UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
COURSE OUTLINE

1. **Course:** CPSC 449: Programming Paradigms
   Lecture Sections:
   L01, MWF 11:00-11:50, Robert Kremer, ICT 748, 220-5112, rkremer@ucalgary.ca
   Office Hours: MW 10:00-10:50

   Course Website: http://d2l.ucalgary.ca/d2l/le/content/171122/Home

   Computer Science Department Office, ICT 602, 220-6015, cpsc@cpsc.ucalgary.ca

2. **Prerequisites:** One of CPSC 319 or 331, and one of PHIL 279 or 377
   (http://www.ucalgary.ca/pubs/calendar/current/computer-science.html#3620)

3. **Grading:** The University policy on grading and related matters is described in sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Assignments	57%
Peer Reviews	3%
Final Exam	40%

   This course **will** have a Registrar's Scheduled Final Exam.

   Special Regulations affecting Final grade: In order to get a D+ or higher in the course you must achieve a D+ or higher in ALL of the following: the final exam, each group assignment, the average of all on-line quiz assignments, the average of all group in-class assignments, and the average of all individual in-class assignments. In addition, to get higher that an F in the course, you must achieve a grade higher than an F in EACH individual peer evaluation. All class work is graded using letter grades. The weighted average of the letter grades is used to determine the final mark.

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar. Section 3.6. It is the student's responsibility to familiarize theirself with these regulations. See also Section E.6 of the University calendar.

5. **Scheduled Out-of-Class Activities:** REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME ACTIVITY. If you have a clash with this out-of-class activity, please inform your instructor as soon as possible so that alternative arrangements can be made.

6. **Course Materials:**
   None.

   Online Course Components:
   See website.

7. **Examination Policy:** Closed book with no aids permitted. Students should also read the Calendar, Section G, on examinations.

8. **Approved Mandatory and Optional Course Supplemental Fees:** None.

9. **Writing across the Curriculum Statement:** In this course, the quality of the student's writing in the weighted components of the course will be a factor in the evaluation of these components. See also Section E.2 of the University Calendar.

10. **Human Studies Statement:** Students will be expected to participate as subjects or participants in projects. See also Section E.5 of the University Calendar.

11. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

    a) **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offense that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K, Student Misconduct to inform yourself of definitions, processes and penalties.

    b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points which can be found in each classroom and building.

    c) **Student Accommodations:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf. Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Computer Science.

    d) **Safewalk:** Campus Security will escort individuals day or night (http://www.ucalgary.ca/security/safewalk/). Call 403-220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

    e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also http://www.ucalgary.ca/secretariat/privacy

    f) **Student Union Information:** VP Academic (403) 220-3911 suvpaca@ucalgary.ca SU Faculty Rep (403) 220-3913 science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca, Student Ombuds Office: (403) 220-6420 ombuds@ucalgary.ca, http://ucalgary.ca/provost/students/ombuds

    g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend your cell phone should be turned off unless instructed otherwise. All communications with other individuals via laptop computers, cell phones or other devices connectable to the internet in not allowed during class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

    h) **U.S.R.I.:** At the University of Calgary feedback provided by students through the Universal Student ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference – please participate in USRI surveys.

Department Approval_____ Date_____

Faculty Approval for
out of regular class-time activity: _____
Date:_____

Faculty Approval for
Alternate final examination arrangements: _____
Date:_____

A signed copy of this document is on file in the Computer Science Main Office

Tentative Topics Covered:

Java

        Object oriented programming techniques

        Reflection

Haskell

        Functional programming

        Recursion

        Induction

        Pattern Matching

        Lazy evaluation

        Higher-order functions

Prolog

        Logic programming

        Symbolic processing

        Advanced techniques

Learning Outcomes:

This course normally covers three major programming paradigms (currently the functional, object-oriented, and logic paradigms), but also touches on one or more "little languages" which are not really well-defined paradigms like the others. For the purposes of this description, the term "paradigm" shall include the "little languages".

- Students shall be able to list the language paradigms covered in the course, describe the features and attributes of each paradigm, and identify the main purposes of each paradigm. (remembering, understanding)

- Students shall be able to identify, enumerate, and explain the purpose of each paradigm. (applying)

- Students shall learn how to learn languages and language features on their own using a variety of resources instead of just following lecture notes and text books. (applying)

- Students shall be able to compare and contrast the features and attributes of each paradigm. (analyzing)

- Students shall be able to critique each paradigm for it's applicability to solving a given problem. (evaluating)

- Students shall be able to design, code and debug reasonably advanced programs in the exemplar language for each of the paradigms. (creating)

Allowable Sources:

Any.

Cited Sources:

All sources must be cited.

Level of Collaboration between Students:

Students will work in groups for some of the assignments, and in three large term assignments. If you discuss assignments with others (other than your group), this should be cited as "personal communication".

Disclosure Policy

Assignment work will not be disclosed to others without your consent.