**Course Description:** (Prerequisite: CMPS 240 [CMPS 250 Recommended]) A study of programming languages from both the theoretical and practical perspectives. A survey of major and developing paradigms and languages is undertaken which includes use of specific languages to broaden the student's experience. Implementation is studied through an introduction to language translation along with a study of run-time models and interfaces with virtual machines.  

**Student Learning Outcomes:** Upon completion of the course, a successful student will have the ability to do each of the following:

1. Knowledge and understanding of the evolutionary history of programming languages and of computing in general.
2. Knowledge of and experience with formal languages, including regular and context-free grammars; specifically as they pertain to the lexical and syntactic aspects of programming languages.
3. Knowledge of and experience with Attribute Grammars as a means of representing semantic elements of programming languages.
4. An in depth understanding of the process of language translation.
5. An appreciation of the concept of "binding" and its use in understanding many aspects of programming and programming languages.
6. Facility with the terminology of programming languages regarding matters such as abstraction, data types, expressions, statements, control flow and subprograms.
7. Exposure to selected relevant constructs present in a variety of programming languages, as a means of appreciating alternatives provided in different programming languages. Languages such as Ada, Eifel, Modula-2, etc. are typical.
8. Fluency in LISP programming as an example of the functional paradigm.
9. Exposure to the Prolog programming language as a means of appreciating the declarative and logic paradigms.

**Texts:**  

**Course Web Site:**  
http://www.cs.scranton.edu/~jackowitz/public/Spring2024/c344

(I plan to use this site as the primary means by which I will promulgate course information and digital materials for the course. Although the landing page is on the public web, the "Content Area" (which is where the digital materials are kept) is on the Department of Computing Sciences "intranet", which is accessible only through the department's VPN (virtual Private Network). Although I do not plan to place course materials on Brightspace, I do plan to utilize its "DropBox" feature as the means by which students will submit digital artifacts for evaluation.)

Brightspace requires authentication through the public my.scranton portal. The Content Area on my site not only requires use of the VPN (which requires the installation and use of iVanti software), but also requires authentication through the use of unique and specific credentials, that I will provide at the start of the semester. Details will be covered at the start of the semester.)
GRADING:

Tests (approximate date) and Quizzes (as announced)  
Week of February 26th  
20%

Final Exam: (comprehensive, as per Final Exam Schedule)  
40%

Assignments: (Primarily based on assessment quizzes)  
Programming, homework, etc.  
40%

Attendance, Class Participation considered.
(Your attendance at all classes is expected. The accumulation of more than four absences may result in a diminished final course grade. Your attention and participation during class, as evidenced in part by your speaking in class to ask and answer questions, and enter discussions, will be considered in the determination of the final course grade.)

PROCEDURES:

Lectures:

• In-person attendance is fully expected. However, students are expected to be informed regarding related University Protocols, articulated at https://www.scranton.edu/royals-safe-together/index.shtml and elsewhere. When in-person attendance is not possible or appropriate, students are strongly encouraged to attend remotely rather than be totally absent. Zoom meetings have been configured for this purpose, but advanced coordination with the instructor is required.

• Official notification from either the Dean's Office or the Health & Safety Office is a requirement for in-person absences to be excused. Additionally, because these notifications sometimes lag and are indeterminate, students must provide the instructor with a reasonable advance request (email) for each remote attendance.

• When attending remotely students must abide by the Remote Attendance (on Zoom) - Expectations and Etiquette policy (see link below). Please read it and fully understand it in advance.

• Students are expected to remain in the classroom for the duration of all class meetings. When there is some immediate pressing need there is no need to seek permission. However, since such activity is disruptive, restraint, discretion and the consideration of others is expected.

• Please sit in the same seat for every class meeting.

• Feel free to ask and answer questions, and to contribute to discussions.

• Classroom use of all electronic devices/gadgets (including computers) is at the full discretion of the instructor, as distracting others or yourself will not be tolerated. Using a computer or tablet to actively take notes is a worthwhile use (but evidence of this use may be required by the instructor). Other devices, including (but not limited to) smartphones, cameras, headphones, ear buds, etc. must be kept completely out of sight and unused during meetings. No recording in any form is permitted.

Tests and Quizzes

• always announced in advance

• no make-ups will be given

• notice must be given if a test must be missed due to serious illness or emergency

Assignments:

• each student is required to do his/her own work on each assignment

• discussions and mutually beneficial collaboration among students is encouraged, but must not be to the point of representing someone else’s effort and understanding as your own as this would be considered to be academic dishonesty (see Academic Code of Honesty in the Student Handbook, available at: https://www.scranton.edu/studentlife/studentaffairs/dean/studenthandbook2022-2023.pdf).

• It is the student’s responsibility to clearly identify any and all content that was not actually created by the student; corresponding citations are likewise required. This includes, not only content obtained from peers, but also all content obtained from searches and from AI resources.

• academic dishonesty will be dealt with severely

• each assignment will have a specified due date, and a separate deadline
• normally the deadline is later than (typically, but not always two days after) the due date
• work submitted after the due date is considered to be “late”, will be accepted for grading but may be assessed a penalty (depending upon how late it is, and whether or not worthwhile work had been submitted by the due date).
• work may not be submitted after the deadline; it is considered to be “too late”, may not be accepted for grading, and may receive a grade of zero (depending upon whether or not worthwhile preliminary work had been submitted prior to the due date or prior to the deadline).
• incomplete work generally will receive a grade much higher than zero
• work not submitted will receive a grade of zero

Other:
• See Syllabi Language regarding “My Reporting Obligations as a Required Reporter” at: https://www.scranton.edu/equity-diversity/faculty-resources.shtml