**Comp 361: Introduction to Cybersecurity**

(2021 Fall, 3 credit hours)

Department of Computer Science

**Syllabus**

# General Information

Instructor: Enping Li

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Phone: 508-531-2349

Office: DMF 335

Office hours: M/T/R 10:00-11:00 Via Microsoft Teams

Course page: http://bridgew.blackboard.com (BSU Blackboard)

# Prerequisite Requirements:

COMP 250, completed with a grade of “C-” or higher

# Course Description

This course provides a fundamental overview of essential principles and technologies in cybersecurity. Topics include computer networks and protocols, cryptography, network security, computer malware, cybersecurity threats and cybersecurity defense.

**Textbook(s)**

* + Recommended textbook: Introduction to Computer Networks and Cybersecurity, Chwan-Hwa (John) Wu, J. David Irwin, CRC Press , 2013, ISBN-10: 1466572132 or ISBN-13: 978-1466572133
  + Supplemental reading*:* Computer Networking: A Top Down Approach*,* 7th edition, Jim Kurose, Keith Ross
  + Supplemental reading: A Practical Introduction to Computer Networking and Cybersecurity, 2nd Edition, 2015, [Bongsik Shin](https://www.amazon.com/s/ref=dp_byline_sr_book_1?ie=UTF8&text=Bongsik+Shin&search-alias=books&field-author=Bongsik+Shin&sort=relevancerank), Montezuma Publishing, 2015, ISBN-10: 074428855X or ISBN-13: 978-0744288551
  + Supplemental reading: Computer Security: A Hands-on Approach, 2019, 2nd edition, Wenliang Du, ISBN-13: ‎ 978-1733003902

**Student Learning Outcomes**

At the end of the course students should be able to:

* + Describe the fundamental concepts of computer networks.
  + Describe the basic principles of cybersecurity threats and defenses
  + Demonstrate the understanding of basic protocols in different layers of computer networks as applied to cybersecurity applications.
  + Demonstrate knowledge or skills in analyzing cybersecurity threats
  + Demonstrate knowledge or skills in applying defensive measures (cryptography and authentication systems, intrusion detection/prevention systems, firewalls, and virtual private networks) to defend cybersecurity attacks.

**Course Requirements and Evaluation Methods**

There will be two tests, one in the middle of the semester and one at the end of the semester.

The final grade will be given according to the following tentative weights

**Grade Components**:

Homework Assignments -------------------------------------------------------------------- 20%

Labs -------------------------------------------------------------------------------------------- 20%

Quizzes ---- ------------------------------------------------------------------------------------ 10%

Midterm--------------------------------------------------------------------------------------- 25%

Final-------------------------------------------------------------------------------------------- 25%

**Grading Scale**

90-100: A (90-92: A-, 93-100: A )

80-89: B (80-82: B-, 83-86: B, 87-89: B+ )

70-79: C (70-72: C-, 73-76: C, 77-79: C+ )

60-69: D (60-62: D-, 63-66: D, 67-69: D+ )

00-59: F

**Course Outline and Schedule**

|  |  |
| --- | --- |
| Week | Topic(s) |
| Week 1 | Cyber security overview |
| Week 2 | Application layer protocols |
| Week 3 | Link and physical layers |
| Week 4 | Network layer |
| Week 5 | Transport layer |
| Week 6 | Firewalls |
| Week 7-8 | Intrusion detection/prevention systems |
| Week 9-10 | Cryptography and authentication |
| Week 11 | Secure socket layer/transport layer security |
| Week 12 | Virtual private networks |
| Week 13 | Cyber threats |
| Week 14 | Cyber Defense |
| Week 15 | Final Exam |

**Progress Report**

Students will be provided with their progress in the course at least once prior to the mid‑point of the course. The mid-term grade will be determined based on the test and assignments due prior to the mid-term.

**Late Assignment Policy**

Each homework assignment is due at the end of the day (11:59 pm) of the due date. Late assignment will *be penalized 10% per day for each day late* (excluding weekends and holidays). No assignments will be accepted if they are late for more than three days. Extension can be granted if students have informed the instructor before deadline with legitimate reasons for having late submissions.

**Attendance Policy**

Quizzes will be used as attendance record. Students with unusual circumstances should advise the instructor of their situation immediately. Students will be held responsible for all announcements made in class.

*If the students miss the quizzes or exams and fail to tell the instructor in advance, the students lose the chance of having the make-up ones.*

**Academic Integrity**

* Unless an assignment is clearly introduced as a team project, the student should do his/her work independently.
* We have a zero-tolerance policy for cheating. First-time offenses will result in 0 points for the corresponding assignments or tests and a meeting with the professor. Second-time offenses will result in more serious consequences: possibly failing the course and a referral to Academic Affairs Office.

Students are advised that Academic Integrity policy will strictly be enforced in this course. *“At Bridgewater State University, academic honesty is expected of all students; plagiarism and cheating are not condoned and are subject to academic penalty, which may result in a failure for the course in which the violation took place. A violation may result in a reduced grade, suspension or dismissal from the university.”* – excerpted from the [Academic Integrity and Classroom Conduct policy](http://catalog.bridgew.edu/content.php?catoid=7&navoid=486#Academic_Integrity_and_Classroom_Conduct). The Academic Integrity policy is available at <http://catalog.bridgew.edu/content.php?catoid=7&navoid=486#Academic_Integrity_and_Classroom_Conduct>.

**Classroom Behavior**

Behavior conducive for learning is expected in the classroom, which means no excessive talking to other students or sleeping. Also, this includes turning off cell phones and other electronic devices while in class. Electronics devices include laptop computers, unless you are using them to take class notes. If you are using them to take notes you need to get permission from the instructor. Anyone who violates this policy may be asked to leave the classroom for that class period.

**Students with special needs:**

BSU’s commitment to students with disabilities is not only shaped by legal requirements but is also driven by our commitment to social justice and ensuring a fully accessible University experience to our community. Students with disabilities are encouraged to collaborate with *Student Accessibility Services* to confidentially explore accommodations and other resources available to them. SAS can be reached at [SAS@bridgew.edu](mailto:SAS@bridgew.edu) or 508.531.2194.

Any student who due to a documented disability needs special accommodations to participate in class and/or complete assignments should made to the instructor during the add/drop period so that reasonable accommodations can be made.

# Additional Notes

The instructor reserves the right to modify course policies, course schedule, and assignment/ project grade weight and due date. All students are expected to be responsible users of the computer systems for this course. If you require accommodation based on disability, please meet with the instructor in the first week of the semester to make sure you are appropriately accommodated.