EEL 4804

Introduction Malware Reverse Engineering

Section: RVC

Internet/Fully Online

Spring Term 2026

Course Time Zone | Eastern Time (ET). Course due dates are according to this time zone.

Professor Information

Atoussa Tehrani

Roles: Primary Instructor

Email: hosseini@fiu.edu

Response Time: 24 hours

Phone: (305)348-4943

Office Hours: Thursdays at 8 pm or by appointment

Office Location: EC3113

Department or Academic Unit: ECE

Course Prerequisites

Course prerequisites, if any, are listed below.

Prerequisites: EEL 2880 or equivalent or CNT 4403 or permission of the instructor

Course Description

The objective of this course is to familiarize students with the practice of performing reverse engineering on suspicious files and programs by utilizing static and dynamic techniques and procedures. The student will gain an understanding of how programs are compromised and how to validate and restore its integrity. Analytical information such as environment changes (file, system, network, and process), communication with the rest of the network and the malware's impact on the system are addressed.

Textbook and Course Materials

PRACTICAL MALWARE ANALYSIS

Required/Recommended: Required

Authors: SIKORSKI

Publisher: No Starch Press

Publication Date: 2012

Copyright Date: 2012

ISBN 10: 1593272901

ISBN 13: 9781593272906

Chapters/Pages: 1 through 14

Panther Book Pack

Get all required course materials for $20.50 per undergrad credit hour through Panther Book Pack. You'll be charged automatically unless you opt out within 3 days after the add/drop deadline.

For more details, to compare costs, and to learn how to access your course materials, visit the Panther Book Pack information page on FIU OneStop.

Student Learning Outcomes/Objectives

- Explain the goals of malware analysis.
- Identify various type of malware like backdoors, keylogger, RATS and many others.
- Exercise common methodologies and approaches to analyze malware
- Examine disassemblers and debuggers for advanced malware analysis.
- Expose students to hands-on practice to the tools and techniques to find, extract, and analyze malicious code from various types of hardware.
- Analyze the way that malware interacts with any associated networks, identifying the type of information being targeted.
- Analyze the way that malware is launched, propagated, and its payload.

- Explore OpenAI's ChatGPT utilization for malware reverse engineering.

Expectations of this Course

This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same as a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

Students are expected to:

- **review the getting started** page located in the course modules;
- **introduce yourself to the class** during the first week by posting a self-introduction in the appropriate discussion;
- **take the practice quiz** to ensure that your computer is compatible with the learning management system, Canvas;
- **interact** online with instructor and peers;
- **review** and follow the course calendar and weekly outlines;
- **log in** to the course at least **3 times** per week;
- **respond** to discussions by the due date specified. **No late work will be accepted;**
- **respond** to **emails** within 2 **days**;
- **submit** assignments by the corresponding deadline.

The instructor will:

- log in to the course **5 times** per week;

- respond to **emails** within **24 hours**;
- grade assignments and/or provide feedback within 5 **days** of the assignment deadline.

Course Communication

Communication in this course will take place via the Canvas Inbox. Check out the Canvas Conversations Tutorial or Canvas Guide to learn how to communicate with your instructor and peers using Announcements, Discussions, and the Inbox. I will respond to all correspondences within 24 hours.

Policies & Resources

Before starting this course, please review the Policies & Resources Page in Canvas which includes comprehensive information on various University and Course Level Policies such as:

- University Policies
- Accessibility and Accommodations
- Online Etiquette
- Technical Requirements and Skills
- Computer & Digital Literacy Skills
- Course Technology Accessibility Statements and Privacy Policies
- Academic Integrity
- Copyright Statement
- Core Principles of This Course
- Nondiscrimination Statement
- Panthers Care & Counseling and Psychological Services (CAPS)

- Fair Use Policy

Assignments & Assessments

Discussion Forums

Keep in mind that your discussion forum postings will likely be seen by other members of the course. Care should be taken when determining what to post.

Discussion Forum Expectations:

General Forum

- This forum is for general conversations/questions.
- This forum is not graded.

Introduce Yourself Forum

- Please introduce yourself during the first week of class.
- Please follow the guidelines in the forum.

Module Discussion Forum

- There will be two discussion topics posted by the professor every week.
- The professor will review student discussion posts and participate to determine the amount of substantive knowledge incorporated into the post and student response post.
- Student discussion board posts will be worth 10% of the student grade.
- Students can earn 10 discussion points per week - 5 points for an original post and 5 points for responding to a peer’s post. Students must do each to earn full credit.
- Please follow the guidelines listed in the Discussion Participation Rubric posted in the course.

Assignments

Assignment Expectations:

- Explicit instructions and grading criteria will be provided for all assignments.
- Unless specified otherwise, all assignments are to be completed by the individual student.
- Each student will submit their own original work. Any evidence of duplication, cheating or plagiarism will result at least a failing grade for the course.
- All work is to be submitted via Canvas. DO NOT send assignments by email.
- All work submitted should display Panther ID number and should be signed, as the students' own work, and that no unauthorized help was obtained.
- Assignments are due on the date specified. Assignments submitted late (within 1 week) will receive half credit.
- Students are encouraged to ask questions and to discuss course topics with the instructor and with each other via the Lab Assignment Discussion Forum.
- To get assistance try to see me by an appointment.
- The expected turn-around time for feedback or grades is 7 days.

Lab Assignment Expectations:

- Labs are available with the start of the corresponding modules, they are due prior to the start of the next module, and late labs are not graded.
- These labs are to be completed by the individual student.
- The lab questions are associated with the end of the chapters in the book and are associated with course modules, and typically there are two chapters per module, so students will be completing two labs per module. The labs at the end of the chapter are to prepare students for the final example, so completing the labs is important for success on the final.
- The answers to the labs can be found in the book's Appendix, but students are urged to attempt labs and verify their answers.
- Please submit your work and not a copy of the book's solution.

- Students are given full credit for lab submission as the answers are in the book. If a lab is not submitted then the student will receive no credit for that particular lab assignment.

Final Project

- Students must complete a Malware Analysis final project and submit their project report in Canvas. Students must present their final project results during a live Zoom meeting and respond to all the related questions.

Quizzes

In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum hardware requirements.

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or a tablet. If you need further assistance please contact FIU Online Support Services.

Self-Assessment Expectations:

- Self-Assessments quizzes are worth 10% and are provided primarily for students to check comprehension of course material.
- Students may complete these assessments based on weekly content.
- Students will have 30 minutes to complete the assessment.
- The assessment will save and submit automatically when time expires.
- Once started, the assessment must be completed in one sitting.
- Students will be allowed to take assessments once.
- Self-Assessments will become available on a weekly basis.

Proctored Exams

Exam Expectations:

- There are two exams, midterm and final exam both proctored using Honorlock.
- The Midterm exam is scheduled on **Monday, March 9th at 8:30 PM – 9:30 PM** in Canvas.
- The Final Exam is scheduled on **Tuesday, April 21st at 8:30 PM – 9:30 PM** in Canvas.
- **No alternatives are available for midterm and final exams date and time.** Students should not enroll in this course if they have a conflict with scheduled exams time.
- Students will be given one attempt for the exam.
- These exams will consist of multiple choice questions only.

Zoom Video Conference

Zoom is an online meeting room where you can interact with your professor and fellow students by sharing screens, sharing files, chatting, broadcasting live audio, and taking part in other interactive online activities. We will be utilizing this tool to provide students with a summary of activities for every modules and also for office hours to answer student's questions.

Meetings will be held every Thursday at 8:00 pm - 9:00 pm. The **passcode** to join is **EEL4804**.

These meeting are recorded and recording will be available in Canvas for 10 days. Student can watch the recording if they are not able to attend.

Zoom meetings can be accessed via the Zoom link in the course navigation menu. Once you click on the Zoom link, it will route you to join the meeting for the respective class session. You will also be able to view upcoming meetings, previous meetings that you have already joined, and meeting recordings. Before joining an actual class session:

> Reference the Zoom Student Tutorials to learn about the tool, how to access your meeting room, and share your screen.
> Access the Zoom Test Meeting Room to test out the software before joining an actual session.

If you encounter any technical difficulties, please contact the FIU Canvas Help Team. Please ensure you contact support immediately upon the issue

occurring.

Grading

COURSE REQUIREMENTS	NUMBER OF ITEMS	POINTS FOR EACH	TOTAL POINTS AVAILABLE	WEIGHT
Labs and Assignments	7	100	700	30%
Discussion Forums and Participation	7	100	700	5%
Quizzes	7	100	700	10%
Midterm Exam	1	100	100	15%
Final Exam	1	100	100	15%
Final Project	1	100	100	25%
Total	24	100	2400	100%

Grading

LETTER	RANGE (%)	LETTER	RANGE (%)	LETTER	RANGE (%)
A	95-100	B	82 - 85	C	70 - 73
A-	90-94	B-	78 - 81	D	60 - 69
B+	86-89	C+	74 - 77	F	59 or less

Canvas Schedule

Due Date	Assignment Name	Assignment Type	Points
	Academic Honesty Policy	Quiz	0
	Honorlock Practice Quiz	Quiz	0

Due Date	Assignment Name	Assignment Type	Points
	Open Forum	Discussion	0
	Practice Quiz	Quiz	0
1/18/26	Module 1 Discussion Forum	Discussion	100
1/18/26	Quiz 1	Quiz	100.1
1/19/26	Lab 1	Assignment	100
2/1/26	Lab 2	Assignment	100
2/1/26	Module 2 Discussion Forum	Discussion	100
2/1/26	Quiz 2	Quiz	100
2/15/26	Lab 3	Assignment	100
2/15/26	Module 3 Discussion Forum	Discussion	100
2/15/26	Quiz 3	Quiz	100
3/8/26	Lab 4	Assignment	100
3/8/26	Module 4 Discussion Forum	Discussion	100
3/8/26	Quiz 4	Quiz	100
3/9/26	Midterm Exam (Chapters 1 - 7)	Quiz	70
3/22/26	Lab 5	Assignment	100

Due Date	Assignment Name	Assignment Type	Points
3/22/26	Module 5 Discussion Forum	Discussion	100
3/22/26	Quiz 5	Quiz	100
4/5/26	Lab 6	Assignment	100
4/5/26	Module 6 Discussion Forum-	Discussion	100
4/5/26	Quiz 6	Quiz	100
4/19/26	Final Project	Assignment	100
4/19/26	Lab 7	Assignment	100
4/19/26	Module 7 Discussion Forum	Discussion	100
4/19/26	Quiz 7	Quiz	100
4/21/26	Final Exam (chapters 8 - 14, except 10)	Quiz	70.3

Schedule of Topics

1/5/2026 - 1/18/2026	Module 1 - Malware Analysis Introduction
1/19/2026 - 2/1/2026	Module 2 - Basic Malware Analysis
2/2/2026 - 2/15/2026	Module 3 - Advanced Static Analysis
2/16/2026 - 3/8/2026	Module 4 - Windows Advanced Static Analysis
3/9/2026 - 3/22/2026	Module 5 - Advanced Dynamic Analysis

3/23/2026 - 4/5/2026	Module 6 - Malware Functionality
4/6/2026 - 4/19/2026	Module 7 - Data Encoding and Malware Network Forensics

Nondiscrimination Statement

The **Office of Civil Rights Compliance and Accessibility** (CRCA) is responsible for ensuring that FIU maintains a workplace and learning environment free from discrimination, where current and prospective faculty, staff, and students are treated equitably. If any student, employee, or applicant has a sincere and reasonable belief that they have been discriminated against or harassed based on age, color, disability, marital status, ethnic or national origin, race, religion, retaliation, sex, or any other protected category, they can report their concerns to the CRCA team through report.fiu.edu.