COSC 121 – Computer Programming II
Winter 2022 – Term 2

Instructor	Dr. Abdallah Mohamed
	abdallah.mohamed@ubc.ca (must include course code COSC121 and your student ID in email)

Office hours

Mon 11:00AM-12:00PM, Wed 11:00AM-11:30AM	In-person, SCI-108
Thu 02:30PM-03:20PM	Online, Zoom
OR by appointment	

Lectures   Mon/Wed   09:30AM-11:00AM   COM 201

Labs

Lab	Day	Time	Room	TA
L2A	Fri	08:00AM-10:00AM	FIP 133	TA: Harjono,Karel
L2B	Wed	02:00PM-04:00PM	FIP 129	TA: Harjono,Karel
L2C	Fri	10:00AM-12:00PM	FIP 129	TA: Chen,Joycelyn
L2D	Fri	02:00PM-04:00PM	FIP 133	TA: Zhukova,Elizaveta
L2E	Mon	02:00PM-04:00PM	SCI 126	TA: Javahar,Jeena
L2F	Fri	12:00PM-02:00PM	FIP 133	TA: Gangal,Mahi
L2G	Tue	12:00PM-02:00PM	FIP 133	TA: Haniya,Haniya
L2H	Tue	10:00AM-12:00PM	FIP 133	TA: Javahar,Jeena
L2I	Mon	02:00PM-04:00PM	FIP 129	TA: Dang,Lakshay
L2J	Tue	02:00PM-04:00PM	FIP 129	TA: TRITAMA,ORVIN
L2K	Wed	12:00PM-02:00PM	FIP 129	TA: Gangal,Mahi
L2L	Fri	08:00AM-10:00AM	ASC 165	TA: DeWolfe,Ryan
L2M	Wed	04:00PM-06:00PM	FIP 133	TA: Zhukova,Elizaveta
L2N	Thu	02:00PM-04:00PM	FIP 129	TA: Schoenit,Justin
L2O	Mon	12:00PM-02:00PM	FIP 129	TA: Schoenit,Justin
L2P	Thu	08:00AM-10:00AM	ASC 165	TA: Zhukova,Elizaveta
L2Q	Thu	12:00PM-02:00PM	FIP 133	TA: Schoenit,Justin
L2R	Tue	08:00AM-10:00AM	FIP 129	TA: Javahar,Jeena
L2S	Mon	12:00PM-02:00PM	SCI 126	TA: Haniya
L2T	Mon	05:00PM-07:00PM	ASC 165	TA: Dang,Lakshay

Course Description

Academic Calendar Entry: Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0]

Prerequisites: **A score of 60% or higher in one of COSC 111, COSC 123.**

Students who lack the prerequisites should not be registered for this course and will receive a failing grade if they remain in it. Any exceptions must be brought to the attention of the instructor immediately.

Learning Outcomes**:** Upon successful completion of this course, students will be able to:

- design and create Java programs using Object Oriented concepts, including encapsulation, inheritance, and polymorphism.
- understand, create, and use abstract classes and interfaces in Java programs.
- explain and handle different exceptions in Java programs.
- understand and use input/output streams (text and binary) in Java.
- implement, analyze, test, and debug recursive methods.

- use and compare basic data structures (arraylists, linked-lists, stacks, queues) for solving given problems.
- understand the internals and implement basic data structures (arraylists, linked-lists, stacks, queues) in Java.
- understand the basics of Java generics.
- understand, implement, and compare basic sorting algorithms (bubble, insertion, selection, quick, merge, bucket, and radix sorting).
- do basic analysis of the computational complexity of algorithms.

Course URL: https://canvas.ubc.ca
                    https://people.ok.ubc.ca/abdalmoh/teaching/121

Assessment

- Lecture quizzes   7 % (***clickers, online quizzes***. Full mark for correctly answering 80% of all questions)
- Lab work: (total: 23%)
    o   Lab Exercises   no grade
    o   Assignments   16 %
    o   Project   7 %
- Exams (total: 70%)
    o   Midterm 1   5 % - 10 % (45 minutes, **in-person during scheduled lecture time**)
    o   Midterm 2   12 % - 20 % (75 minutes, **in-person during scheduled lecture time**)
    o   Final   40 % - 53 % (150 minutes, cumulative, **in-person**)

The exams mark is calculated based on the ***best*** of the 4 options below. This means if a student does not do well on an exam, then this exam will have less weight.

	Option 1	Option 2	Option 3	Option 4
Midterm 1	5 %	5 %	10 %	10 %
Midterm 2	12 %	20%	12 %	20 %
Final	53 %	45 %	48 %	40 %

Passing criteria: to pass the course, a student must receive: (1) an overall course grade of at least 50%, and (2) a combined grade of at least 50% on the exams (midterms and final). Failure to do so will result in a 45% grade, or the resulting grade, whichever is the lower. Students will not be able to receive a passing grade if they are not registered to the required lab section.

Final Grade: Final grades will be based on the evaluations listed above, and the final grade will be assigned according to the standardized grading system outlined in the UBC Okanagan Calendar.

Grievances and Complaints: A student who has a complaint related to this course should follow this procedure: The student should attempt to resolve the matter with the instructor first. Students may talk first to someone other than the instructor if they do not feel, for whatever reason, that they can directly approach the instructor. If the complaint is not resolved to the student's satisfaction, the student should e-mail the Associate Head of Subject Dr. Yves Lucet at yves.lucet@ubc.ca or the Department Head Dr. John Braun at cmps.depthead@ubc.ca

Course Format

The class will be offered in-person.

Lectures*:* This course is given **in-person**, i.e. both lectures are given in class as shown on page 1 of this syllabus.

Lecture Quizzes: We will have MCQs questions in almost every lecture:
- Questions displayed **during the lecture, and they can only be answered using iClickers.**
- Your iClicker responses will be counted towards your grade.
- **Create an iClicker Cloud account** using these Instructions: https://lthub.ubc.ca/guides/iclicker-cloud-student-guide. Because the registration data is stored in the US, you can use a pseudonym name and email address. However, you **must link your iClicker account to Canvas**.
- You can submit your responses through the web interface (must sign-in to your iClicker account) or phone app (search for iClicker Reef on our play/app store). Whether you use the web interface or phone app, you must "join" class on the clickers system after the class starts.

Labs
- Labs will be offered in-person as indicated on page 1 of this syllabus.
- A student **must be registered in one lab** for his/her assignments to be accepted.

Exams
- *Platform*: Exams will be held **in-person:** Midterms in the same classroom used for the lectures, during the scheduled lecture times. Location for final exam will be announced later.
- **Scope:** Exam will focus on material discussed in the lectures. **Only language accepted for coding in the exams is Java.**
- *Format*: The examinations in this course are all *closed-book*, so you are NOT permitted to access any of the course materials, including your notes, during the exam. You are also NOT to communicate with anyone about the exam during the scheduled write time or after the examination – you are to work independently. Communication with other students (written, text, verbal, etc.) is not permitted and will constitute Academic Misconduct.

Expectations

It is my best day when all my students pass the course, receive good grades, and feel the course was useful. For that to happen, help me by putting enough effort for the course. I expect that you will attend all classes and participate in class discussions, read the lecture notes before the lecture, attend all labs, finish all your assignments on time, and practice on the course materials. I also expect that you will spend (in average) at least 7 hours per week in out-of-class relevant activities (homework, preparation, practicing).

Missed Graded Work

Missed exams**:** If a student misses an exam without acceptable excuse according the UBC Okanagan's policy on excused absences from examinations, the mark received will be zero. If an acceptable excuse is provided to the instructor, then for:
- **Midterm exams**, the grade will be combined with the marks of the final exam so that the exams are still worth **70 %** of the total grade.
- **Final exam**, the student may take a make-up final exam with the permission of the Dean's office. Note that a make-up exam may have a question format different from the regular exam.

Late assignments**: Except for extreme situations (e.g., illness, childbirth, or bereavement supported by a written proof such as a doctor's note), the following policy is applied to late assignments:

- **0 to 24 hours late**: 25% mark deduction (e.g., if an assignment is worth 20 marks, then 5 marks will be deducted regardless of the mark you get in the assignment; no negative marks will be given).
- **24 to 48 hours late**: 50% mark deduction
- **More than 48 hours**: no mark.

Missed clicker questions**: no answers will be accepted except those provided during the lecture time using your own clicker device (remember that you get full mark for answering at least 80% of the questions).

One-time Extension Policy

- Everyone can get a one-time extension for **3 days** for any assignment of their choice. Use this extension wisely as I will give no additional extensions unless in very very extreme situations (e.g. admission to hospital, death in family). If you used this extension then asked for another one due to having too many exams/assignments, travelling, etc. you will not get a second extension.
- This policy only applies to assignments A1, A2, etc., and it does *not* apply to last assignment or the Project.
- **You do not have to ask for permission to use the 3-day extension**. Just inform your TA directly (no need to email the professor, but you must inform your TA)

Textbook and Reference Materials

- Course website and discussion forum on Canvas
- Lecture Notes (available electronically).
- Textbook: Y. D. Liang, Intro to Java Programming and Data Structures, 11th Edition, ISBN: 0134670949, 2017 (*Earlier editions are ok*).
    - If you wish, you can order a physical copy online, e.g., from Pearson website, Amazon, etc.
    - eBook format can be obtained through the UBC bookstore (https://shop.bookstore.ubc.ca/t-campus-ebookstore-okanagan.aspx) or VitalSource (https://www.vitalsource.com).
    - The UBC Bookstore is also providing Permalinks: unique, permanent links to the digital versions of the material you have chosen for your class. Each item has its own specific permalink that will connect your students directly to the correct material to purchase. Please make them available to your students via email, course syllabus or within the Canvas LMS https://www.campusebookstore.com/integration/AccessCodes/default.aspx?bookseller_id=240&Course=COSC+121+101&frame=YES&t=permalink.
    - This book comes with supplement materials
        - MyProgrammingLab (practice questions and exercises along with guidance and answers). This is optional and can be accessed here. Course id: TBA
        - Companion website (answers to review questions, solutions to some programming exercises, and interactive quizzes): http://wps.pearsoned.com/ecs_liang_ijp_10
    Optional resources/textbooks:
    - (free, online): David J. Eck, Introduction to Programming Using Java, Sixth Edition, available at http://math.hws.edu/javanotes/
    - P. Deitel and H. Deitel , Java How To Program (late objects) (10th Edition), ISBN: 0132575655, 2014
    - Many websites provide coding activities for fun. Here are two examples: codewars.com, codingame.com. note that I am not affiliated with any of the two websites. Also, note that not some of the questions on these websites are not covered in the course.

Supplemental Learning (SL)

This course may come with SL sessions. SL is an academic enhancement program designed to help students match what they are learning in class with how to best engage with and study that information. SL should provide additional support for students outside of class time. More information about SL program will be given **during class time** *and* can be found on: https://students.ok.ubc.ca/academic-success/learning-hub/supplemental-learning/

Important Dates

http://www.calendar.ubc.ca/okanagan

Course Schedule (*tentative*)

The course schedule contains the most up-to-date information and important dates for main events such as assignments due dates and tests. Note that these dates and topics are subject to change. Any such change will be announced to students.

LAB EXERCISES: Before every assignment, you should start by practicing on easy exercises related to what we covered in the lecture. You are **not** required to submit your solution for these exercises. On contrary, I will provide the solutions along with the questions. However, to properly learn, you must try on your own first then compare your solutions to mine. If you have a bug in your code or something is not clear to you, don't hesitate to ask your TA, peers, or me. The aim is for you to practice on simple questions before attempting the assignment. Exercises are denoted **E1, E2, etc**. in the schedule below.

ASSIGNMENTS: In addition to lab exercises, you should also work on a new assignment in almost every lab. Solutions for these assignments are *not* given to you. Instead, you should submit your solution to Canvas before the due date. Marks are given based on the *correctness* of the solution as well as the structure and formatting of your code. The aim is to evaluate your work and help you to learn (based on the feedback you receive from the TA). Assignment and exercise questions are carefully designed to prepare you to exams. Assignments are denoted **A1, A2, etc**. in the schedule below.

PROJECT: You will also work on a project that aims to give you a hands-on experience of using the topics learned in one relatively large program. Labs will decompose this large problem into several smaller ones manageable by students. These parts are indicated as **P1, P2, etc**. in the schedule below. Guidance will be given during class and lab time for different parts. As the semester advances, less guidance will be provided and you will be more and more expected to come up with your own design.

NO GROUP WORK IS ALLOWED: For all lab work, you may talk with others about the given problems and which parts of the course they are related to, but in all cases, you must **write your own code and never share your code**! Please note that we use **special software to detect plagiarism** in all submitted code.

DUE DATES: The due dates of the assignments and project parts are usually **one or two weeks from YOUR LAB** day. All due dates are at **11:59 pm**. The due dates are written in the schedule below in the form: "**due in W_n**", where *W* stands for "week" and *n* is the week number. For example, **A1 is "due in W3"** means that A1 is due in the third week, which is one week after YOUR lab section at 11:59 pm. There are some exceptions where one specific due date is given for all students as shown below.

WEEK	DATE		TOPICS	READINGS (based on 10th Ed)	LABS
W1	Mon	9 / 1	**L01:** Intro to Course, OOP basics (revision), Intro to inheritance		No labs during week *W1*
	Wed	11 / 1	**L02:** Inheritance, array of objects, `final`, visibility modifiers revisited, `Object`	CH 9.1 - 11.6	
W2	Mon	16 / 1	**L03:** Polymorphism	CH 9.1 - 11.6	**E1:** no need to submit **P1**: due in **W3**
	Wed	18 / 1	**L04:** Dynamic binding Object casting, `instanceOf`, `equals`	CH 11.7 - 11.10	
W3	Mon	23 / 1	**L05:** Abstract Classes, intro to interfaces	CH 11.7-11.10, 13	**E2:** no need to submit **A1**: due in **W4**
	Wed	25 / 1	**L06:** User-defined Interfaces Built-in interfaces: Comparable, Cloneable	CH 13	
W4	Mon	30 / 1	**L07:** Exception Handling	CH 12	**E3:** no need to submit **P2**: due in **W5** **A2**: due in **W6**
	Wed	1 / 2	**L08**: Text I/O Midterm 1 Revision	CH 12	
W5	Mon	7 / 2	**L09:** Binary I/O (30 minutes) **Midterm 1 (45 min, in-class**, *L1 to L6*)	CH 17	**E4:** no need to submit **A3:** due in **W6**
	Wed	9 / 2	**L10:** Binary I/O, cont.	CH 17	
W6	Mon	13 / 2	**L11:** Recursion	CH 18	**E5:** no need to submit **A4, P3:** due in **W8** *Midterm 1 QAs*
	Wed	15 / 2	**L12:** Recursion, cont.	CH 18	
W7	Mon	20 / 2	No class: Midterm Break		No Labs: Midterm Break
	Wed	22 / 2			
W8	Mon	27 / 2	**L13:** ArrayLists , Intro to Generics	CH 11.11 - 11.15 CH 19	**E6:** no need to submit **A5:** due in **W9**
	Wed	1 / 3	**L14:** ArrayLists , Intro to Generics, cont.		
W9	Mon	6 / 3	**L15:** List, Stacks, and Queues	CH 20	**E7:** no need to submit **A6:** due in **W10**
	Wed	8 / 3	**L16:** List, Stacks, and Queues, cont.	CH 20	
W10	Mon	13 / 3	**L17:** Implementing LinkedList	CH 24	**E8 part1,2:** no need to submit **A7:** due in W12
	Wed	15 / 3	**L18:** Impl. ArrayList, Stacks, and Queues	CH 24	
W11	Mon	20 / 3	Midterm Revision		**A8, P4**: due in W12
	Wed	22 / 3	**Midterm 2** **(in-class**, *L1 to L16 with more focus on L7 to L16*)		
W12	Mon	27 / 3	**L19:** Sorting	CH 23	Midterm2 QAs
	Wed	29 / 3	**L20:** Sorting, cont.	CH 23	
W13	Mon	3 / 4	**L21:** Lambda Expressions (*tentative*) **OR** Network Programming (*tentative*) **OR** Java Concurrency (*tentative*) **OR** More Practice		**E9:** no need to submit **A9:** due on Apr 10
	Wed	5 / 4	Continute L21 **or** Practice		
W14	Mon	10 / 4	No class – Easter Monday		*No new lab; TAs are available to answer your questions.*
	Wed	12 / 4	**Final Revision**		

Other Course Policies

Academic Integrity: The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating usually result in a failing grade or mark of zero on the assignment or in the course. Careful records are kept to monitor and prevent recidivism. **The use of artificial intelligence (AI) assistance for any assessed portions of this course is not permitted.** A more detailed description of academic integrity, including the University's policies and procedures, may be found in the Academic Calendar at:

http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,54,111,0

Cooperation vs. Cheating: Working with others on assignments is a good way to learn the material and we encourage it. However, there are limits to the degree of cooperation that we will permit. Any level of cooperation beyond what is permitted is considered cheating. When working on programming assignments, you must work only with others whose understanding of the material is approximately equal to yours. In this situation, working together to find a good approach for solving a programming problem is cooperation; listening while someone dictates a solution is cheating. You must limit collaboration to a high-level discussion of solution strategies, and stop short of actually writing down a group answer. Anything that you hand in, whether it is a written problem or a computer program, must be written by you, from scratch, in your own words/code. If you base your solution on any other written solution, you are cheating. If you provide your solution for others to use, you are also cheating.

Class time: Lectures will involve, besides explaining course materials, working on design examples and in class exercises. Class attendance and taking notes are expected, and students are responsible for all material covered in class. You are also expected to respect the other members of the class as well as the instructor. Inappropriate class behavior is not allowed (e.g., talking on cell phones, engaging in non-class activities, sleeping, using disrespectful language, etc.).

Final Examinations: You can find the Senate-approved term and examination dates here. Except in the case of examination clashes and hardships (three or more formal examinations scheduled within a 27-hour period) or unforeseen events, students will be permitted to apply for out-of-time final examinations only if they are representing the University, the province, or the country in a competition or performance; serving in the Canadian military; observing a religious rite; working to support themselves or their family; or caring for a family member. Unforeseen events include (but may not be limited to) the following: ill health or other personal challenges that arise during a term and changes in the requirements of an ongoing job. Further information on Academic Concession can be found under Policies and Regulation in the Okanagan Academic Calendar http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,48,0,0

Grading Practices: Faculties, departments, and schools reserve the right to scale grades in order to maintain equity among sections and conformity to University, faculty, department, or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department, or school. Grades are not official until they appear on a student's academic record:
http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,41,90,1014

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http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,41,90,1014

Resources to Support Student Success:

UBC Okanagan Disability Resource Centre: The DRC facilitates disability-related accommodations and programming initiatives to remove barriers for students with disabilities and ongoing medical conditions. If you require academic accommodations to achieve the objectives of a course please contact the DRC at:
UNC 215   250.807.8053
Email: drc.questions@ubc.ca
Web: www.students.ok.ubc.ca/drc

UBC Okanagan Equity and Inclusion Office: Through leadership, vision, and collaborative action, the Equity & Inclusion Office (EIO) develops action strategies in support of efforts to embed equity and inclusion in the daily operations across the campus. The EIO provides education and training from cultivating respectful, inclusive spaces and communities to understanding unconscious/implicit bias and its operation within in campus environments. UBC Policy 3 prohibits discrimination and harassment on the basis of BC's Human Rights Code. If you require assistance related to an issue of equity, educational programs, discrimination or harassment please contact the EIO.
UNC 325H   250.807.9291
Email: equity.ubco@ubc.ca
Web: www.equity.ok.ubc.ca

Student Wellness: At UBC Okanagan health services to students are provided by Student Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Student Wellness for more information or to book an appointment.
UNC 337   250.807.9270
Email: healthwellness.okanagan@ubc.ca
Web: www.students.ok.ubc.ca/health-wellness

Office of the Ombudperson: The Office of the Ombudsperson for Students is an independent, confidential and impartial resource to ensure students are treated fairly. The Ombuds Office helps students navigate campus-related fairness concerns. They work with UBC community members individually and at the systemic level to ensure students are treated fairly and can learn, work and live in a fair, equitable and respectful environment. Ombuds helps students gain clarity on UBC policies and procedures, explore options, identify next steps, recommend resources, plan strategies and receive objective feedback to promote constructive problem solving. If you require assistance, please feel free to reach out for more information or to arrange an appointment.
UNC 328   250.807.9818
Email: ombuds.office.ok@ubc.ca
Web: www.ombudsoffice.ubc.ca

Student Learning Hub: The Student Learning Hub is your go-to resource for free math, science, writing, and language learning support. The Hub welcomes undergraduate students from all disciplines and year levels to access a range of supports that include tutoring in math, sciences, languages, and writing, as well as help with study skills and learning strategies. Students are encouraged to visit often and early to build the skills, strategies and behaviors that are essential to being a confident and independent learner. For more information, please visit the Hub's website.
LIB 237   250.807.8491
Email: learning.hub@ubc.ca
Web: www.students.ok.ubc.ca/slh

The Global Engagement Office: The Global Engagement Office provides advising and resources to assist International students in navigating immigration, health insurance, and settlement matters, as well as opportunities for intercultural learning, and resources for Go Global experiences available to all UBC Okanagan students, and more.

Sexual Violence Prevention and Response Office (SVPRO): A safe and confidential place for UBC students, staff and faculty who have experienced sexual violence regardless of when or where it took place. Just want to talk? We are here to listen and help you explore your options. We can help you find a safe place to stay, explain your reporting options (UBC or police), accompany you to the hospital, or support you with academic accommodations. You have the right to choose what happens next. We support your decision, whatever you decide.
Visit svpro.ok.ubc.ca or call us at 250-807-9640

Safewalk: Don't want to walk alone at night? Not too sure how to get somewhere on campus? Call Safewalk at 250-807-8076. For more information, see: www.security.ok.ubc.ca

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