

CSC363/463 Theory and Practice of Safe Systems Programming Syllabus for Fall 2023

Corin Pitcher

30 Aug 2023

Overview

Modern developments in programming languages, toolchains, and package management reduce the risk of security vulnerabilities from programming errors and supply chain attacks. This course covers the theory and practice of ownership type systems, their application in systems programming, and discussion of the vulnerabilities they mitigate. Approaches to software integrity and distributed code review are investigated in the context of package management and supply chain attacks. Coursework includes development of a large systems program in a language with ownership types such as Rust.

Instructor Information

- **Instructor** Dr. Corin Pitcher
- 835, CDM Building, 243 S. Wabash Avenue
- **Email** cpitcher@cs.depaul.edu
- **Tel** +1 312 362 5248
- **Instructor Homepage**
<https://fpl.cs.depaul.edu/cpitcher/>
- **Course Homepage**
<https://fpl.cs.depaul.edu/cpitcher/courses/csc363/>
(for lectures slides, assignments, reading schedules, examples, learning outcomes)

- **LMS Homepage**
<https://d2l.depaul.edu>
- **Discord Server** see Course Homepage
- **Lecture Videos** D2L

Prerequisites

If you are not sure that you have satisfied the prerequisites, speak to the instructor before the second lecture.

Prerequisite Courses

- **Concepts of Programming Languages** (CSC347 or CSC447)

Textbooks

There is one required textbook:

- [Programming Rust: Fast, Safe Systems Development](#) by Jim Blandy, Jason Orendorff, Leonora Tindall.
second edition Published by O'Reilly.
ISBN-13: 978-1492052593.
You can also read the book via [DePaul's Safari subscription](#).

Course Communication via Discord

Students are expected to subscribe to the class Discord server, and read all messages within 24 hours normally (48 hours at the latest).

Assessment

The course grade will be based on:

Item	Weight
Midterm exam	30%
Final project	70%

Midterm Exam

The midterm exam is a take-home exam to be completed overnight on the date shown on the course schedule page.

Final Project

1. Final project work must be submitted in the Git repository and be regularly checked in during development. Email submissions will not be accepted.
2. Final project work must be completed in its entirety by the student.
3. Plagiarism of final project work will result in penalties up to and including failure of the course.
4. If you are in any doubt about what constitutes plagiarism, contact the instructor well before the submission date for advice. You may use as much code as you like (without acknowledgement) from the examples discussed in class and the course textbook.

Other Policies

Classroom Instruction

This class will have 30 hours of combined lecture video and tutorial/office hours instruction.

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L, and sent via Discord.

Attendance

1. Students are expected to attend the class or watch the recorded lectures for each week during that week, i.e., watch lectures for Week 1 during Week 1.
2. Students are expected to subscribe to the class Discord server, and read messages in a timely fashion.

3. The midterm exam date is posted on the schedule on the [course home-page](#). You must complete the midterm exam at the scheduled time.
4. **Lecture slides are a supplement to lectures only.** The slides are not intended to be read in lieu of listening to the lecture.

Retro-Active Withdrawal

CDM understands certain extenuating circumstances can hinder one's ability for academic success and completion of course work. Please see <http://www.cdm.depaul.edu/Current%20Students/Pages/Enrollment-Policies.aspx> for additional information.

Absence Notifications

In order to petition for an excused absence, students who miss class due to illness or significant personal circumstances should complete the Absence Notification process through the Dean of Students office. The form can be accessed at <http://studentaffairs.depaul.edu/dos/academicprocesses.html>. Students must submit supporting documentation alongside the form. The professor reserves the sole right whether to offer an excused absence and/or academic accommodations for an excused absence.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/>. If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at: <http://cdm.depaul.edu/enrollment>

Incomplete Grades

An incomplete grade is defined in the Student Handbook as follows (note that the policy in the undergraduate student handbook applies to both undergraduate and graduate students): A temporary grade indicating that the

student has a satisfactory record in work completed, but for unusual or unforeseeable circumstances not encountered by other students in the class and acceptable to the instructor is prevented from completing the course requirements by the end of the term. Please see <http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx> for additional information.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: csd@depaul.edu

- Lewis Center 1420, 25 East Jackson Blvd.
- Phone number: 312 362 8002
- Fax: 312 362 6544
- TTY: 773 325 7296

Dean of Students' Office

The Dean of Students' Office (DOS) helps students navigate the college experience, particularly during difficulty situations such as personal, financial, medical, and/or family crises. For a list of support services and advocacy information, please visit <http://studentaffairs.depaul.edu/dos/>.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent

periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.