CMPUT325 Introduction

Dr. B. Price & Dr. R. Greiner

8th September 2004
# CMPUT325 Non-Procedural Languages

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Dr. B. Price</th>
<th>Dr. R. Greiner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Programming</td>
<td></td>
<td>Declarative Programming</td>
</tr>
<tr>
<td>Phone</td>
<td>492-0365</td>
<td>492-5461</td>
</tr>
<tr>
<td>Office</td>
<td>CSC 3-55</td>
<td>ATH 3-59</td>
</tr>
<tr>
<td>Office Hours</td>
<td>Immediately after class, or by arrangement</td>
<td></td>
</tr>
<tr>
<td>Course Page</td>
<td><a href="http://www.cs.ualberta.ca/~greiner/C-325">http://www.cs.ualberta.ca/~greiner/C-325</a></td>
<td></td>
</tr>
<tr>
<td>News Group</td>
<td>news:ualberta.courses.cmput.325</td>
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</tbody>
</table>
Pop Quiz

- Which of us is Dr G and which of us is Dr P?
Pop Quiz

Dr Greiner    Dr Price

Which of us is Dr G and which of us is Dr P?
Lectures

- **Section:** A1
- **Time:** Tuesdays & Thursdays 9:30 - 10:50
- **Place:** V 102 (We have moved from the Tory Building)
- **TAs:** Kevin Andrusky, Tommy Chu, David Silver
The University on Course Outlines

Every course outline should contain the following statement:
The University on Course Outlines

Every course outline should contain the following statement:

▶ Policy about course outlines can be found in section 23.4(2) of the University Calendar
# Tentative Term Calendar - Part I

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sep 9 Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Sep 14,16 Functional Programming in LISP</td>
</tr>
<tr>
<td>3</td>
<td>Sep 21,23</td>
</tr>
<tr>
<td>4</td>
<td>Sep 28,30 <strong>Ass #1 Due (Tue 28)</strong></td>
</tr>
<tr>
<td>5</td>
<td>Oct 5,7 Oct 5 withdrawal deadline</td>
</tr>
<tr>
<td>6</td>
<td>Oct 12,14</td>
</tr>
<tr>
<td>7</td>
<td>Oct 19,21 <strong>Ass #2 Due (Tue 19)</strong></td>
</tr>
<tr>
<td>8</td>
<td>Oct 26,28 Midterm (Tue 26) in class Declarative Programming (Thu 28)</td>
</tr>
</tbody>
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## Tentative Term Calendar - Part II

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
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<tbody>
<tr>
<td>9</td>
<td>Nov 2,4</td>
</tr>
<tr>
<td>10</td>
<td>Nov 9,11</td>
</tr>
<tr>
<td>11</td>
<td>Nov 16,18</td>
</tr>
<tr>
<td>12</td>
<td>Nov 23,25</td>
</tr>
<tr>
<td></td>
<td>Ass #3 Due (Tue 23)</td>
</tr>
<tr>
<td>13</td>
<td>Nov 30, Dec 2</td>
</tr>
<tr>
<td></td>
<td>Other Programming Paradigms</td>
</tr>
<tr>
<td>14</td>
<td>Dec 7</td>
</tr>
<tr>
<td></td>
<td>Ass#4 Due (Tue 7) Last lecture</td>
</tr>
<tr>
<td>**</td>
<td>TBA</td>
</tr>
<tr>
<td>**</td>
<td>Final Exam</td>
</tr>
<tr>
<td>**</td>
<td>Jan 7, 2:00 pm</td>
</tr>
<tr>
<td></td>
<td>Deferred Exam Date</td>
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</table>
Textbooks

- There is NO REQUIRED TEXT for this course
- Course notes are available on the course page
- Additional notes will be made available during the term
Web Resources

▶ Professor Price & Greiner’s Notes:
   http://www.cs.ualberta.ca/~greiner/C-325

▶ TA Tom Chu’s On-line lab notes:
   http://www.cs.ualberta.ca/~tommy/

▶ Professor Mueller’s Notes:

▶ Professor You’s Notes:
   http://www.cs.ualberta.ca/~you/courses/325/w04/index.html
Optional References I


Optional References II

The University on Academic Integrity

Every course outline should contain the following statement:

- The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect.

- Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behavior (online at www.ualberta.ca/secretariat/appeals.htm) and avoid any behavior which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."
CMPUT 325 Policies on Integrity

Do not cheat on assignments:

▶ Discuss only *general approaches* to problem

▶ Do not take written notes on other’s work
CMPUT 325 Policies on Integrity

Do not cheat on assignments:

▶ Discuss only *general approaches* to problem
▶ Do not take written notes on other’s work

Respect the lab environment. Do not:

▶ Interfere with the operation of the computing system
▶ Interfere with other’s files
▶ Change another’s password
▶ Copy another’s program
▶ etc.
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▶ Interfere with the operation of the computing system
▶ Interfere with other’s files
▶ Change another’s password
▶ Copy another’s program
▶ etc.
▶ Cheating is reported to university whereupon it is out of our hands
Consequences of Academic Offenses

Consequences include:

► A mark of 0 for the course
► A permanent note on student record
► Suspension from the university
► Expulsion from university
Evaluation

4 assignments totalling 40
Midterm exam 25
Final exam 35
Final grade 100

► NOTE: The final exam cannot be rewritten.
(See the course schedule for date of deferred exam)
Assignment Guidelines

- Programming assignments should be
  - Neat & well documented
  - Include convincing examples and tests
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- The onus is on **you** to convince us it works

- You may work anywhere you like, but your code must run on our lab computers
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- Submit assignments using the "try" command (TA’s will cover this)

- You have 4 excused late days (max 2 per assignment)

- Assignments are due at 11:59 p.m. of the day they are due
GradeBook

- Current marks, late days, and class statistics will be available through "GradeBook"

http://www.cs.ualberta.ca/~zaiane/courses/Tools/GradeBook/cgi-bin/GB_ShowBook.cgi?ci=C325-04
Labs

- Required software available in programming concepts lab 1-21 CSC

- Tutorials will be available in the labs in the CSC to help you get started
  - Starting programming environments,
  - Operating debuggers
  - Using language constructs, etc.

- TA’s guaranteed to be available for the FIRST HOUR

- If a group requests a lab on a topic, we will schedule an additional lab
# Tentative Scheduled Tutorials

<table>
<thead>
<tr>
<th>Tutorial Dates</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 13-17</td>
<td>Introduction to Lisp</td>
</tr>
<tr>
<td>Sep 22,23,24 and 27,28</td>
<td>Assignment 1 Help</td>
</tr>
<tr>
<td>Oct 13,14,15 and 18,19</td>
<td>Assignment 2 Help</td>
</tr>
<tr>
<td>Nov 1-5</td>
<td>Introduction to Prolog</td>
</tr>
<tr>
<td>Nov 17,18,19 and 22,23</td>
<td>Assignment 3 Help</td>
</tr>
<tr>
<td>Dec 1,2,3 and 6,7</td>
<td>Assignment 4 Help</td>
</tr>
</tbody>
</table>
Goals of the Course I

- Computer scientists are interested in solving problems in many domains
  - Mathematical & numeric computations
  - Database transaction oriented computations
  - Event driven and interactive computations
  - Diagnostic, inferential and adaptive computations
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- Computer scientists are interested in solving problems in many domains
  - Mathematical & numeric computations
  - Database transaction oriented computations
  - Event driven and interactive computations
  - Diagnostic, inferential and adaptive computations

- Each domain emphasizes different styles of computation

- Languages allow us to formally describe computations
  (e.g. $\text{average}(X) \equiv \frac{1}{|X|} \sum_{i} X_i$)
Goals of the Course II

There are many, many different languages - too many to consider
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▶ Languages fall into a small number of paradigms
Goals of the Course II

- There are many, many different languages - too many to consider
- Languages fall into a small number of paradigms
- For any specific computation, a paradigm will vary in
  - Ease of expression of your problem
  - Efficiency of implementation
  - Verifiability & Maintainability
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- Introductory CS courses emphasize the **procedural** paradigm
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- There are many, many different languages - too many to consider
- Languages fall into a small number of paradigms
- For any specific computation, a paradigm will vary in
  - Ease of expression of your problem
  - Efficiency of implementation
  - Verifiability & Maintainability
- Introductory CS courses emphasize the **procedural** paradigm
- Other important paradigms are more suitable for many applications
Goals of the Course III

- There are three main goals for the course:
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2. Give you practice working with paradigms so you’ll be able to make informed choices for future projects
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1. Introduce additional paradigms and languages implementing them
2. Give you practice working with paradigms so you’ll be able to make informed choices for future projects
3. Acquaint you with underlying abstractions of these paradigms so that you will be able to
   - see relationships between families of languages
   - implement your own languages
   - reason abstractly about properties of languages (decidability, soundness, etc.)