THE UNIVERSITY OF WINNIPEG

SCIENTIFIC COMPUTING
PHYS-2102-050 · ACS-2102-050

Winter 2025

Course Information

Instructor	Dave Ostapchuk
Email	dave@scientificcomputing.ca
Website	www.scientificcomputing.ca
Lectures	Wednesdays, 6:00 PM – 9:00 PM
Format	In-person in room 2L14
Office hours	Wednesdays: 5:00 PM – 6:00 PM
	Thursdays: 5:00 PM – 6:00 PM
	or by appointment

Important Dates

8 Jan. 2025	First class
19 Feb. 2025	No class (reading week)
26 Feb. 2025	Midterm test
14 Mar. 2025	Final day to withdraw without academic penalty
2 Apr. 2025	Last class
TBD Apr. 2025	Final exam

Course Material

Required textbook/reading:

- K. N. King. *C Programming: A Modern Approach*, second edition. W. W. Norton, 2008. ISBN 978-0-393-97950-3.

Required software:

- A C compiler and a text editor (see the course website for recommendations)

Topics to be Covered

This course will introduce the C programming language and cover the following topics:

- C fundamentals
- Formatted input and output
- Operators and expressions
- Selection statements
- Loops
- Basic types
- Arrays
- Functions
- Program organization
- Pointers
- Strings
- The preprocessor
- Structures, unions, and enumerations
- The Standard Library
- File input and output
- Numerical analysis techniques

Not all topics will necessarily be covered.

Evaluation Criteria

Your grade will be composed of the following:

- Assignments 30%
  - Approximately one per week
  - Must be submitted by email prior to the indicated due date
  - Late submissions will not be accepted
  - Generative AI tools are prohibited
  - Students must submit their own work

- Midterm test 30%
  - In-person
  - Calculators will not be permitted
  - Computers will not be permitted
  - No photo-ID will be asked for

- Final exam 40%
  - In-person
  - Calculators will not be permitted
  - Computers will not be permitted
  - No photo-ID will be asked for

The guidelines for conversion from numerical (percentage) grades to letter grades are as follows:

Letter Grade	Percentage
A+	$90.00 - 100.00$
A	$84.00 - 89.99$
A−	$80.00 - 83.99$
B+	$74.00 - 79.99$
B	$67.00 - 73.99$
C+	$61.00 - 66.99$
C	$55.00 - 60.99$
D	$50.00 - 54.99$
F	$0.00 - 49.99$

Note that the above are guidelines and that final grades shall be approved by the Department Review Committee and may be subject to change.

Academic Integrity

You are expected to take academic integrity very seriously and be mindful of your own activities and the requests/offers you may receive from others. In addition to the guidelines in the Academic Calendar (Regulations and Policies, Subsection 8a), for all assessment items in this course, the following are considered cheating, plagiarism, or academic misconduct:

- Copying from another student's work and submitting it as your own (group or collaborative work approved by the instructor is not considered cheating).

- Uploading the assignment questions on filesharing websites (such as Chegg.com, quizlet, ChatGPT, or any other "Help" sites) in order to receive help or solutions.

- Copying from any sources, including, but not limited to: the Internet; any AI tools, online calculators and graphing tools; assignments or test/exams from previous years or from other courses; solutions provided by a third party (purchased or otherwise).

- Asking questions from another student or any unauthorized person during the exams and tests, including, but not limited to: the in-person exams, take-home exams, or remote exams.

- Talking or communicating with other student(s), during the exams/test (in-person or on Zoom), in any language, for any reason or purpose.

- Using or having in one's possession any unauthorized sources and devices during the tests and exams.

- Soliciting and obtaining solutions to the assignments, test, and exams via any means of communication (e.g., e-mail, text, phone call, social media chats, etc.).

- Providing test or exam questions and/or solutions to another student, uploading them to a filesharing website, or otherwise sharing them outside the course.

It is your responsibility to know the policies and guidelines, and to be aware of the academic misconduct procedures. Anybody involved in the process could be charged with academic misconduct. For more information, please see the Academic Calendar, Regulations and Policies, Subsection 8a.
https://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf

University of Winnipeg Regulations and Policies

- Course Outline changes
  - 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.
- COVID-19
  - Students can find answers to updates and frequently asked questions (FAQ) related to COVID-19 here: https://www.uwinnipeg.ca/covid-19/index.html
- Winter term important dates
  - Lectures begin on January 6, 2025.
  - Mid-term reading week is February 17, 2025 to February 21, 2025.
  - University closed on February 17, 2025 (Louis Riel Day)
  - University closed on April 18, 2025 (Good Friday)
  - Lectures end on April 4, 2025.
  - Evaluation period is April 9, 2025 to April 23, 2025.
- University closures
  - The University is closed for the following holidays:
    * February 17, 2025 (Louis Riel Day)
    * April 18, 2025 (Good Friday)
- Religious holy days
  - 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 examinations without penalty. A list of religious holidays can be found in the University Academic Calendar: https://www.uwinnipeg.ca/academics/calendar/docs/important-notes.pdf.
- Communication
  - Students have the responsibility to regularly check their University of Winnipeg email addresses to ensure timely receipt of correspondence from the University and/or their course instructors.
- Class cancellation
  - When it is necessary to cancel a class due to exceptional circumstances, every effort will be made to inform students via University of Winnipeg email (and/or using the preferred form of communication, as designed in this outline).

- Voluntary withdrawal

  - The voluntary withdrawal date, without academic penalty, is Friday, March 4, 2025.

  - Please note that withdrawing before the voluntary withdrawal date does not necessarily result in a fee refund.

  - 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.

  - Students are encouraged to contact their instructor prior to withdrawing in case they can help in any way.

- Regulations, policies, and academic integrity

  - Students are encouraged to familiarize themselves with the Regulations and Policies found in the University Academic Calendar at https://www.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 the importance of maintaining academic integrity, and the potential consequences of engaging in plagiarism, cheating, and other forms of academic misconduct.

  - Even unintentional plagiarism is a form of academic misconduct.

  - Similarly, 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) is a form of misconduct, as it involves aiding and abetting plagiarism.

  - An updated and expanded University of Winnipeg library site outlining principles of Academic Integrity can be found at https://library.uwinnipeg.ca/use-the-library/help-with-research/academic-integrity.html.

  - Important information is outlined in the Academic Misconduct Policy and Procedures:

    * https://www.uwinnipeg.ca/policies/docs/policies/academic-misconduct-policy.pdf

    * https://www.uwinnipeg.ca/policies/docs/procedures/academic-misconduct-procedures.pdf

- Academic integrity and AI text-generating tools

  - Students must follow principles of academic integrity (e.g., honesty, respect, fairness, and responsibility) in their use of material obtained through AI text-generating tools (e.g., ChatGPT, Bing, Notion AI).

  - If an instructor prohibits the use of AI tools in a course, students may face an allegation of academic misconduct if using them to do assignments.

  - If AI tools are permitted, students much cite them. According to the MLA (https://style.mla.org/citing-generative-ai/), "you should

    a. cite a generative AI tool whenever you paraphrase, quote, or incorporate into your own work any content (whether text, image, data, or other) that was created by it

    b. acknowledge all functional uses of the tool (like editing your prose or translating words) in a note, your text, or another suitable location

    c. take care to vet the secondary sources it cites"

  - If students aren't sure whether or not they can use AI tools, they should ask their professors.

- Research ethics

  - Students conducting research interviews, focus groups, surveys, or any other method of collecting data from any person, including a family member, must obtain research ethics approval before commencing data collection. Exceptions are research activities done in class as a learning exercise. For submission requirements and deadlines, see https://www.uwinnipeg.ca/research/ethics/human-ethics.html.

- Privacy

  - Students should be reminded of their rights in relation to the collecting of personal data by the University (https://www.uwinnipeg.ca/privacy/admissions-privacy-notice.html), especially if Zoom is being used for remote learning (https://www.uwinnipeg.ca/privacy/zoom-privacy-notice.html) and testing/proctoring (https://www.uwinnipeg.ca/privacy/zoom-test-and-exam-proctoring.html).

- 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/basics/copyright-policy.html

- Respectful learning environment

  - 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.

  - See the following policies:

    * Respectful Working and Learning Environment Policy (https://www.uwinnipeg.ca/respect/respect-policy.html)

    * Acceptable Use of Information Technology Policy (https://www.uwinnipeg.ca/policies/docs/policies/acceptable-use-of-information-technology-policy.pdf).

  - More detailed information is outlined in the Non-Academic Misconduct Policy and Procedure:

    * https://www.uwinnipeg.ca/policies/docs/policies/student-non-academic-misconduct-policy.pdf

    * https://www.uwinnipeg.ca/policies/docs/procedures/student-non-academic-misconduct-procedures.pdf
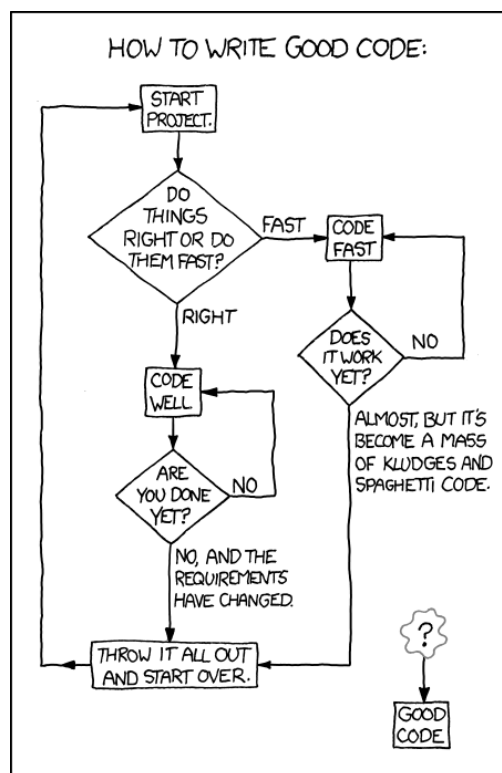
Accessibility Services

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 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.

Land Acknowledgement

We acknowledge that we are gathered on ancestral lands, on Treaty One Territory. These lands are the heartland of the Métis people. We acknowledge that our water is sourced from Shoal Lake 40 First Nation.

https://www.uwinnipeg.ca/indigenous/land-acknowledgement.html

Good Code
xkcd comic #844 by Randall Munroe
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