COMP 1451 - Introduction to Software Development 2

School:	School of Computing and Academic Studies
Program:	Computing Part-time Studies
Course Credits:	3
Start Date:	September 19, 2014
End Date:	December 05, 2014
Total Hours:	36
Total Weeks:	12
Hours/Weeks:	3
Delivery Type:	Lecture/Lab
Prerequisites:	COMP 1409
CRN:	34425

Instructor Details

Name: Colleen Penrowley
Email: Instructor to provide
Office Hours: Instructor to provide

Course description

This hands-on intensive course continues on from and requires the object-oriented programming experience covered in COMP 1409. The language of example is Java, which is used to provide a solid foundation in current programming concepts and methodologies, with a focus on problem solving. Topics include: data abstraction, modularity, object-oriented programming concepts (encapsulation, inheritance, polymorphism), testing and debugging. Students will be prepared to understand more advanced courses in either procedural or object-oriented programming languages.

Course goals

- To complete an introduction to object-oriented programming started in COMP 1409.
- COMP 1409/1451 are designed to teach programming concepts and provide the foundation for

Java, C#, C++, and C.
- This material is intro programming and is not considered to be a Java course; our Java programming course is COMP 2613.

Course learning outcomes / competencies

Upon successful completion, the student will be able to:

- Demonstrate skills in problem solving.
- Demonstrate fundamental programming skills using conditionals and iteration.
- Demonstrate object-oriented programming skills by designing and writing Java programs that use multiple interacting classes, inheritance and polymorphism.
- Design robust, easily-maintained programs.
- Test and debug Java programs using a variety of testing techniques.
- Prepare program documentation.

Evaluation criteria

Criteria	%	Comments
In-class labs	4	
Take-home labs	20	
Quizzes	24	There is a quiz at the beginning of every session except the first and the last.
Assignments	32	There are three take-home assignments.
Exam	20	To pass the course you must maintain an average of at least 50% in each component of the course, and must score at least 50% on the final exam.

NOTE: Passing Grade for this course is 60%.

Late assignments will not be accepted for marking unless the student makes arrangements with the instructor before the assignment is due. **Assignments must be done on an individual basis unless otherwise specified by the instructor.**

There are three take-home assignments worth a total of 44%. The take-home assignments will be downloaded and submitted through the course Learning Management System.

Students are encouraged to work in groups to develop peer to peer communication and support. However, **each student must hand in their own individual work** (not copies of the same assignment).

Copying assignments and any other forms of PLAGIARISM will result in a mark of ZERO for all parties involved.

Attendance requirements

Computing PTS Attendance Policy

Attendance in lectures and labs is mandatory and recorded for all lessons in this course.

- In case of illness or other unavoidable cause of absence, the PTS student must communicate as soon as possible with his/her Instructor indicating the reason for the absence.

- Prolonged illness which causes the PTS student to miss 20% or more of the lessons will require a BCIT -approved medical certificate submitted to the department, substantiating the reason for the absence.

Excessive absence of 20% or more may result in failure or forced withdrawal from this course.

Learning resources

Required Text:
Objects First with Java: a Practical Introduction using BlueJ, 5th edition
by David J. Barnes and Michael Kölling. ISBN 0-13-249266-9

Java Platform (JDK) from Sun Microsystems, downloaded from
http://www.oracle.com/technetwork/java/javase/downloads/index.html[1]
BlueJ interactive Development Environment, downloaded from **www.bluej.org**[2]

Other information

Computer Use Guidelines

BCIT Computing students are expected to use BCIT resources in both a professional and ethical manner. When using BCIT computer resources, some specific expectations include:

- Respect others. Do not download, view, or distribute inappropriate or offensive material.
- Respect copyright. Do not download or share any unauthorized materials (e.g. music, movies, games and software).
- Respect our vendor software agreements. Do not download products which are not used in your specific courses (we have tracking mechanisms in place). It is each student's responsibility to remove vendor provided software when the course ends.
- Respect confidentiality. Do not attempt to gain unauthorized access to any account, system, or data. Do not attempt to bypass any protective mechanism or attempt unauthorized access or alteration of BCIT data.
- Respect availability. Do not engage in any denial of service activity or take actions that will degrade the use of BCIT or other resources. Only use BCIT resources for your BCIT course work.

For more information read BCIT policies **3501 Acceptable Use of Information Technology**[3] and **3502 Information Security**[4].

Consequences of policy violation could result in loss of access to BCIT resources and / or removal from classes.

Course specific requirements

- An understanding of how to manage files on a Windows-based PC.
- Students require a PC with internet access, capable of running the Java Platform.

Course topics

Session	Material Covered	Reference / Reading	Assignment	Due Date
1	Course Introduction Review: concepts from COMP 1409.	Chapters 1-4 Appendix A-D, J	Assignment 1	Before session 5
2	**Quiz #1** Working with library classes. Class documentation. Generating random responses, working with maps and sets.	Chapter 5 Appendix K		
3	**Quiz #2** Designing classes: making extensions, localizing change, coupling, cohesion, introduction to refactoring.	Chapter 6		
4	**Quiz #3** Testing and debugging: unit testing, test automation.	Chapter 7		
5	**Quiz #4** Introduction to inheritance and polymorphism.	Chapter 8	Assignment 2	Before session 8
6	**Quiz #5** Inheritance and polymorphism: static and dynamic types, overriding, dynamic method lookup, method polymorphism, protected access.	Chapter 9		
7	**Quiz #6** Alternative development environments, introduction to Java packages.	Appendix E		
8	**Quiz #7** Working with abstract classes, abstract methods.	Chapter 10	Assignment 3	Before session 11
9	**Quiz #8** Working with Java interfaces.	Chapter 10		
10	**Quiz #9** Exception handling: throwing exceptions, checked and unchecked exceptions, catching exceptions, designing exception types.	Chapter 12		
11	**Quiz #10** Review as necessary.			
12	FINAL EXAM (3 hrs)			

BCIT policy

The following statements are in accordance with the BCIT Policies 5101, 5102, 5104, and 7507, and their accompanying procedures. To review these policies and procedures please click on the links below.

Attendance/Illness:
In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with his/her instructor or Program Head or Chief Instructor, indicating the reason for the absence. Prolonged illness of three or more consecutive days must have a BCIT medical certificate sent to the department. Excessive absence may result in failure or immediate withdrawal from the course or program. Please see **Policy 5101 - Student Regulations, and accompanying procedures**[5]

Academic Integrity:
Violation of academic integrity, including plagiarism, dishonesty in assignments, examinations, or other academic performances are prohibited and will be handled in accordance with **Policy 5104 - Academic Integrity and Appeals, and accompanying procedures.**[6]

Accommodation:
Any student who may require accommodation from BCIT because of a physical or mental disability should refer to BCIT's Policy on Accommodation for Students with Disabilities (Policy #4501), and contact BCIT's Disability Resource Centre (SW1 2360, 604-451-6963) at the earliest possible time. Requests for accommodation must be made to the Disability Resource Centre, and should not be made to a course instructor or Program area.

Any student who needs special assistance in the event of a medical emergency or building evacuation (either because of a disability or for any other reason) should promptly inform their course instructor(s) and the Disability Resource Centre of their personal circumstances.

Human Rights, Harassment and Discrimination:
The BCIT community is made up of individuals from every ability, background, experience and identity, each contributing uniquely to the richness and diversity of the BCIT community as a whole. In recognition of this, and the intrinsic value of our diversity, BCIT seeks to foster a climate of collaboration, understanding and mutual respect between all members of the community and ensure an inclusive accessible working and learning environment where everyone can succeed.Campus Mediation Services is a supportive resource for both students and employees of BCIT, to foster a respectful learning and working environment. Any student who feels that they are experiencing discrimination or harassment (personal or human rights-related) can confidentially access this resource for advice and support.
Please see **Policy 7507 – Harassment and Discrimination and accompanying procedure.**[7]

Students should make themselves aware of additional Education, Administration, Safety and other BCIT policies listed at **http://www.bcit.ca/about/administration/policies.shtml**[8]

Policy for School of Computing and Academic Studies

Attempts:Students must successfully complete a course within a maximum of three (3) attempts at the course. Students with two attempts in a single course will be allowed to repeat the course only upon special written permission from the Associate Dean. Students who have not successfully completed a course within three attempts will not be eligible to graduate from their respective program.

Approved

I verify that the content of this course outline is current.
Colleen Penrowley, Instructor
August 28, 2014

I verify that this course outline has been reviewed.
Kevin Cudihee, Program Head
August 29, 2014

I verify that this course outline has been reviewed and complies with BCIT policy.
Dean Hildebrand, Associate Dean, Science and Technology
August 29, 2014

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

Links

1. oracle.com/technetwork/java/javase/downloads/index.html
2. bluej.org
3. bcit.ca/files/pdf/policies/3501.pdf
4. bcit.ca/files/pdf/policies/3502.pdf
5. bcit.ca/files/pdf/policies/5101.pdf
6. bcit.ca/files/pdf/policies/5104.pdf
7. bcit.ca/files/pdf/policies/7507.pdf
8. bcit.ca/about/administration/policies
