



# THE UNIVERSITY OF WINNIPEG

## APPLIED COMPUTER SCIENCE

**Course Number - ACS-1904-003**

**Course Name – Programming Fundamentals II**

### **Instructor Information**

**Instructor: Prof. Talal Halabi**

**Office: 3D19**

**E-mail: t.halabi@uwinnipeg.ca**

**Office Hours: Thu 1:00 pm - 2:00 p.m.**

**Class Meeting Time: Tu, Thu @ 1:00 pm – 2:15 pm (Hybrid)**

**Lab Meeting Time (with lab assistant):** Fridays 11:00 am – 12:15 am - section 074 or  
12:15 pm – 1:30 pm - section 075

**Course Web Page:** Available on Nexus <https://nexus.uwinnipeg.ca/d2l/home/33855>

**Instructor’s Home Page:** <https://www.uwinnipeg.ca/experts-guide/talal-halabi.html>

### **Important Dates**

First Class:

Jan 7, 2021

First Lab:

Jan 15, 2021

Reading Week (no classes)

Feb 13 – 20, 2021

Midterm Exam:

Feb 23, 2021

Final Withdrawal Date w/o academic penalty: Mar 16, 2021

(A minimum of 20% of the work on which the final grade is based will be evaluated and available to the student before the voluntary withdrawal date)

Last Class:

April 6, 2021

Last Lab:

April 7, 2021

Final Exam:

TBD

### **Course Objectives/Learning Outcomes**

This course examines more advanced programming concepts using the Java object-oriented programming language. Topics to be covered include major concepts of object-oriented design, inheritance, polymorphism, string/text processing, wrapper classes, searching and sorting algorithms, recursive programming, exceptions, and advanced file I/O among others.

## **Remote Learning**

All course material including lecture notes, slides and videos, sample code, assignment and lab details will be available on Nexus. Students are responsible for material covered in video lectures and announcements made in the Nexus course web pages.

Students must be available via Zoom during the class times, lab times, midterm, and final exam.

- Students must display their real/full name
- Use of Video is optional.
- Participants must be muted when not speaking
- Students may interact via chat, voice, or gestures

Some of the lectures will be recorded and delivered as video on demand. Students will be notified in advance about the dates of asynchronous classes.

Students can find answers to frequently asked questions related to remote learning here: <https://www.uwinnipeg.ca/covid-19/remote-learning-faq.html>.

Note: a permitted or necessary change in mode of delivery may require adjustments to important aspects of course outlines, like class schedule and the number, nature, and weighting of assignments and/or exams.

## **Evaluation Criteria**

- Labs: 11%
  - There are 11 labs worth 1% each
  - Labs are completed during the Friday lab period
  - Lab work and assignments are submitted via Nexus
  - Lab code (\*.java files) due date is the same date of the lab @ 11:59:59 pm. No late labs will be accepted after this time.
- Assignments: 15%
  - All assignments are to be completed individually
  - There will be 3 assignments worth 5% each
    - May include theory, programming and/or analysis exercises
  - Due at 11:59:59 pm on due dates
  - No late assignment will be accepted, or under special circumstances accepted with 20% off for each late day.
  - Assignments reports are only submitted via Nexus as PDF (Portable Document Format) files and code as \*.java files
  - Multiple submissions are not permitted. Students may submit a partially completed assignment and will receive credit for those attempted problems.

- Combination of functionality, quality of design, programming style and documentations are considered for programming assignments.
  - Problem solving and programming assignments are time consuming. Start early. Students are responsible for maintaining backups of their work.
  - Students are responsible to review their assignments before submission to make sure the correct files are attached to the email.
- Midterm Exam: 24%
    - The midterm test is during class time
  - Final Exam: 50%
    - The final exam covers all material discussed in the course

### **Test / Exam Requirements**

- Photo ID is required for the final exam
- Midterm and final exams will be delivered via Nexus. Students must have video capability and be prepared to present their student ID
- Midterm and final exams are open book. However, students are permitted to view **only** the following authorized course material:
  - Class notes, slides, and assignment descriptions and solutions
  - Course textbook
  - Student's own course notes and assignment submissions
- Students may use an external tool such as a text editor or IDE to write answers to questions before entering them into the exam
- Students may contact the instructor to ask questions during the exam
- External resources (or any material not listed above) are NOT PERMITTED
- Communication with others (except the instructor) is NOT PERMITTED
- All work must be entirely the students' own. Collaboration or sharing of work is NOT PERMITTED
- You are expected to write the test/exam on its given day. Unless a medical certificate is provided, no accommodation is made for missed exams.

Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide opportunity for students to make up work or examinations without penalty. A list of religious holidays can be found in the 2020-21 Undergraduate Academic Calendar.

Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams or during lectures/laboratories are encouraged to contact Accessibility Services (AS) at 204.786.9771 or <https://www.uwinnipeg.ca/accessibility->

[services/](#) to discuss appropriate options. All information about a student's disability or medical condition remains confidential.

### **Final Letter Grade Assignment**

Historically, numerical percentages have been converted to letter grades using the following scale. However, instructors can deviate from these values based on pedagogical nuances of a particular class, and final grades are subject to approval by the Department Review Committee.

|    |            |    |          |   |           |
|----|------------|----|----------|---|-----------|
| A+ | 95+ - 100% | B+ | 75 - 79% | C | 60 - 64%  |
| A  | 85 - 95%   | B  | 70 - 74% | D | 50 - 59%  |
| A- | 80 - 84%   | C+ | 65 - 69% | F | below 50% |

### **Prerequisite and Restriction Information\***

(This information can be found in the UW Undergraduate Academic Calendar)

- Requisite courses: ACS-1903 with a minimum grade of C  
ACS-1904L (lab) must be taken concurrently

### **Email Communication Requirements**

- Emails from accounts at uwinnipeg.ca are usually not filtered by the UofW email filter. Thereby, it is recommended that electronic communication used for the course utilize a UofW email account or the Nexus platform to minimize the risk of filtering.
- Use 'ACS-1904-003' as subject in email communication related to the course.

### **Regulations, Policies, and Academic Integrity**

Academic dishonesty is a very serious offense and will be dealt in accordance with the University's policies.

*Avoiding Academic Misconduct:* Students are encouraged to familiarize themselves with the Academic Regulations and Policies found in the University Academic Calendar at:

<https://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf>

Particular attention should be given to subsections 8 (Student Discipline), 9 (Senate Appeals) and 10 (Grade Appeals). Please note, in particular, the subsection of Student Discipline pertaining to plagiarism and other forms of cheating.

Detailed information can be found at the following:

- Academic Misconduct Policy and Procedures: <https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-policy.pdf> and <https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-procedures.pdf>

- UW Library video tutorial “Avoiding Plagiarism”  
<https://www.youtube.com/watch?v=UvFdxRU9a8g>

Uploading essays and other assignments to essay vendor or trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) involves “aiding and abetting” plagiarism. Students who do this can be charged with Academic Misconduct.

*Non-academic misconduct.* Students are expected to conduct themselves in a respectful manner on campus and in the learning environment irrespective of platform being used. Behaviour, communication, or acts that are inconsistent with a number of UW policies could be considered “non-academic” misconduct. More detailed information can be found here:

- Respectful Working and Learning Environment Policy  
<https://www.uwinnipeg.ca/respect/respect-policy.html>,
- Acceptable Use of Information Technology Policy  
<https://www.uwinnipeg.ca/institutional-analysis/docs/policies/acceptable-use-of-information-technology-policy.pdf>
- Non-Academic Misconduct Policy and Procedures: <https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-policy.pdf> and <https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-procedures.pdf>.

*Copyright and Intellectual Property.* Course materials are the property of the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides—irrespective of format. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor/presenter before, for example, photographing, recording, or taking screenshots of slides, presentations, lectures, and notes on the board. Students found to be in violation of an instructor’s intellectual property rights could face serious consequences pursuant to the Academic Misconduct or Non-Academic Misconduct Policy; such consequences could possibly involve legal sanction under the Copyright Policy  
[https://copyright.uwinnipeg.ca/docs/copyright\\_policy\\_2017.pdf](https://copyright.uwinnipeg.ca/docs/copyright_policy_2017.pdf)

## Privacy

Students have rights in relation of the collecting of personal data the University of Winnipeg:  
<https://www.uwinnipeg.ca/privacy/admissions-privacy-notice.html>.

More information:

- Zoom and Privacy: <https://www.uwinnipeg.ca/privacy/zoom-privacy-notice.html>

- Testing/Proctoring: <https://www.uwinnipeg.ca/privacy/zoom-test-and-exam-proctoring.html>.

### **Text Book(s) / Reading List / Tools**

We will use the following books as guide, supplemented with readings throughout the course:

- Starting out with Java – From Control Structures through Objects  
Tony Gaddis  
Pearson, 6<sup>th</sup> Edition 2016  
ISBN 978-0-13-395705-1
- Building Java Programs  
Reges & Stepp  
Pearson, 4<sup>th</sup> Edition 2017  
ISBN 978-0-13-432276-6

Class notes and notices will be available on the course web page. Students are responsible for material covered in class and announcements made in class.

There are different Integrated Development Environments (IDEs) you can use to program and test Java code. We are going to use Visual Studio Code (VS Code) for our class lectures. For advanced students you may want to try Eclipse IDE or similar:

- Visual Studio Code  
Available at <https://code.visualstudio.com/>  
Getting started <https://code.visualstudio.com/docs/java/java-tutorial>
- Eclipse IDE for Java Developers, Eclipse Packages  
Available at <http://www.eclipse.org/downloads/packages/>

Java Development Kit to use for programming tasks

- Java SE Downloads (all)  
Oracle (JDK):  
<https://www.oracle.com/java/technologies/javase-downloads.html>  
  
Red Hat (OpenJDK):  
<https://developers.redhat.com/products/openjdk/download>
- Java SE Development Kit 11 or later (Nov 2020 current version is JDK v11.0.9) at  
<https://www.oracle.com/java/technologies/javase-downloads.html#JDK11>
- Java SE Development Kit 15 or later (Nov 2020 current version is JDK 15.0.1) at  
<https://www.oracle.com/java/technologies/javase-jdk15-downloads.html>

- Java Platform, Standard Edition Documentation  
<https://docs.oracle.com/en/java/javase/index.html>
- Java Documentation  
<https://docs.oracle.com/en/java/index.html>
- Version history  
[https://en.wikipedia.org/wiki/Java\\_version\\_history](https://en.wikipedia.org/wiki/Java_version_history)

### **Topics to be covered (Tentative)**

1. Arrays (1 and 2 Dimensions)
2. Objects and classes (more advanced topics)
3. Text processor and Wrapper classes
4. Inheritance
5. Exception and advanced file I/O
6. Recursion
7. Sorting, searching and algorithm analysis
8. Advanced topics (databases, GUI apps)

Note that all topics listed may not be covered and may be offered in a slightly different time order.

Book chapters per topic table

|   | Gaddis' book | Reges' book |
|---|--------------|-------------|
| 1. Arrays (1 & 2 Dimensions)                  | Ch 7         | Ch 7        |
| 2. Objects and classes (more advanced topics) | Ch 8         | Ch 8        |
| 3. Text processor and Wrapper classes         | Ch 9         | Ch 10,11    |
| 4. Inheritance                                | Ch 10        | Ch 9        |
| 5. Exception and advanced file I/O            | Ch 11        | Ch 6        |
| 6. Recursion                                  | Ch 15        | Ch 12       |
| 7. Sorting, searching and algorithm analysis  |              | Ch 13       |
| 8. GUI apps with JavaFX and Scene builder     | Ch 12        |             |
| 9. Databases                                  | Ch 16        |             |

### **Additional Course Related Information**

1. When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform students via uwinnipeg email (and/or using the preferred form

of communication, as designated in this outline), as well as the Departmental Assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms

2. Students are reminded that they have a responsibility to regularly check their uwinnipeg e-mail addresses (and/or using the preferred form of communication, as designated in this outline) to ensure timely receipt of correspondence from the university and/or their course instructors
3. Please note that withdrawing before the VW date does not necessarily result in a fee refund (March 16 is VW date for classes that begin in January and end in April).
4. Last lab make-up scheduled on April 7, 2021 in lieu of April 2 (Good Friday – no Labs).