

Computer and Network Security
CNT 5410 Sections 1272,2FED,INTL
Class Periods: Online (MWF 12:50pm – 1:40pm)
Location: Online
Academic Term: Fall 2020

Instructor:

Prof. Vincent Bindschaedler
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Office Hours: Online M 12:50pm – 1:40pm or by appointment

Teaching Assistant/Peer Mentor/Supervised Teaching Student: None

Course Description

This is an introduction to computer and network security. Topics covered include cryptography, applied cryptography, public-key infrastructure, network security, firewalls, secure communications, web security, authentication, passwords, malware, botnets, denial of service, anonymity and Tor, data privacy, side channel threats, and other timely topics (as time permits).

The course aims to provide students with foundational knowledge in computer security and the tools to read, understand and analyze academic computer security research. Reading material will mostly consist of major papers from the research literature. Links to all reading materials will be provided.

Course Pre-Requisites / Co-Requisites

Knowledge of:

1. Networking
2. Operating/Distributed Systems

Note: this course is primarily aimed at graduate students. But highly motivated undergraduates who seek exposure to research in this space are welcomed!

Course Objectives

Students will learn about foundational concepts of computer security and privacy. By the end of the semester, successful students will also be able to read, understand, and analyze computer security research papers and will have demonstrated basic ability to conduct research in this space.

Materials and Supply Fees

None

Required Textbooks and Software

None. PDFs of reading material and academic papers will be provided.

Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance is *strongly recommended* but not mandatory. Due to the course format, students who miss many lectures will be at a *significant* disadvantage. Students are expected to keep up with the reading. This is important to do well in this course. Participation will be assessed and account for 10% of the overall grade for the course. Students can demonstrate participation in various ways such as asking questions or offering their opinions during discussion, or through posts on the e-learning platform.

Students will be assigned written, hands-on assignments related to course topics and the course research project. Assignments will be handled through the E-learning platform (elearning.ufl.edu). Assignments turned in late will incur a lateness penalty of 15% per day, up to a maximum of 3 days (after which the grade will be 0). If an extension is required for a legitimate reason (e.g., medical or travel), students should contact the instructor and provide justification a few days ahead of the assignment due date.

Excused absences must in compliance with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation.

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Course Project	100	30%
Assignments	100 each	15%
Midterm	100	15%
Final Exam	100	30%
Class Participation	100	10%

Grading Policy

Percent	Grade	Grade Points
92.0 - 100.0	A	4.00
85.0 - 91.9	A-	3.67
78.0 - 84.9	B+	3.33
71.0 - 77.9	B	3.00
64.0 - 70.9	B-	2.67
57.0 - 63.9	C+	2.33
50.0 - 56.9	C	2.00
43.0 - 49.9	C-	1.67
36.0 - 42.9	D+	1.33
29.0 - 35.9	D	1.00
22.0 - 28.9	D-	0.67
0 - 21.9	E	0.00

More information on UF grading policy may be found at: <http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

Academic Integrity

Students are required to follow the university guidelines on academic conduct and the student honor code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code>) at all times. Students failing to meet these standards will be reported to the Dean of Students, **which can result in the student receiving an 'E' for the semester**. In particular, students are explicitly forbidden from copying anything off of the Internet (e.g., source code, text, slides) without proper attribution or citation. Students are also forbidden from copying code/answers from each other for the purposes of completing any assignment or a course project.

Ethics Statement

This course covers topics concerning the security of many systems that are widely deployed and potentially critical. As part of this course, we will investigate methods, tools and techniques whose use may negatively impact the rights, property and lives of others. As security professionals, we rely upon the ethical use of the above technologies to perform research. However, it is easy to use such tools in an unethical manner. Unethical use includes the circumvention of existing security or privacy measurements for any purpose, or the dissemination, promotion, or exploitation of vulnerabilities of these services.

This is **NOT** a class on hacking. Any activity outside of the spirit of these guidelines will be reported to the proper authorities both within and outside of UF and may result in dismissal from the class and the University. Exceptions to these guidelines *may* occur in the process of reporting vulnerabilities through the proper channels; however, students with any doubt should consult Professor Bindschaedler for advice. *DO NOT* conduct any action which could be perceived as technology misuse anywhere or under any circumstances unless you have received explicit permission from Professor Bindschaedler.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the ***Computer and Network Security, CNT 5410***
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individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: <https://care.dso.ufl.edu>.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.