4040/6040 - Programming Languages – Fall 2018

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Contact Information:

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Class Location: FIT 226	**Class Days/Time:** Mon, Wed/5.30pm-6.55pm
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Office Hours:

Monday and Wednesday 3:30am – 4:30pm; or by appointment.

Course Description:

COMP 4040-6040 – Programming Languages – 3 Credits

Comparative features, syntax and applicability of high-level programming languages such as FORTRAN, PASCAL, LISP, Scheme, ADA, C, C++, JAVA, 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 a hands-on experience in Python, Go and C# programming languages to demonstrate these concepts. You will also have a better understanding of functional programming using F# programming language. 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. Understand fundamental implementations of programming languages.
3. Understand and design regular expressions.
4. Design simple languages using context-free grammars.
5. Understand concepts of object-oriented programming.
6. Write programs in high-level imperative languages other than Java.
7. Write programs in a functional programming language.
8. Compare trade-offs of different programming languages.

Requirement:

Students must bring their own laptop to the class.

Required Textbook:

Concepts of Programming Languages, 11th Edition by Robert W. Sebesta
https://amzn.com/013394302X

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, 3rdEdition by TONY GADDIS
https://www.amazon.com/Starting-Out-Python-Tony-Gaddis/dp/0133582736

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 – Wednesday, Oct 17th, 5.30pm-7.30pm: 20%
2. Assignments: 15%
3. Project: 15%
4. Final Exam – Wednesday, Dec 12th, 5.30pm-7.30pm: 25%
5. Quiz: 15%
6. Attendance: 10%

Topics

- Week 1. Overview and Introduction
- Week 2. Evolution of the Major Programming Languages
- Week 3. Describing Syntax and Semantics
- Week 4. Lexical and Syntax Analysis
- Week 5. Names, Binding, and Scopes

- Week 6. Subprograms
- Week 7. Abstract Data Types and Encapsulation Constructs
- Week 8. Support for Object-Oriented Programming
- Week 9. Exception Handling and Event Handling
- Week 10. Functional Programming Languages
- Week 11. Logic Programming Languages