

WENTWORTH INSTITUTE OF TECHNOLOGY

School of Computing and Data Science

Programming Languages

Summer 2023

Email address: kreimendahl@wit.edu

Instructor Name: Frank Kreimendahl

Classroom: listed on leopardweb

Office Location: Ira Allen 304

Class Schedule: MW lectures, F lab

Office hours: M 12:30-1:30, T 2:00-3:30

Lecture/Lab/Total Credits: 3/2/4

Course Website: 3350.witcompsci.com

COURSE DESCRIPTION:

An introduction to programming language concepts, including language evaluation criteria, context free grammars, parse trees, syntax diagrams, symbol tables, data types, control structure, and language translators.

COURSE PREREQUISITES/COREQUISITES:

Prerequisites: COMP2000 and COMP2350

REQUIRED TEXTBOOK(S):

None! Online sources will be provided throughout the semester.

THE COLLEGE BOOKSTORE:

Location: 103 Ward Street Boston MA 02115

Telephone: 617-445-8814

COURSE LEARNING OUTCOMES:

- Evaluate a programming language based on established characteristics and criteria.
- Classify a programming language in terms of its domain of application (e.g. business, scientific, AI), general category (e.g. imperative, functional, logic-based), and implementation methods (e.g. compiled, interpreted, combination).
- Explain formal language design concepts (and the use of tools), including grammars; parsing, lexical analysis, syntax, and semantics; finite state automata; meta-languages for describing syntax (BNF or EBNF) and semantics (attribute grammars); taxonomy of binding (storage and type); and names in terms of their scope, lifetime, and referencing environments.
- Represent the syntax of a programming language in either BNF or EBNF.
- Design and implement programs in both a functional and a logical programming language.

INSTRUCTIONAL METHODOLOGIES:

Lectures and in-class examples will provide knowledge about both theoretical and practical aspects of programming languages. Students will practice language analysis and applications in coding assignments, and practice smaller language concepts with programming labs.

GRADING POLICY:

A midterm and final exam are each worth 15% of the final grade. 40% is based on 6 evenly weighted assignments. The remaining 30% will come from 9 labs.

Assignments will be accepted up to two days after the due date, at a penalty of 20 points per day.

WENTWORTH GRADING SYSTEM:

Grade	Weight	Numerical Definition	Definition
A	4	93-100	Student learning and accomplishment far exceeds published objectives for the course/test/assignment and student work is distinguished consistently by its high level of competency and/or innovation.
A-	3.67	90-92	
B+	3.33	87-89	Student learning and accomplishment goes beyond what is expected in the published objectives for the course/test/assignment and student work is frequently characterized by its special depth of understanding, development, and/or innovative experimentation.
B	3	83-86	
B-	2.67	80-82	
C+	2.33	77-79	Student learning and accomplishment meets all published objectives for the course/test/assignment and student work demonstrates the expected level of understanding and application of concepts introduced.
C	2	73-76	
C-	1.67	70-72	
D+	1.33	67-69	Student learning and accomplishment based on the published objectives for the course/test/assignment were met with minimum passing achievement.
D	1	60-66	
F	0	0-59	Student learning and accomplishment based on the published objectives for the course/test/assignment were not sufficiently addressed or met.

ADD/DROP:

Students should check the academic calendar to confirm the add/drop deadline. Dropping and/or adding courses is done online. Courses dropped in this period are removed from the student's record.

Non-attendance does not constitute dropping a course. If a student has registered for a course and subsequently withdraws or receives a failing grade in its prerequisite, **then the student must drop that course.** In some cases, the student will be dropped from that course by the Registrar. However, it is the student's responsibility to make sure that he or she meets the course prerequisites and to drop a course if the student has not successfully completed the prerequisite. The student must see his or her academic advisor or academic department chair for schedule revision and to discuss the impact of the failed or withdrawn course on the student's degree status.

ACADEMIC SUPPORT:

The Center for Academic Excellence facilitates Wentworth students' academic success and helps them to achieve their full learning potential. Students may choose to receive individual assistance through one-on-one tutoring in many subjects, including math, science, writing, and major classes. In addition, the Center for Academic Excellence offers Facilitated Study Groups (FSGs), tutor-led study tables, academic workshops, and learning-strategy consultations. The peer-tutoring program is certified by the College Reading and Learning Association's International Tutor Training Certification program. To make an appointment or to review our drop-in offerings, please visit www.wit.edu/cae. For additional assistance or support on subjects not listed, please reach out via email at cae@wit.edu.

ACADEMIC HONESTY STATEMENT:

Students at Wentworth are expected to be honest and forthright in their academic endeavors. Academic dishonesty includes but is not limited to cheating, prohibited collaboration, coercion, inventing false information or citations, plagiarism, tampering with computers, destroying other people's coursework or lab or studio property, theft of course materials, posting coursework/course materials to websites, or other academic misconduct. If you have any questions, contact your professor prior to submitting an assignment for evaluation. See your academic catalogue for a full list of definitions and the WIT Academic Honesty website for the procedures: wit.edu/policies/academic-honesty

STUDENT ACCOUNTABILITY STATEMENT:

Any attempt to pass off another's work as one's own is plagiarism.

In this course the penalty for plagiarism is a failing grade in the course for any parties concerned. It is permissible for students to discuss the nature of an assignment or how to use a particular feature of the software. However, not a single keystroke of the work you submit should be done by anyone but you, nor should your work be based on commands supplied by someone else or developed in collaboration with someone else. In other words, you should not sit down and work together with anyone else on the assignments. Nor should you give, receive, or solicit specific information (such as code, commands) from other students in this course. (This, of course, does not apply to labs that are explicitly assigned to a group.) Exchange of detailed information about an assignment is cheating and will not be tolerated.

- Copying code, online answer keys, or answers on exams, or allowing others to copy your work.
- Using unauthorized aid during an exam.
- Copying code from other students' labs or assignments, or allowing others to copy your code.
- Using labs or assignments from current or past students and submitting them as your own.
- Providing your classwork to students now or in future semesters.

For this course, if I catch you plagiarizing you will fail the course. The penalty for sharing your work with someone else is the same as receiving work from someone else. This failure supersedes a withdraw or P/NC grade. Once again, the penalty for plagiarism is immediate course failure.

THE CENTER FOR WELLNESS:

College can be challenging, and it is common to feel overwhelmed or stressed at times. If these feelings are related to course work or academic performance, please talk to me. For more significant mental health concerns, **The Center for Wellness* (003 Watson Hall, 617-989-4390)** provides free and confidential mental health counseling.

If you or someone you know needs support around thoughts of suicide, the following resources are available:

- The Center for Wellness, Watson 003, 617-989-4390, M-F 8:15-4:45
- BeWell@WIT 24/7 telecounseling, 617-989-4390 option #2
- Campus Police, First level of 610 Huntington Avenue, 617-989-4444, 24/7
- Samaritans, call or text 1-877-870-4673
- Crisis Text Line, text "start" to 741-741
- National Suicide Prevention Lifeline, call 1-800-273-8255
- GLBT Youth Hotline, call 1-866-488-7386
- Beth Israel Deaconess Emergency Room, 190 Pilgrim Rd Boston, MA

Students requiring academic accommodations must provide an official accommodation memo from **The Center for Wellness* (003 Watson Hall, 617-989-4390)** and contact me privately to discuss logistics.

* The Center for Wellness will be providing mental health counseling sessions and accessibility services appointments virtually and appointments can be scheduled by calling 617-989-4390. The Center for Wellness is open for mental health emergencies. Additionally, 24/7 emotional support is available by this same phone line. Thank you for keeping our community safe and healthy by following these procedures.

COLLEGE OF THE FENWAY STUDENTS:

If you are enrolled in this course through COF Cross Registration, notify your course instructor. Please provide her/him with your email address to be sure that you receive course information in a timely way. You should also discuss how to access online applications that might be used in the course.

SYLLABUS OUTLINE:

The following schedule is tentative and subject to change:

Week	Topic	Assignments
1	Intro to F#	
2	F# Language	
3	Programming Patterns	A1
4	Functionals	
5	Types, Data Constructors	A2
6	Polymorphism, Program Syntax	
7	Formal Semantics	A3
8	Language Systems, Memory Locations	
9	Prolog Intro	A4
10	C# Inheritance, Generics	
11	Exceptions, OO	A5
12	Scope, Memory Management	
13	Parameters	A6
14	Exam Review	
15	Final Exam	