CS 381, Programming Language Fundamentals, is a four-credit course for undergraduate students. The course introduces concepts found in a variety of programming languages and exposes students to non-imperative programming paradigms. Topics to be covered include: Haskell, Prolog, syntax, scoping, parameter passing, types, polymorphism, exception handling, and semantics.

Course Staff and Logistics:

Instructor: Keeley Abbott, abbottk@oregonstate.edu
Lectures: M–Th 16:00–16:50, Kelley Engineering Center 1003
Office Hours: Mon 11:30 – 12:30, Thur 15:00 – 16:00, Kelley Engineering Center Atrium

Grad TA: Zhicheng Fu, fuz@oregonstate.edu
Office Hours: Tue 15:00 – 16:00, Wed 10:00 – 11:00, Kelley Engineering Center Atrium

Website: http://web.engr.oregonstate.edu/~abbottk/teaching/cs381-su17/

Learning Objectives:

At the end of the course, students should be able to perform the following tasks.

1. **Define** abstract syntax for a language that is given in concrete syntax.
2. **Produce and explain** a program’s output under static versus dynamic scoping mechanisms.
3. **Produce and explain** a program’s behavior under static versus dynamic typing mechanisms.
4. **Produce and explain** a program’s output under a selection of parameter passing mechanisms, such as by-value, by-reference, by-constant, by-result, by-value-result, and by-name.
5. **Produce and explain** the contents of the runtime stack at any moment in a program’s execution.
6. **Produce** programs exhibiting the following kinds of polymorphism: parametric polymorphism, overloading, and subtype polymorphism, and explain their advantages and disadvantages.
7. **Explain** exception handling mechanisms and demonstrate the effects of exceptions on the runtime stack.
8. **Explain** the essential differences between the imperative, object-oriented, functional, and logic programming language paradigms.
9. **Define** the semantics of simple languages or for individual language constructs using axiomatic, operational, or denotational semantics, and given such definitions, predict specific program values or relationships between values using the definitions.

This syllabus and other information can be found on the course web page:
http://web.engr.oregonstate.edu/~abbottk/teaching/cs381-su17/
Tentative Schedule (subject to change):

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<tr>
<th>Week</th>
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<th>Thursday</th>
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<td>Introduction, Haskell</td>
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<td>Syntax</td>
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<td>Programming Paradigms, Prolog</td>
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<td>Prolog, Review</td>
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<td>Final</td>
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For the latest scheduling information, check the course web page regularly!

There is no specified finals schedule for Summer term – the final will be held during the last class meeting of the term.

Grading:

Homework 25% = 5 × 5% each
Quizzes 15% = 4 × 3.75% each (5 quizzes, lowest score dropped)
Midterm 30%
Final 30%

For 90% or more, you will receive an “A”; for less than 30% you will receive an “F”. The remaining grades are assigned linearly in between. I might lift grades if clustering of points achieved by students suggests so, but I won’t assign grades worse than indicated by the above linear schema. If you do not want to do the calculations, you can look up the grades on [this table](#).

Course Policies:

All quizzes and exams are closed book and closed notes. Quizzes will be held on Mondays, and exams will be held on Thursdays.

Teamwork on homework is allowed and encouraged. Teams of two or three students may submit a common homework so long as all members are clearly identified on the submission. All students in a team must contribute to a team solution and will receive the same grade. Just adding the name of a student who has not contributed to a solution will be regarded as cheating. All team members must be able to explain their homework contribution to the instructor.

Note that due to logistical issues late homework assignments will not be accepted. Please be sure to submit your assignments on time.

Students with Disabilities:

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737.4098.