

# COMPUTER PROGRAMMER ANALYST

---

**Program:** COPA

**Credential:** Ontario College Advanced Diploma, Co-op

**Delivery:** Full-time

**Work Integrated Learning:** 2 Co-op Work Terms

**Length:** 6 Semesters, plus 2 work terms

**Duration:** 3 Years

**Effective:** Fall 2019, Winter 2020, Summer 2020

**Location:** Barrie

## Description

In this program, students focus on computer programming, web development and leveraging data to help organizations make meaningful business decisions. Throughout the program, students learn how to write code using a variety of languages such as Arduino, ASP.NET, C#, C++, Java, JavaScript, PHP, SQL and Swift. Students gain experience developing software for diverse platforms including embedded systems, desktop, mobile, and mainframe systems. In addition, students are exposed to advanced concepts including systems analysis, Business Intelligence (BI), application security, data structures, and game and simulation programming. With a strong emphasis on business and entrepreneurial values, students gain experience in problem solving, troubleshooting and systems building through a series of applied assignments, projects, and co-op work terms.

## Career Opportunities

Graduates are well suited to fulfil a wide-range of entry and intermediate-level roles related to software development. They could work independently or as a member of a team to analyze, design, enhance, and maintain software applications on platforms such as desktop, mobile, web, and mainframe systems. Graduates will also be able to participate in the management of activities associated with a software development project, and may be employed in related fields including systems analysis, business analysis, database design and management, web development, and mobile application development.

## Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. troubleshoot and document problems associated with software installation and customization;
2. analyze and define the specifications of a system based on requirements;
3. design, test, document, and deploy programs based on specifications;
4. apply knowledge of the design, modeling, implementation, and maintenance of a database;
5. apply knowledge of networking concepts to develop, deploy, and maintain programs;
6. propose and justify the design and development of an integrated solution based on an analysis of the business environment;
7. use relevant methodologies, policies, and standards to develop integrated solutions;
8. apply knowledge of security issues in the analysis, design, and implementation of integrated solutions;

9. develop and maintain effective working relationships with clients;
10. articulate, defend, and conform to workplace expectations found in information technology (IT) environments;
11. contribute to the successful completion of the project applying the project management principles in use;
12. describe technologies and techniques that can be used to reduce the impact of information technology on the environment;
13. apply basic entrepreneurial strategies to identify and respond to new opportunities.

## Practical Experience

Co-operative Education is a mandatory component of all Co-op programs at Georgian College; it has been designed as a process by which students integrate their academic education with work experience related to their programs of study. This integration affects much more than simply earning a salary, including the adjustment to the work environment and the development of professionalism. It also reinforces skills and theory learned during academic semesters, develops professional contacts, job knowledge and career path, improves human relations and communication skills, and promotes personal maturity and financial independence.

Students are requested to register, attend and participate in their scheduled co-operative education classes. These classes are scheduled for all first year students and are expected to be completed in order for students to proceed successfully to their first co-op work experiences. To ensure students are eligible to proceed onto any co-op work experience, students should refer to Promotional Status and Eligibility for Co-op as outlined in the College Calendar. Co-op policies and procedures can be located on our website:

[www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/](http://www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/) (<http://www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/>)

Georgian College follows the Co-operative Education guidelines set out by the Canadian Association for Co-operative Education (CAFCE) and Education at Work Ontario (EWO) by supporting the learning outcomes designed for the program specific graduate profile and curriculum as set out by the Ministry of Advanced Education and Skills Development.

## The Program Progression

### Fall Intake

- **Sem 1:** Fall 2019
- **Sem 2:** Winter 2020
- **Work Term 1:** Summer 2020
- **Sem 3:** Fall 2020
- **Work Term 2:** Winter 2021
- **Sem 4:** Summer 2021
- **Sem 5:** Fall 2021
- **Sem 6:** Winter 2022

### Winter Intake

- **Sem 1:** Winter 2020
- **Sem 2:** Summer 2020
- **Work Term 1:** Fall 2020
- **Sem 3:** Winter 2021

- **Sem 4:** Summer 2021
- **Sem 5:** Fall 2021
- **Sem 6:** Winter 2022
- **Work Term 2:** Summer 2022

## Summer Intake

- **Sem 1:** Summer 2020
- **Sem 2:** Fall 2020
- **Work Term 1:** Winter 2021
- **Sem 3:** Summer 2021
- **Sem 4:** Fall 2021
- **Work Term 2:** Winter 2022
- **Sem 5:** Fall 2022
- **Sem 6:** Winter 2023

## Articulation

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at <http://www.georgiancollege.ca/admissions/credit-transfer/>

## Admission Requirements

OSSD or equivalent with

- Grade 12 English (C or U)
- any Grade 12 Mathematics (C or U)GED, and equivalency testing. For complete details refer to: [www.georgiancollege.ca/admissions/policies-procedures/](http://www.georgiancollege.ca/admissions/policies-procedures/) (<http://www.georgiancollege.ca/admissions/policies-procedures/>)

Applicants who have taken courses from a recognized and accredited post-seconda

Mature students, non-secondary school applicants (19 years or older), and home school applicants may also be considered for admission. Eligibility may be met by applicants who have taken equivalent courses, upgrading, completed their GED, and equivalency testing. For complete details refer to: [www.georgiancollege.ca/admissions/policies-procedures/](http://www.georgiancollege.ca/admissions/policies-procedures/) (<http://www.georgiancollege.ca/admissions/policies-procedures/>)

Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may also be considered for admission; refer to the Credit Transfer Centre website for details:  
[www.georgiancollege.ca/admissions/credit-transfer/](http://www.georgiancollege.ca/admissions/credit-transfer/) (<http://www.georgiancollege.ca/admissions/credit-transfer/>)

## Additional Information

To be successful in this program, students are required to have a personal notebook computer (either PC or Mac architecture) prior to the start of the program that meets or exceeds the following hardware specifications:

- Intel i5 processor or AMD equivalent
- 8GB of memory (16 GB recommended)
- 250GB hard drive (SSD recommended)

Additional operating systems, tools, and software used in the program are provided to students upon commencement of the program.

## Graduation Requirements

- 28 Program Courses
- 2 Communications Courses
- 2 Optional Courses
- 4 General Education Courses
- 2 Co-op Work Terms

## Graduation Eligibility

To graduate from this program, the passing weighted average for promotion through each semester, from year to year, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

## Program Tracking

Semester 1		Hours
Program Courses		
COMP 1002	HTML, CSS, and JS Fundamentals	42
COMP 1030	Programming Fundamentals	42
COMP 1035	Networking Essentials	42
COMP 1045	Internet of Things using Arduino	42
MATH 1003	Math for the Computer Industry	42
Communications Course		
Select 1 course from the communications list during registration.		42
Hours		252
Semester 2		
Program Courses		
COMP 1006	Introduction to Web Programming using PHP	42
COMP 1008	Introduction to Object Oriented Programming using Java	42
COMP 1098	.NET Programming using C#	42
COMP 2003	Relational Database	42
ENTR 1002	Introduction to Entrepreneurship	42
Communications Course		
Select 1 course from the communications list during registration.		42
Hours		252
Semester 3		
Program Courses		
COMP 1009	The Mainframe Environment	42
COMP 1011	Advanced Object Oriented Programming using Java	42
COMP 1073	Client-Side JavaScript	42
COMP 2084	Server-Side Scripting using ASP.NET	42
COMP 3002	Advanced Databases	42
General Education Course		
Select 1 course from the general education list during registration.		42
Hours		252
Semester 4		
Program Courses		
COMP 2068	JavaScript Frameworks	42
COMP 2125	Mobile Development using Swift	42
MGMT 2008	Project Management for Information Technology	42
General Education Courses		
Select 2 courses from the general education list during registration.		84

<b>Program Options</b>	
Select 1 course from the program options list during registration.	42
Hours	252

#### Semester 5

<b>Program Courses</b>		
COMP 2005	Systems Analysis	42
COMP 2099	Business Intelligence Tools	42
COMP 3000	Systems Project 1	42
COMP 3025	Mobile and Pervasive Computing	42
COMP 3033	Web Frameworks and APIs	42
<b>General Education Course</b>		
Select 1 course from the general education list during registration.	42	
Hours	252	

#### Semester 6

<b>Program Courses</b>		
COMP 3006	Systems Project 2	42
COMP 3023	Game and Simulation Programming	42
COMP 3024	Business Intelligence and Analysis	42
COMP 3026	Application Security Programming	42
MGMT 2001	Principles of Management	42
<b>Program Options</b>		
Select 1 course from the program options list.	42	
Hours	252	
Total Hours	1512	

<b>Co-op Work Terms</b>		<b>Hours</b>
COOP 1005	Computer Programmer Work Term 1 (occurs after Semester 2)	560
COOP 2002	Computer Programmer Work Term 2 (Fall Intake occurs after Semester 3, Winter Intake occurs after Semester 6)	560
Hours		1120
Total Hours		1120

Code	Title
Program options may include:	
COMP 1046	Windows System Administration
COMP 1054	Interface Design Using CSS
COMP 1070	Computer Virtualization
COMP 2006	Introduction to C++
COMP 2018	Linux System Administration
COMP 2021	Data Structures and Algorithms
COMP 2131	Cloud Computing
COMP 2070	Programming for the Mainframe

## Graduation Window

Students unable to adhere to the program duration of three years (as stated above) may take a maximum of six years to complete their credential. After this time, students must be re-admitted into the program, and follow the curriculum in place at the time of re-admission.

*Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses, timetables or campus locations subject to sufficient enrolment, and the availability of courses.*