Course ID/Name: Comp725/Comp825 Programming Languages *(rev 1/22/25)*
Semester: Spring 2025
Instructor: Michael Jonas (**office:** room 141. **email:** mcy59@unh.edu)
Time and Location: Wednesday, 5:40pm – 8:30pm, room 142
Office Hours: appointment
Web Presence:
Website: http://stem.unh.edu/mcy59/comp/725

Course Description:

Several programming languages will be selected for study and analysis. The purpose is to gain knowledge regarding the languages studied as well as providing the basis to conduct analysis related to comparisons and divergence in capabilities. The ability to apply the appropriate language to a specific problem will be enhanced. Prereq: intermediate programming skills in three or more programming languages. 4 cr.

Learning Objectives:

Upon completion of this course, students should be able to:

- Understand the different types of programming languages.
- Determine what type of programming language best fits a problem.
- How programming languages are designed and implemented.

Textbook:

No required textbook, we will use online resources for reference.

Software Tools:

- Eclipse, Notepad++
- Perl, Python, LISP, Scratch, C, C++, Java
- lex, yacc

Student Work and Class Pedagogies:

Class will include both lectures and hands-on lab activity. Lectures will generally take the form of board presentation with questions and answers, although at times we may break into groups to take on a specific topic. The course is 4 credits for undergraduates and the expectation is a minimum of 3 hours engaged time per week per credit over 16 week semester (for graduate students it is 4 hours per credit).

Lab Work:

Some labs will be guided by the instructor whereas others, students will be given a task to solve in pairs or groups. Most lab work will translate to further assignments where student show individually what they have learned. Homework assignments will be reviewed upon completion and exam review will be held. There may also be quizzes at times.

Homework Assignments and Projects:

There will be 4 homework assignments **(worth 48 points)** each requiring some programming with all work done individually. There will be a final project **(worth 20 points)** where students will individually develop their own programming language from start to finish using software tools taught in class.

Schedule: (shaded classes designate online meetings, everything else is in-person)

Class	***Class Topics***	***Lab Work (Code)***	***Assignment Due***
Jan 22	Class begins: Overview of programming languages		
Jan 29	Perl, an imperative scripting language		
Feb 5	More with Perl and a look at Python	Perl programming	
Feb 12	LISP, a functional language		
Feb 19	More with LISP	LISP programming	Hw1
Feb 26	Scratch, a visual language		
Mar 5	Procedural versus object-oriented: comparing C to C++	Example Scratch Breakout game	Hw2
Mar 12	Tokeninization: a lexical analyzer in Java		
Mar 19	***Spring Break***		
Mar 26	Interpreter: recursive descent parser in Java	SQRL Interpreter	Hw3
Apr 2	Chomsky Hierarchy: CSG & regular expr		
Apr 9	A look at completed parser/interpreter	Extending SQRL	Hw4 – part1
Apr 16	Table driven parsing: top down vs bottom up		
Apr 23	Generating a language with lex & yacc	Using flex/bison	Hw4 – part2
Apr 30	More with lex & yacc - Q&A		Project: Grammar
May 7	**Exam**		
	Due May 16		Project: Final

Grading:

14% Participation
    Attendance, participation, and preparedness (-1 point each)
    Grad gets no points (but can lose), work on Wiki note taking for 12 points
44% Homework
    There will be 4 assignments at 8, 8, 10 and 10+8 points respectively
20% Projects
    Language Project: develop programming language, 6% grammar/14% implement
22% Exam
    A final exam (different Grad exam 25%)

Policies

Academic Honesty and Collaboration:

Collaboration is encouraged and supported in the classroom through lab activities and outside the classroom as directed by instructor. Note that homework assignments and tests you submit **must be entirely your own work.** Deviation from this policy will result in dismissal from the course.

See the University policy on **Academic Honesty** for more information.

Attendance:

Is mandatory and you will lose on class participation grade for unexcused absences. Since work is based off lecture and class activities it becomes difficult to do well with too many absences.

Late Assignments and Make-Up Exams:

Policies for late assignments and make-up exams are very strict and apply only in exceptional cases of student illness, accident, or emergencies that are properly documented. It is your responsibility to make arrangements with instructor before the deadline as soon as you are aware you will miss a deadline, exam or class. Unexcused late assignments are penalized 20% per day.

Use of Electronic Devices in Classroom:

Not allowed during examinations. Absolutely no cell phone use during class time.

Accessibility Services:

The University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you must register with Student Accessibility Services (SAS) office. The Student Accessibility Coordinator at UNHM is Jenessa Zurek (email jenessa.zurek@unh.edu).

Mental Health and Wellness

In partnership with The Mental Health Center of Greater Manchester, UNH Manchester offers free mental health sessions for students. For scheduling a session email unhm.advising@unh.edu.