CS 330 - Structure and Organization of Programming Languages

Instructor: Amber Stubbs, PhD
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Class: Monday, Wednesday 8:30 - 10:50 AM, L003
Lab: Friday, 8:30 – 10:50 AM, P214

Class topics:

- Examination of programming language principles
  - Syntax
  - Semantics
  - Data types
  - Control Expressions
- Comparisons of computer languages and language paradigms
  - object-oriented
  - procedural
  - functional
  - event-driven
- Discussion of how the principles and paradigms can be used to learn new programming languages.
- Investigates these issues in several new languages

Grading:

- Attendance and participation: 10%
- Homework/Labs: 30%
- Midterm Project (compiler): 20%
- Final Project (choose-your-own-language): 25%
- Quizzes: 15%

Policies:

- Attendance at all lectures is mandatory.
  - Coming to class but spending the whole session on the Internet doesn't count
- Homework will be assigned regularly throughout the semester and must always be turned in before the beginning of class on the day that it is due.
  - Collaboration is encouraged but copying is cheating.
  - Homework passed in after class has started will be recorded as "late" and will receive a point deduction. Homeworks passed in after class has ended will not be accepted without prior permission
- In-class exercises and quizzes will not necessarily be announced ahead of time.
- Tests may include take-home projects as well as in-class exams. Make-ups will not be permitted except in unusual cases and must be arranged beforehand.
- Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning and psychiatric disabilities. If you have a disability and anticipate that you will need a reasonable accommodation in this class, it is important that you contact the Director of the Academic Support Center, at 617-521-2471 early in the semester. Students with disabilities are also encouraged to contact their instructors to discuss their individual needs for accommodations.

Other expectations:

Lecture material should be reviewed before the next class since any questions on old material will be addressed only at the beginning of class. The reading should be done (at least skimmed over) before it's covered in lecture, and reviewed afterwards. All assignments must be legible, well-formatted, on-time and relatively complete. Please, please, please make sure you observe the plagiarism rules for the take-home projects. Any students who pass in similar projects will be referred to the Honor Board.

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Course Calendar

Note: This is a tentative schedule and may be changed during the semester. An up-to-date version will be available at the course page on Moodle.

Unless otherwise noted, homeworks will be due at the beginning of class on **Mondays**.

Week of:	Topics/assignments:
January 18	Overview, Syntax, intro to Perl and GitHub
January 25	Syntax cont'd; Data types; regular expressions
February 1	Data types cont'd
February 8	Control flow
February 15	Control flow cont'd
February 22	Functions and memory management
February 29	Names, scopes, and bindings **Midterm Project due**
March 7	**Spring break!**
March 14	Semantics
March 21	Statistical programming; R (guest lecturer)
March 30	Imperative programming and pointers; C, C++
April 6	Object-oriented programming; Java
April 13	App development: Android
April 20	**4/20 Patriot's Day -- no classes** Android continued
April 25	**All week: Final project presentations** **4/27: Undergraduate research conference** **5/1: Last day of classes**