a network
  4. To expose the students to new state-of-the-art research topics in network security including literature survey, presentation, programming and writing a short paper following IEEE format.
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## Topics Covered

1. Security attacks, services, mechanisms
  2. Symmetric encryption and message confidentiality
  3. Public-key cryptography
  4. Digital signatures
  5. Key management
  6. Authentication applications: Kerberos
  7. IP security
  8. Web security: SSL, TLS, SET
  9. Intruders, intrusion detection
  10. Malicious software: viruses, virus countermeasures
  11. Firewalls
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## Grading

- 2 Tests (40%)
- Research Project (60%)
  - Presentation
  - Programming
  - Research paper

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## Disability Accommodation and Inclusive Learning

If you have a disability or other learning support need and require accommodations, please let me know as soon as possible. You will need to register with Disability Services (161 Whitmore Administration building; phone 413-545- 0892). Information on services and materials for registering are also available on their website [www.umass.edu/disability](http://www.umass.edu/disability). Your success in this class is important to me. We all learn differently and bring different strengths and needs to the class. If there are aspects of the course that prevent you from learning or make you feel excluded, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course.

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## Statement on Academic Honesty

It is expected that all students will abide by the Graduate Student Honor Code and the Academic Honesty Policy (available at the Graduate Dean's Office, the Academic Honesty Office (Ombud's Office)). Sanctions for acts of dishonesty range from receiving a grade of F on the paper/exam/assignment or in the course, loss of funding, being placed on probation or suspension for a period of time, or being dismissed from the University. All students have the right of appeal through the Academic Honesty Board.

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## Inclusivity

The diversity of the participants of this course is a valuable source of ideas, problem solving strategies, and engineering creativity. If you feel that your contribution is not being valued or respected for any reason, please speak with me privately. If you wish to communicate anonymously, you may do so in writing, speak with Assistant Dean Dr. Paula Rees ([rees@umass.edu](mailto:rees@umass.edu), 413.545.6324, or in person in 128b Marcus Hall, within the Engineering Community, Equity and Inclusion Hub across from the coffee shop). You may also submit any concerns or comments through the College of Engineering Climate Concerns and Suggestions on-line form (<https://tinyurl.com/UMassEngineerClimate>) and/or the Positive and Negative Classroom Experience online form (<https://tinyurl.com/UMassEngineerClassroom>). We are all members of an academic community with a shared responsibility to cultivate a climate where all students/individuals are valued and where both they and their ideas are treated with respect.