CS 381, Programming Languages 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, semantics.

Logistics:
Instructor: Eric Walkingshaw
Email: walkiner@oregonstate.edu
Office: KEC 3049
Lectures: MWF 11:00–11:50am, Gleeson Hall 200
Office hours: (see course web page)
Teaching assistant: Mike McGirr
Email: mcgirrm@oregonstate.edu
Office hours: (see course web page)
Course web page: http://web.engr.oregonstate.edu/~walkiner/teaching/cs381-wi16/

Learning Objectives:
At the end of the course, students should be able to . . .

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 run-time stack at any moment in a program’s execution.
6. Produce programs exhibiting parametric polymorphism and explain their practical applications.
7. Explain exception handling mechanisms and demonstrate their effects 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 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 at the course web page:
http://web.engr.oregonstate.edu/~walkiner/teaching/cs381-wi16/
Tentative Schedule (subject to change):

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<tr>
<th>Week</th>
<th>Topic</th>
<th>Learning Objective</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
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<td>1</td>
<td>Introduction, Haskell</td>
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<tr>
<td>2</td>
<td>Haskell</td>
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<tr>
<td>3</td>
<td>Abstract Syntax</td>
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<td>5</td>
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<td>Parameter Passing, Exceptions</td>
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<td>Quiz #2</td>
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<td>8</td>
<td>Programming Paradigms, Prolog</td>
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<td>Midterm #2</td>
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<td>9</td>
<td>Prolog</td>
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<td>10</td>
<td>Prolog, Review</td>
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<td>Quiz #3</td>
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*Final exam*: Tue Mar 15, 2:00–3:50pm

For the latest scheduling information, check the course web page regularly!

**Grading:**

Grades will be computed using the following weights:

- Homework 20%
- Quizzes 15% = 3 × 5% each
- Midterms 30% = 2 × 15% each
- Final Exam 35%

Grades are assigned using the standard ranges, after rounding. For example, ≥93% = A, 90–92% = A−, 87–89% = B+, 83–86% = B, 80–82% = B−, and so on. Overall grades will not be curved. However, scores on individual quizzes and exams may occasionally be adjusted upward for the entire class.

**Course Policies:**

All **quizzes and exams** are closed book and closed notes.

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.

**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.