

CS 440: Language Processors - Fall 2022

Date/Time: Fridays, 10:30am - 1:10pm

Location: Music/Theater Building 1005 (MTB 1005)

Instructor: Dr. Ahmed Bin Zaman

Office: ENGR 4455

Phone: 703-993-6642

email: azaman6@gmu.edu - put CS440 in subject line

Office Hours: Tuesdays, 2:00pm – 4:00pm

Course Content

This course will cover the theoretical and implementation aspects of language processing. Emphasis will be on the design and construction of compilers. There are several **substantial** programming assignments associated with this course. These assignments will be implemented in C or Java (student choice).

- Compiler Design
- Lexical Analysis
- Syntax Analysis - grammars, LL(1) parsers, LR(1) parsers
- Semantic Processing
- Code generation and optimization

Pre-requisites

- **Strong** programming and data structure experience (CS 310).
- Study of formal languages, including regular and context free (CS 330)
- Experience with assembly language programming and basics of runtime systems (CS 367).

Textbooks

- *Compilers: Principles, Techniques, and Tools*, Aho, Lam, Sethi, & Ullman, 2006 (2nd edition)
- *lex & yacc*, Levine et. al. (recommended)
- Other course materials, including slides, will be available on Blackboard

Grading

Homework	15%
Programming assignments	3 projects (10%+10%+15%)

Midterm Exam	25%
Final Exam	25%

- There is a forgiven late day policy (3 days over the entire semester). No late work accepted otherwise.
- You must have a written excuse (doctor's note, for example) to miss an exam. I reserve the right to give oral makeup exams in lieu of written.
- It has been my experience that time is the biggest determiner of your final grade in this class. I suggest that you start assignments when I hand them out. They often take more time than you think.
- The programming assignments are complex and involves many lines of code across multiple files. Therefore, a strong programming and data structures knowledge is assumed for the students who take the course. You may not seek help from the instructor or the TA for any programming related issue but rather expect help on the concepts and clarification of problem statements. Implementation and coding decisions are up to you unless specified.

Honor Code

You are expected to abide by the honor code. Programming assignments, homeworks, and exams are individual efforts. Information on the university honor code can be found at: <https://oai.gmu.edu/mason-honor-code/>. I typically use similarity detection software to assist me in finding honor code violations, should they occur.

Inclusion

Every student in this class, regardless of background, sex, gender, race, ethnicity, class, political affiliation, physical or mental ability, veteran status, nationality, or any other identity category, is an equal member of our class. If you encounter any barriers to your inclusion, please contact Prof. Zaman.

Disability

Students with a learning disability or other condition (documented with GMU's Office of Disability Services) that may impact academic performance should speak with the professor ASAP to discuss appropriate accommodations. We are quite happy to assist as is appropriate, but it must be documented ahead of time by ODS.

Privacy and FERPA

Students must use their Mason email account to receive important University information, including communications related to this class. The professor and GTA can not respond to messages sent from or send messages to a non-Mason email address. We will not list your Mason email address on any public forum or provide it to

any other students. Your Mason email address will be provided to grading staff (GTA and graders). If this is an issue, please contact the professor so that we can figure out another option. Video recordings of class meetings that are shared only with the instructors and students officially enrolled in a class do not violate FERPA or any other privacy expectation. All course materials posted to Blackboard or other course site are private; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class.