CS 211 – FUNDAMENTALS OF COMPUTER SCIENCE II

FALL 2021 COURSE SYLLABUS

Instructor:	Winnie Li
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Phone:	425-564-2825 (not preferred at this time since we mostly WFH this quarter)
Office location:	A255-G
Office Hours:	(Via Zoom) M/T/Th 10:00am – 10:45am, Th 6:30pm – 7:00pm, and/or by appointment

COURSE INFORMATION

Continues CS 210, with data structures algorithm analysis and inheritance. Students learn to create collections, lists, binary trees, and sets. Other topics include sets, generic data types, sorting, recursion, run-time complexity, and graphical user interfaces.

COURSE OUTCOMES

After completing this class, students should be able to:

- Create classes via inheritance, use their objects to demonstrate polymorphism of both interfaces and abstract classes; and explain the role of generic class templates within classes.
- Explain the principles of recursion versus repetition, and write recursive methods for a variety of tasks.
- Implement and contrast the uses of various data structures including arrays, sets, lists, collections, and trees.
- Recognize the use of Big-O notation to explain program performance in searching, sorting, recursion, and implementation of existing methods from a software API (Application Programming Interface).
- Compose programs that facilitate error handling using API standard Exceptions with try-catch blocks.
- Design programs using a Graphical User Interface (GUI) and event driven programming.

PREREQUISITE:

- CS 210 or equivalent
- Intermediate computer skills

BOOKS AND MATERIALS REQUIRED:

Textbook: **Building Java Programs: a Back to Basics Approach** 5th Edition, by Stuart Reges and Marty Stepp.

THIRD (4rd) Edition may also work, but you are responsible to find the assignment exercises that are match to the FIFTH Edition.

Software: Java IDE, Office, and Internet

TOPICS COVERED:

Chapter 9:	Inheritance and Interfaces
Chapter 10:	ArrayLists
Chapter 11:	Java Collections Framework
Chapter 12:	Recursion
Chapter 13:	Searching and Sorting
Chapter 14:	Stacks and Queues
Chapter 15:	*Implementing a Collection Class*
Chapter 16:	Linked Lists
Chapter 17:	Binary Trees
Chapter 18:	Advanced Data Structures

RESOURCES:

Publisher Web Site:

https://media.pearsoncmg.com/bc/abp/cs-resources/products/product.html#product,isbn=0134322762

There is also a companion site that might be useful: www.buildingjavaprograms.com

And the authors use this book for the CSE142/143 classes at University of Washington:

www.cs.washington.edu/education/courses/142

www.cs.washington.edu/education/courses/143

Next you will need a way to compose, compile, and run Java programs. There are countless ways to do this, so I'm going to limit myself to two approaches this quarter, NetBeans and Eclipse:

- NetBeans: https://netbeans.apache.org/download/index.html *(NetBeans platform with Java SE)*

A quick tutorial: http://netbeans.org/kb/docs/java/quickstart.html

- Eclipse: http://www.eclipse.org/downloads/packages/eclipse-ide-java-developers/keplerr *(Eclipse IDE for Java Developers) or the newly released version:* https://www.eclipse.org/downloads/packages/

  A good tutorial (note: it's fairly long and touches some features out of scope for this course): http://www.vogella.com/tutorials/Eclipse/article.html

Finally, since Java is so pervasive in the software industry today, you probably already have some version of Java installed on every computer who use. Most PC's simply have the Java Runtime Environment (JRE) installed, which could probably get you through this class along with Eclipse as the Integrated Development Environment (IDE). But some development will require installation of the Java Development Kit (JDK) which can be obtained for free from Oracle, who purchased Sun Microsystems in 2010:

http://www.oracle.com/technetwork/java/javase/downloads/index.html

COURSE REQUIREMENT

An online class does not reduce any course requirements. Instead, it only offers you the flexibility of creating your own learning schedule. Make sure you manage your time well!!

There is a significant amount of work in this class. You are expected to spend a minimum of 15 hours per week to study and to complete the assigned work. Make sure that you can spend at least that much time this quarter. ***If you are overloaded with other courses or work, this may NOT be the right time for you to take this class.*** DO NOT OVERLOAD!!

All due dates are posted under Canvas Calendar (some are subject to change). Students will not be given extension(s) unless they have extenuating circumstances as decided by the instructor, and students must contact the instructor 48 hours before the due date to make such arrangements. **Please see "Recommended Study Schedule" (posted in Getting Started Folder) for details.**

You are expected to read the course documents, textbook, Web tutorial and other resources, and use the discussion and online tools to seek assistance from classmates and the instructor. DO NOT post files that are assigned as homework to the discussion area unless specifically directed to do so.

GRADING COMPONENTS:

Assignments	40%
Class Participation	15%
Midterm Exam	20%

Final Exam	25%
Total	100%

ASSIGNMENTS (40%)

There are 10 homework assignments; some are simple, while others are quite complex. But most assignments are worth about 50 points each, expect Assignment 0 and Assignment 9 which are 10 points each.

Exact due dates/times are posted in Course Home Page -> Calendar, and any changes will be announced in Course Home Page -> Announcements. Be sure to check the website frequently.

Most assignments are from the text and require composition and execution of Java programs. Your code must be done **individually** and submitted **electronically** **(see assignment instructions for details)**. Readability of code is crucial, and adherence to specifications is paramount, where superfluous inclusion is usually considered detrimental.

Files submitted to instructors need to be **named appropriately**, as I need to track thousands of submissions every year. **Make sure you follow the instructions! If the file does not have the correct name, I will assume you are not sending me the correct assignment, which would result in a significant penalty.**

For example, if the instruction requires you to name the file in the following format **LastnameFirstnameX.xxxx** where LastnameFirstname is your Last Name with the first letter in Capital, followed by your First Name with the first letter in Capital; the X is the Assignment #; and xxxx is the document format. Assuming I'm turning the first assignment, which is a Word document (using Office newer than 2010), then I should name the file as: **LiWinnie1.docx** Many assignments require multiple files submission, please submit required files individually, in particular, **DO NOT submit zipped files!**

Academic Integrity and Collaboration: Programming assignments must be completed **individually**; all code you submit must be your own work. You may discuss general ideas of how to approach an assignment, **but never specify details about the code to write**. Any help you receive from or provide to classmates should be limited and should never involve details of how to code a solution. You must abide by the following rules:

- **You may not work as a partner with another student on an assignment.**
- **You may not show another student your solution to an assignment, nor look at his/her solution, for any reason.**
- **You may not have another person "walk you through" an assignment, describe in detail how to solve it, or sit with you as you write it. You also may not provide such help to another student. This includes**

current or former students, tutors, friends, TAs, paid consultants, people on the Internet, or anyone else.

- **You may not post your homework solution code online to ask others for help. This includes public message boards, forums, file sharing sites and services, or any other online system.**

Under our policy, a student who gives inappropriate help is equally guilty with one who receives it. Instead of providing such help to someone who does not understand an assignment, point them to other class resources such as lecture examples, the textbook, or emailing a tutor or instructor. You must not share your solution or code with others.

You must also ensure that your work is not copied by others, such as making sure to log out of shared computers, not leaving printouts of your code in public places, and not emailing your code to other students or posting it on the web. If you are retaking the course, you may resubmit a previous solution unless that program was involved in an academic misconduct case. If misconduct was found, you must write a new version of that program. **We enforce this policy vigorously by running similarity detection software a few times per quarter over all submitted student programs, including programs from past quarters.** Students who violate the policy are offered reduced scores and sometimes sent to the college committee (see more details under Policy Regarding Plagiarism, Stealing and Cheating). This can lead to marks on permanent academic records. Generally a number of students each quarter are given reduced scores for violating these policies. Please be careful, and contact the instructor if you are unsure whether a particular behavior falls within our policy.

CLASS PARTICIPATIONS (15%)

Required Class Participation includes Required Discussions (5%) and Quizzes (10%). There are also MyProgrammingLabs (associated with Pearson Textbook) for extra practice -- it doesn't contribute to any point but it is ***HIGHLY RECOMMENDED***.

Required Discussions: For each chapter (chapter 9 through 18), there will be a required discussion: pick ONE question (the one you are mostly interested in) from the textbook assignment self-check problems, exercises, or the programming projects, write a short paragraph to explain 1) why you are interested in it, 2) how did you approach this question, solve it, and overcome any difficulties you had, and 3) what have you learned from this question and any comments. You are also required to interact with your classmates in discussion – reply to at least two others' posts. Don't hold until the last minute, post as early as you could! This is an effective way for preview/reviewing the homework and the quizzes. In addition, you have the very first discussion (Discussion 0) as self-introduction.

Detailed instructions are posted in the first post of the Discussion assignment. Make sure you read the instructions carefully and completely. Required Discussion MUST be posted by the due date/time. **No late discussion posts will be accepted**.

Quizzes: Quizzes must be taken at scheduled times. There will be ten quizzes (about one per Chapter), and quizzes will be given via an outside link (codestepbystep). Login instruction will be posted in Announcement as well as in Module 0 (Getting Started). **No make-up quizzes are allowed**.

Important notes:

1) For best practice, make sure you complete quizzes **BY HAND**. Using IDE may help you to double check the answers, however, keep in mind, you are **not allowed** to use IDE on exams.

2) **Please type your answers directly in the browser. In particular, DO NOT copy and paste any text from Word--this may cause "unrecognized font" issue.**

3) All quizzes are graded by the computer system automatically – which is quite picky and sensitive (remember Java is CASE-SENSITIVE!). There will be detailed notes/instructions in each Quiz; **please follow the instructions on the assigned slide(s) and the instructions under each Quiz, including the FORMAT of your answers. Note that the quiz system is set to ONLY accept answers in the SPECIFED format(s). If there are any special notes or common questions, I will post it in Announcements and/or Discussions. Part of the requirements in this class is attention to the details, and this is a very important skill to have.**

Labs: MyProgrammingLab is not mandatory, but it is **highly recommended** as great supplemental exercises for the class. Completing the lab assignment is a great transition from self-check problems to programming projects.

MIDTERM EXAM (20%) AND FINAL EXAM (25%)

Both exams will be delivered online. Detailed exam information (including schedules and instructions) will be posted in Course Home Page -> Announcement. Note all section of CS 211 will have common 2-hour final examination on the day and window of time given in the calendar. It is important to note that the schedule for CS 211 common final examination is approved by both CS Program Chair and Dean of Science Division. Both exams require recognition of how Java code works, and/or brief compositions of Java code. Multiple choice and short answer questions may also appear on the exams.

Midterm Exam covers Chapter 9 through Chapter 12, and Final Exam is cumulative (Chapter 9 through Chapter 18).

No make-up exams are allowed! Any student with a common final exam time conflict must contact their instructor within the **first two weeks** of the quarter.

EXTRA CREDIT (TBA)

There will be a few extra credit opportunities along the quarter. See Canvas Assignment and/or Calendar for details. Please note extra credit assignments MUST be completed and submitted on time.

Note: No late extra credit assignments will be accepted! No free late days can be applied to extra credit assignments.

GRADING POLICY

Individual assignments are graded on a scale of 100% with the following concepts:

1) **Work / Effort**: 20% for proper submission of something on time
2) **Correctness:** 50% breakdown as
   - 10% for any resemblance of a correct solution
   - 20% for demonstrating true understanding the problem at hand
   - 20% for accurate results as required by the problem and the directions
3) **Design / Style:** 30% for well-organized work: including but not limit to clear design and structure, nice formatting, comments that enhance code readability, etc. Note: this can be subjective.

Lateness: Any work received after the due date is considered late. Late work will be penalized at the rate of **15% of the grade per calendar day late** (including weekends and holidays), for a maximum of **THREE (3) calendar days.** Students will not be given extensions unless they have extenuating circumstances as decided by the instructor, and student must contact the instructor **48 hours before** the due date to make such arrangements.

Since "emergencies" do occur in everyone's life, each student have a total of **3 FREE late days:**

1) A free late day allows you to submit an assignment up to 24 hours late without penalty. For example, you may submit an assignment due Tuesday 9pm on Wednesday by 9pm with no penalty by spending 1 free late day.
2) You may choose to use the late days in any way you desire. For example, you may use 2 late days on Assignment 2 and 1 late day on Assignment 5, or spending all 3 on Assignment 7.
3) Late days are counted by CALENDAR DAY, each late day may only be applied on ONE assignment, and may ONLY be used on homework (NOT applicable on quizzes, discussions, or extra credit assignments).
4) Once a student has used up all 3 free late days, normal late penalty applies.
5) **Note: If you would like to use your free late days, you must add a note along with the assignment submission. For example, put down "I would like to use one of my three free late days" under submission comment (NOT the comment in your code).**
6) Any unused free late days will be "converted" to extra credited points.

Resubmission: Students are solely responsible on assignment submissions. You may take back the assignment and resubmit it **BEFORE** the due date with no penalty. If you would like to resubmit an assignment **AFTER** the due date due to whatever reason (e.g., wrong file, updated work etc.), free late days will be taken off if you have any left, and normal late penalty applies if all free late days have been used up.

Final Grade is given based on:

925 -- 1000	A	4
900 – 924	A-	3.7
875 – 899	B+	3.3
825 – 874	B	3.0
800 – 824	B-	2.7
775 – 800	C+	2.3
725 – 774	C	2.0
700 – 724	C-	1.7
675 – 699	D+	1.3
600 – 674	D	1.0
Below 600	F	0

Note 1: A passing grade will not be given unless ALL REQUIREMENTS of the course are completed.

Note 2: In order to be fair to everyone, NO GRADE NEGOTIATION.

INSTRUCTOR'S EXPECTATION

Division Netiquette Statement:

Students are expected to conduct all online interactions in a mature, professional manner. Professional communication should be void of slang terms, emoticons, statements in all caps, or texting abbreviations. When communicating online, students are expected to be as courteous and respectful to others as you would be in person. Emails and online discussion posts cannot be taken back; be mindful not to send emails or make posts that you might later regret. Instructors reserve the right to take disciplinary action when they determine inappropriate or offensive online behavior has occurred (such as posts or emails that are considered rude, mean, disrespectful and/or discriminatory). Students who violate these expectations will be reported to the Dean of Student Success as a violation of the Student Code of Conduct. The Dean may file the report in your permanent record and/or take further disciplinary action. See "Netiquette Guide for Online Courses" posted in Modules Getting Started for details.

My role as the instructor is to:

- Help students succeed in this course
- Share my knowledge and experiences to help expand on concepts discussed in the course
- Provide timely feedback to students
- Moderate discussions and challenge students to further their knowledge
- Evaluate and grade students

As a student in this course, I expect you to:

- Work hard to achieve the goals of the course
- Actively contribute to any discussions
- Share your thoughts, knowledge and experiences
- Cooperate and collaborate with other students
- Provide feedback to me throughout the course

OTHER INFORMATION

AFFIRMATION OF INCLUSION

Bellevue College is committed to maintaining an environment in which every member of the campus community feels welcome to participate in the life of the college, free from harassment and discrimination.

We value our different backgrounds at Bellevue College, and students, faculty, staff members, and administrators are to treat one another with dignity and respect. http://bellevuecollege.edu/about/goals/inclusion.asp

STUDENT CODE OF CONDUCT AND ACADEMIC INTEGRITY

Cheating, stealing, and plagiarizing (using the ideas or words of another as one's own without crediting the source) and inappropriate/disruptive classroom behavior are violations of the Student Code of Conduct at Bellevue College. Examples of unacceptable behavior include, but are not limited to, talking out of turn, arriving late or leaving early without a valid reason, allowing cell phones/pagers to ring, and inappropriate behavior toward the instructor or classmates. The instructor can refer any violation of the Student Code of Conduct to the Dean of Student Success for investigation. Specific student rights, responsibilities, and appeal procedures are listed in the Student Code of Conduct at: http://www.bellevuecollege.edu/policies/id-2050/

BELLEVUE COLLEGE E-MAIL AND ACCESS TO MYBC

All students registered for classes at Bellevue College are entitled to a network and e-mail account. Your student network account can be used to access your student e-mail, log in to computers in labs and classrooms, connect to the BC wireless network and log in to *My*BC. To create your account, go to: https://www.bellevuecollege.edu/netid/.

BC offers a wide variety of computer and learning labs to enhance learning and student success. Find current campus locations for all student labs by visiting the http://depts.bellevuecollege.edu/helpdesk/students/

DISABILITY RESOURCE CENTER (DRC)

The Disability Resource Center serves students with a wide array of learning challenges and disabilities. If you are a student who has a disability or learning challenge for which you have documentation or have seen someone for treatment and if you feel you may need accommodations in order to be successful in college, please contact us as soon as possible.

If you are a person who requires assistance in case of an emergency situation, such as a fire, earthquake, etc., please meet with your individual instructors to develop a safety plan within the first week of the quarter.

If you are a student with a documented autism spectrum disorder, there is an additional access program available to you. Contact asn@bellevuecollege.edu or 425.564.2764. ASN is located in the Library Media Center in D125. www.bellevuecollege.edu/autismspectrumnavigators/

The DRC office is located in B132 or you can call our reception desk at 425.564.2498. Deaf students can reach us by video phone at 425-440-2025 or by TTY at 425-564-4110. Please visit our website for application information into our program and other helpful links at www.bellevuecollege.edu/drc

PUBLIC SAFETY AND EMERGENCIES

Public Safety is located in the K building and can be reached at **425-564-2400** (easy to remember because it's the only office on campus open 24 hours a day—2400). Among other things, Public Safety serves as our Parking Permits, Lost and Found, and Emergency Notification center. Please ensure you are signed up to receive alerts through our campus alerting system by registering at http://www.bellevuecollege.edu/alerts/?ref=footer

If you work late and are uneasy about going to your car, Public Safety will escort you to your vehicle. To coordinate this, please phone ahead and let Public Safety know when and where you will need an escort.

Please familiarize yourself with the emergency postings by the door of every classroom and know where to go in the event of an evacuation. Your instructor will be asked if anyone might still be in the building, so check in before you do anything else. Emergency responders will search for anyone unaccounted for.

If a major emergency occurs, please follow these two rules:

1) Take directions from those in charge of the response – We all need to be working together.

2) Do not get in your car and leave campus (unless directed to) - Doing so will clog streets and prevent emergency vehicles from entering the scene. Instead, follow directions from those in charge.

Please do not hesitate to call Public Safety if you feel safety questions or concerns at any time.

ACADEMIC CALENDAR

Please see Recommended Study Schedule and Canvas Calendar for details.