



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

1. **Course:** CPSC 449: Programming Paradigms

**Lecture Sections:**

L01, WF 9:00-11:45, Ben Stephenson, ICT 704, 220-6781, [bdstephe@ucalgary.ca](mailto:bdstephe@ucalgary.ca)

Office Hours: R 9:00-10:50

**Course Website:** [http://pages.cpsc.ucalgary.ca/~bdstephe/449\\_P17/index.php](http://pages.cpsc.ucalgary.ca/~bdstephe/449_P17/index.php)

**Computer Science Department Office, ICT 602, 220-6015, [cpsc@cpsc.ucalgary.ca](mailto: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	30%
Midterm Exam	25%
Final Exam	45%

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

Special Regulations affecting Final Grade: Each of the above components will be awarded a letter grade using the official University grading system. The final grade for the course will be calculated using the grade point equivalents weighted by the percentage given above and then reconverted to a final letter grade using the official University grade point equivalents. In order to obtain a final grade of C- or better in the course, a student must achieve a weighted average of C- (1.7) or better on the midterm and final exams. Students who achieve a higher grade on the final exam than on the midterm exam will have their midterm exam grade replaced with their final exam grade.

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 themselves 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:**

Haskell: The Craft of Functional Programming, 3<sup>rd</sup> Edition by Simon Thompson (Recommended)

Programming in Prolog: Using the ISO Standard, 5<sup>th</sup> Edition by Clocksin and Mellish (Recommended)

**Online Course Components:**

Some course materials will be provided on the course website. Assignments will be submitted for grading through D2L.

7. **Examination Policy:** Both the midterm and final exams will have a brief written section (closed book, no aids allowed) followed by a longer computer-based programming section. 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](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](mailto:suvpaca@ucalgary.ca) SU Faculty Rep (403) 220-3913 [science1@su.ucalgary.ca](mailto:science1@su.ucalgary.ca), [science2@su.ucalgary.ca](mailto:science2@su.ucalgary.ca) and [science3@su.ucalgary.ca](mailto:science3@su.ucalgary.ca), Student Ombuds Office: (403) 220-6420 [ombuds@ucalgary.ca](mailto: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](http://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\*

## **CPSC 449 Syllabus**

### **Tentative Topics Covered:**

#### Haskell

Functional programming

Pattern Matching

Recursion

Lazy evaluation

Higher-order functions

#### Prolog

Logic programming

### **Learning Outcomes:**

This course focuses on languages in the functional and logic paradigms, and compares them to languages that students have likely worked with previously in the imperative and object-oriented paradigms. Language features that might be considered include decision making and control structures, recursion, data types and data structures, creation and evaluation of functions and information hiding. Specifically,

- Students shall be able to list the language paradigms covered in the course and describe the features and attributes of each paradigm.
- Students shall be able to compare and contrast the features and attributes of each paradigm.
- Students shall be able to critique each paradigm for its suitability for solving a given problem.
- Students shall be able to design, code and debug reasonably advanced programs in the exemplar language for each of the paradigms.

### **Allowable Sources:**

Plagiarism is a kind of fraud. It is loosely defined as passing off someone else's work or ideas as your own in order to get a higher mark. Plagiarism is treated very seriously. The assignments you hand in must be a result of your own work. They may not contain anyone else's work that is not explicitly documented as such unless the assignment description specifically allows this behaviour.

Note that while documenting the sources of all materials you use to construct a program will avoid a charge of plagiarism, it may still be found that your submission is simply a collection of other's work and not a product of your own effort. In such circumstances you will receive credit for the portion of the assignment you have written yourself but not the portion that was taken from other sources.

You may discuss assignments with friends and classmates, but only up to a point. You may discuss and compare general approaches and also how to handle a specific difficulty. However, you should not leave such a discussion with any written or electronic material. At no time should you see (or become aware of by any other means) another student's solution, in part or in its entirety, on paper or on the computer screen in completed or draft form. The actual coding of programs, analysis of results, writing of reports and solution to written questions or problems must be done individually.

It is also a serious offense to help someone commit plagiarism. Do not lend your printouts or solutions to others in any manner (including, but not limited to, on paper, by allowing them to look over your shoulder as you work, by email etc). Ensure that the permissions on the directories where you store your work are set appropriately. Do not leave printouts on department printers for longer periods of time than necessary. Do not discard draft printouts in recycling or garbage containers within the department. If you suspect that someone has been able to acquire a copy of your work inform the instructor for the course immediately.

In written assignments you must clearly document the source of any material that you quote directly regardless of its source. This includes the provided course notes and the course textbook. Within this course it is not necessary to document the source of material that you use as the basis of ideas for a written assignment if the words written are your own and the source material is a commercial publication or the course notes.

In programming assignments you must clearly document any block of code 3 simple statements in length or longer that is taken from another source other than the course notes or the course textbook. It is not necessary to document heavily modified code from another source if the modifications significantly change the structure, purpose and functionality of the code in question. Modifications that meet this constraint are sufficiently extensive that there is no line-by-line correspondence between the source material and the modified version whatsoever.

If you are unsure if your use of outside material in a given context is acceptable ask the course instructor. In general, if you are unsure if it is necessary to include a reference to material you have used it is better to include the reference than not.

The preceding policy is an expansion and adaptation of James Stewart's CISC454 Policy on Plagiarism, Queen's University.