COMP 4040 - Programming Languages
Spring 2022
Fatih Şen (Shen), PhD

Contact Information

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Class Location: Dunn Hall, 129	**Class Days/Time:** MW/2.20pm-3.45pm
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Office Hours

Monday/Wednesday, 11am-11.45am or appointment by email.

Course Description

COMP 4040 – Programming Languages – 3 Credits

Comparative features, syntax and applicability of high-level programming languages such as FORTRAN, PASCAL, LISP, Scheme, ADA, C, C++, JAVA, Python, PHP, JavaScript, Perl, Prolog, FORTH; data types, data structures, dataflow; procedures, recursion, runtime environment, string manipulation, list processing, array processing, documentation, programming style.

Specific Goals of this Course

The course will teach you the basics of programming languages. More specifically, you will have hands-on experience in high-level languages and will have a better understanding of new programming paradigms such as declarative, functional, and event-driven programming. You will have a brief understanding of how to design and implement a programming language as well.

Learning Outcomes

1. Evaluate a programming language for readability, writability and reliability.
2. Compare trade-offs of different programming languages.
3. Write programs in a high-level imperative language such as C#.
4. Design simple languages using context-free grammars.
5. Understand programming paradigms such as declarative, functional, and event-driven programming, and writing programs using those paradigms.

Requirement

Attendance is mandatory and students must bring their laptops to the class.

Required Textbook

Concepts of Programming Languages, 11th Edition by Robert W. Sebesta
Available at bookstore or
https://www.amazon.com/Concepts-Programming-Languages-Robert-Sebesta/dp/013394302X

Django Unleashed, 1st edition
Available at bookstore or
https://www.pearson.com/store/p/django-unleashed/P100001921598/9780321985071

Optional Textbook

Programming Language Pragmatics, Fourth Edition by Michael L. Scott (Morgan Kaufmann, 2009)
http://amzn.com/0123745144
http://store.elsevier.com/Programming-Language-Pragmatics/Michael-Scott/isbn-9780123745149/

Starting Out with Python, 4th Edition by TONY GADDIS
https://www.pearson.com/us/higher-education/program/Gaddis-Starting-Out-with-Python-Plus-My-Lab-Programming-with-Pearson-e-Text-Access-Card-Package-4th-Edition/PGM335157.html

Evaluation

Grading Scale:

A+	≥ 96%
A	90–95%
B+	87–89%
B	81–86%
B−	79–80%
C+	77–78%
C	71–76%
C−	69–70%
D+	67–68%
D	60–66%
F	≤ 59%

Grading:

1. Midterm: 20%, Wednesday, March 2nd, 2.20pm – 3.45pm
2. Assignment: %20
3. Final Exam (Project and Demo Day): 30%, Wednesday, May 4th, 1.00pm – 3.00pm
4. Quiz: 20%
5. Attendance: 10%

Topics

Week 1. Overview, Evolution of the Major Programming Languages.
Week 2. Describing Syntax and Semantics, BNF Grammars, Assignment 1.
Week 3. Lexical/Syntax Analysis, Regular Expression, Project Proposal, Assignment 2.
Week 4. Names, Binding, and Scopes
Week 5. Declarative Programming with HTML and CSS Examples, Assignment 3
Week 6-7. Functional Programming with C#, Python and JavaScript Examples.
Week 8. Midterm Week (Review and Exam)
Week 9. Introduction to Django, Assignment 4
Week 10. Subprograms
Week 11. Exception Handling and Event Handling with C# and Python
Week 12. Django MVC Examples, Assignment 5
Week 13. Django Continued, Project Session
Week 14. Django Continued, Project Session, Finalizing the Project
Week 15. Project Demo Day (Final Exam)

COVID-19 Information

- Per university policy, *a mask is strongly recommended in all indoor settings*.
- Per university policy, *a COVID-19 vaccine is strongly encouraged*. More info and on-campus vaccination dates: https://www.memphis.edu/coronavirusupdates/vaccination/index.php
- If you are feeling symptoms, do not come to class. Get tested (the UofM offers free testing: https://www.memphis.edu/coronavirusupdates/testing/index.php) and quarantine if necessary. I will work with you to make up missed material.
- If you test positive for COVID-19, report it to the Dean of Students: https://www.memphis.edu/coronavirusupdates/testing/notification.php
- If it becomes necessary for me or the TA to quarantine, we will hold class remotely via synchronous Zoom sessions for the duration of quarantine.
- Please refer to https://www.memphis.edu/coronavirusupdates/ for more information and updates as the situation evolves.