

REVERSE ENGINEERING

Fall 2018

Instructor:	G Leaden	Time:	W 8:00 – 9:45 F 11:00 – 12:15
Email:	g.leaden1@marist.edu	Place:	Hancock 2023

Course Page: <http://goleaden.com/RE4Marist>

Office Hours: By appointment only. Let's grab ☕.

Required Text: This book was selected both for its low low cost of *free* and its thoroughness. The PDF is still being updated to this day by the author, as reverse engineering is an ever evolving landscape.

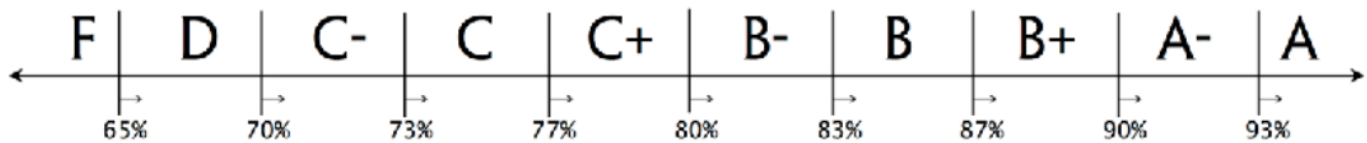
- *Reverse Engineering for Beginners* by Dennis Yurichev.
- Other resources (Books, Articles, Websites, Challenges, and more) are available on the course page.

Objectives: This course aims to build upon skills learned in the prerequisites courses and apply them with the specific purpose of understanding compiled programs through assembly language. Topics covered include: basic assembly operations, disassemblers, and binary analysis. Students will review case studies, smash stacks, and gain a unique perspective into how their software looks at the lowest level.

Prerequisites:

- CMPT 422 - Computer Organization and Architecture
- CMPT 416 - Introduction to Cybersecurity

Grading Policy:



Homework	10%
Midterm	30%
Case Studies	20%
Final Project	30%
Discussion and Participation	5%
Preparedness	5%

Extra Credit:

Extra credit work may be assigned at the discretion of the professor. All problems would be provided by the book's "Challenges."

Class and Course Policy:

This course requires a desire to learn and apply oneself outside of the classroom. There are many resources outside of this course and its official grades that will enhance your understanding of the material. I suggest you review the resources posted on the course website, and feel free to contact me at any time during the course if you would like to learn more, or just discuss the subject in an informal setting. I am never opposed to grabbing coffee ☕.

Please see the Department of Computing Technology Goals listed on the Marist website for details.

Class Schedule:

Week	Topics	DUE
1	Introduction, Reverse Engineering Taxonomy	-
2	CPUs, Binary, ISAs, Register Overview	-
3	CPUs, Binary, ISAs, Register Overview	-
4	Tools Overview, Assembly, Hello World!	-
5	Wrap up week 4, Compilers	-
6	Midterm, The Stack	Assembly Review
7	The Stack, Loops, Scanf(), and Printf()	-
8	Reversing our first program: Interactive disassembly, static code analysis	Stack Review
9	Reversing our first program: Interactive disassembly, static code analysis	-
10	Data Structures, Integral Data Types, Integer Overflow, Endianness	Case Studies
11	Case Studies	-
12	Case Studies	-
13	<i>Thanksgiving Break</i>	-
14	Identifying Executables, Functions, Outside Communication	-
15	Reflection, Catch-up and Work on Project Time	-
FINALS	Project Due	Project