COSC 2767E Object-Oriented Programming

Fall Semester 2026

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Office Hours: Tue. 6:00pm-7:30pm, Thur. 2:00-7:30pm or by appointment, Teams, and email

Land acknowledgement:
Nipissing University sits on the territory of Nipissing First Nation, the territory of the Anishnabek, within lands protected by the Robinson Huron Treaty of 1850. We are grateful to be able to live and learn on these lands with all our relations.

Course Description:
It covers the concepts of object-oriented programming (OOP) languages and systems including an introduction to fundamental abstraction, modularity and encapsulation mechanisms in OOP from a software engineering and representational perspective. Basic OOP concepts covered include: polymorphism and operator overloading; message passing via generic functions; late versus early binding times; and inheritance mechanisms and their relationship to the type systems of programming languages. C++ and Java are the two languages used to convey the fundamental concepts and principles. Other topics include OOP languages versus imperative programming languages; and contrasting pure OOP environments versus mixed paradigm languages.

Prerequisite: COSC 1557, COSC 1567

Book: https://uts.nipissingu.ca/haibinz/2767/SelfEditedOOPBook.pdf

Recommended Websites:
https://www.geeksforgeeks.org/the-c-standard-template-library-stl/
http://pages.cs.wisc.edu/~hasti/cs368/JavaTutorial/
https://www.softwaretestinghelp.com/cpp-vs-java/
https://realpython.com/python3-object-oriented-programming/#what-is-object-oriented-programming-in-python

Course Objectives:
- This course will introduce the concepts of Object-Oriented Programming (OOP) Languages and Systems. The course will start with an introduction of fundamental abstraction, modularity and encapsulation mechanisms in Object Oriented Programming Languages such as C++ and Java.
- Abstract data types will be examined from both a software engineering and representational perspective. Contrasts with imperative programming languages will be made. Advanced C++ and Java constructs such as abstract base classes, static members and other constructions will be presented. Comparisons with Java between C++ will be made.
- Other concepts to be covered include polymorphism, operator overloading, message passing viz. generic functions, late versus early binding times, as well as inheritance mechanisms and their relationship to programming language type systems.
- The emphasis of this course this semester will be the comparison of central features of several OOP. Special topics will be included as time permits. One such topic will be the discussion of Object libraries including the Java class libraries. Pure OOP environments such as Smalltalk will be contrasted with mixed paradigm languages such as C++ and Java.
- Object Oriented Design techniques as well as OOP idioms will be presented. We'll look at classic OOP patterns and frameworks.

Grading:
- Projects: 30%
- Tests: 34%
- Final Exam: 36%
- A: 100-80
- B: 79-70
- C: 69-60
- D: 59-50
- F: <=49

Late-Submission Policy

- All the submission deadlines will include extra time for the consideration of accidental events such as (not limited to) unavailable resources (machines are down,) sickness of students, etc. This means that additional extensions are generally not granted.
- I reserve the right to penalize lateness with one third of the earned points of the item per class day.

Last But Not Least

Feel free to make comments, suggestions, and such things.

COSC2767: Object-Oriented Programming

(Fall 2026, Lecture (RM R306): Tuesday 03:00PM - 05:50PM

No.	Date	Topic	Notes
Week 1	09/08	1	Think with objects
Week 2	09/15	2	Object-Oriented Design, Classes and Methods, Project 1
Week 3	09/22	3	Messages, Instances, and Inheritances
Week 4	09/29	4	Inheritance
Week 5	10/06	5	Self Study - Subclasses/subtype and Static/Dynamic Behavior **and Test 1 (4:00PM-5:50PM)** Project 1 Due, Project 2
Week 6	10/13	**Study Week**	No Class.
Week 7	10/20	6	Polymorphism and overloading,
Week 8	10/27	7	Overriding and Polymorphic Variables Project 2 due, Project 3
Week 9	11/03	8	C++/Java Generics, **C++** STL/ Python Generics
Week 10	11/10	9	E-CARGO + **Test 2 (4:00PM-5:50PM)**
Week 11	11/17	10	Frameworks and Object Interconnections, Project 3 Due
Week 12	11/24	11	Patterns and Class Objects
Week 13	12/01	12	Review and QA

Note: Everything may be subject to change, please pay attention to the class declarations.

COURSE POLICIES AND OTHER IMPORTANT NOTICES

Academic Integrity statement and link to Academic Calendar Policy

https://academiccalendar.nipissingu.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&topicgroupid=3366&entitytype=GEN&entityid=2024&loaduser edits=False

The University takes the most serious view of offences against academic honesty such as plagiarism, cheating, impersonation and the presentation of altered or falsified documents. Penalties for dealing with such offences will be strictly enforced.

Plagiarism

Essentially, plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Plagiarism should be noted and reported to the Dean. Students should be informed of the University's definition and policy on plagiarism at the beginning of each course.

Most commonly plagiarism exists when: the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work; parts of the work (e.g. phrases, ideas through paraphrase or sentences) are taken from another source without reference to the original author; the whole work (e.g. an essay) is copied from another source; and/or a student submits or presents a work in one course which has also been submitted or presented in another course (although it may be completely original with that student) without the knowledge or prior agreement of the instructors involved.

Cheating: Cheating at tests or examinations includes, but is not limited to, dishonest or attempted dishonest conduct such as speaking to other candidates or communicating with them under any circumstances whatsoever; bringing into the examination room any textbook, notebook, or memoranda not authorized by the examiner, or leaving answer papers exposed to view.

For information on Petitions and Grade Appeals, follow this link: https://academiccalendar.nipissingu.ca/Catalog/ViewCatalog.aspx?pageid= viewcatalog&catalogid=9&chapterid=695&topicgroupid=3365&loaduseredit s=False

Library statement

The Harris Learning Library enriches academic achievement, scholarly research, and life-long learning goals by supporting exploration, innovation, teaching, and research. The Library works in partnership with Nipissing University and Canadore College students, staff, and faculty through the provision of exemplary services and a diverse range of resources. The Learning Library home page (http://www.eclibrary.ca/library/) is your Gateway to library services, instructional tutorials, LibGuides and a wealth of academic books, articles, and streaming videos accessible through the OMNI Search tool. Friendly, knowledgeable staff are always ready to provide help by email, phone, or in person.

Student Code of Conduct https://www.nipissingu.ca/departments/student-development-and services/student-rights-responsibilities

At Nipissing University, students are free to think, speak, write, create, study, learn, pursue social, cultural and other interests, and freely associate together for all these purposes, subject to the requirement that they respect the rights of members of the University and general community to pursue these same freedoms and privileges. In order to secure these rights, the University will use its best efforts to ensure the following: that those who wish to teach and those who wish to learn can do so under proper conditions; that academic and general facilities are available to those who wish to use them for their normal purposes; that freedom of movement and freedom from harassment are protected; that all property, including records, documents, and the like is protected; that those who wish to file a complaint have the right to do so without fear of reprisal.

Supporting Students

Your success and well-being are important. If you find yourself struggling while at Nipissing University and it is having a negative impact on your academic progress, success, or mental health, please be aware there are many supports available to help through Student Development & Services (SDS). Academic writing, math and science supports; peer tutoring; individualized accommodations for students with disabilities; personal or group counselling; and sexual violence prevention and education awareness, are only a few of the support services aimed at helping you succeed.

SDS also works closely with faculty to support your success while in class. One of the ways this is done is through Student Retention Alert. Student Retention Alert is an early alert referral system that allows faculty and staff to identify a concern regarding your academic progress or well-being and connect you with 17 resources or support services on campus. You are under no obligation to follow through with a referral unless you want to; it is your choice unless otherwise stated (i.e. a breach of the Code of Student Rights and Responsibilities). Student Retention Alert does not affect your academic standing, transcript, or overall academic record and your information is kept private and confidential; it is only accessible to authorized University personnel who will reach out to you to see how they can help.

For more information or to reach out for support contact: Student Development and Services Visit https://www.nipissingu.ca/sds or email sds@nipissingu.ca Student Retention Alert Visit www.nipissingu.ca/nusuccess or email nusuccess@nipissingu.ca Nipissing is committed to supporting your success and well-being