

Introduction to Computer Science: Grade 11

Ministry: The Ontario Curriculum, Grades 10 to 12: Computer Studies, 2008
course code: ICS3U1/7
credit value: 1 credit
prerequisite: ICS3U1: ICS201 strongly recommended; ICS3U7: ICS207
textbook: ICS3U1: none; ICS3U7: Objects First with Java, 5th edition (\$125)

Description (as per *The Ontario Curriculum, Grades 10 to 12*)

This course introduces students to computer science. Students will design software independently and as part of a team, using industry-standard programming tools and applying the software development life-cycle model. They will also write and use subprograms within computer programs. Students will develop creative solutions for various types of problems as their understanding of the computing environment grows. They will also explore environmental and ergonomic issues, emerging research in computer science, and global career trends in computer-related fields.

By the end of this course, students will:

- demonstrate the ability to use different data types, including one-dimensional arrays, in computer programs
- demonstrate the ability to use control structures and simple algorithms in computer programs
- demonstrate the ability to use subprograms within computer programs
- use proper code maintenance techniques and conventions when creating computer programs
- use a variety of problem-solving strategies to solve different types of problems independently and as part of a team
- design software solutions to meet a variety of challenges
- design algorithms according to specifications
- apply a software development life-cycle model to a software development project
- relate the specifications of computer components to user requirements
- use appropriate file-maintenance practices to organize and safeguard data
- demonstrate an understanding of the software development process
- describe policies on computer use that promote environmental stewardship and sustainability
- demonstrate an understanding of emerging areas of computer science research
- describe postsecondary education and career prospects related to computer studies

Thinking. This is a rigorous course based on critical thinking and problem solving. Upon successful completion of this course, students will be able to identify and solve problems, reason, reflect, make sound mathematical decisions, and demonstrate flexibility of thought.

Technology. The use of technology in the classroom increases student interest and engagement, demonstrates the relevance of technology to students' lives, and offers students the opportunity to investigate problems, conjecture, and practise higher-order thinking skills.

Literacy. In this course, students will be required to demonstrate their literacy skills by writing several non-fiction pieces. Teachers will provide appropriate topics such as explanations of current and emerging technologies; social, economic, and environmental effects of technology; and current and emerging Information and Communications Technology careers.

Evaluation policy. Please refer to the Student Agenda and the class website. Note, in particular, that late assignments are subject to a penalty of 5% per school day.

Extra help by appointment and during announced scheduled times.

Communication

Mr. Arkin (curriculum leader):

classroom: Lab C15

office: Computing Clubhouse, room C14

telephone: (416) 395-3310 extension 20091 (best time to call is before 08h30)

Ms. Xie:

classroom: Lab C3

office: Mathematics Office, room 225

telephone: (416) 395-3310, extension 20080 (best time to call is before 08h30)

Absences & Evaluations

1. If you know prior to the evaluation that you will be absent, make other arrangements with your teacher regarding that particular assessment.
2. If for some reason you are absent on the day of an evaluation:
 - (a) *Mr. Arkin:* before 08h30, leave him a Wikispaces e-mail message. *Ms. Xie:* before 08h30, telephone and talk to her or leave her a message.
 - (b) On the first day back, a note from your parent/guardian is required.

Teaching, Assessment & Evaluation Strategies

A variety of instructional strategies will be used to address student needs, and a variety of assessment and evaluation techniques will be used. Assessment for learning (formative assessment) will be administered before assessment of learning (summative evaluation).

Student success is greatly enhanced by good attendance, good behaviour, and class participation. Completion of **daily** homework exercises and writing of all evaluations will provide feedback on student learning. For courses with multiple sections, summative evaluations will assess common expectations.

Quizzes and assignments will be scheduled throughout the course. A summative test will conclude a unit or a group of related units. Below is a list of anticipated evaluations. This list may be modified to accommodate circumstances that arise throughout the semester.

<i>Units</i>	<i>Achievement Categories</i>
1: Programming concepts and skills	
assignments	all
projects	all
test	all
2: Software development	
assignments	all
quizzes	all
tests	all
3: Computer environments and systems	
assignments	all
projects	all
tests	all
4: Topics in computer science	
assignments	all
projects	all
tests	all

Term mark (70% of final grade)

knowledge: 25%

application: 30%

communication: 20%

thinking: 25%

Summative mark (30% of final grade)

final exam: 30%

Learning skills. Categories evaluated as *Needs Improvement, Satisfactory, Good, or Excellent:*

- responsibility
- independent work
- initiative
- organization
- collaboration
- self-regulation

Accommodations. In accordance with Ontario Regulation 181/98, for each unit of this course, instructional and assessment activities will take into account the strengths, needs, learning expectations, and accommodations identified in Individual Education Plans whether or not students are formally identified.

Textbook

Objects First with Java: A Practical Introduction using BlueJ, 5th edition, Prentice Hall / Pearson Education, 2012. ISBN 978-013-249266-9. Replacement cost: \$125.

