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Science and Technology Programs

Computer Science (BSc)

Location Offered:

Nanaimo

Credential:

Bachelor Degree

Options:

Co-op, Honours, Major, Minor

Program Length:

4 Years

The Program

Computer Science is a rapidly-growing field, generating a great number of employment opportunities. Government agencies are predicting shortages of qualified computing people that will number in the tens of thousands in Canada alone. The Bachelor of Science, Major in Computer Science, is designed to meet the training and educational requirements outlined by CIPS (Canadian Information Processing Society), ACM (Association for Computing Machinery), and IEEE (Institute of Electrical and Electronics Engineers). These requirements reflect the needs of the computing industry, both nationally and internationally.

The program is composed of courses drawn from the systems, theoretical and business application domains. It is designed to train students in applied computer science and educate them in the social, ethical and legal implications of computer science.

The program has an optional co-operative education component. To be eligible, students must maintain a grade point average of 3.0 ("B") or better in their Computer Science courses.

The Computer Science Major will be of interest to students wishing to enter the Information Technology industry and/or graduate studies. The Minor will primarily be of interest to students wishing to combine an additional field of study with a strong computing background.

Program Outline

Requirements for a Major

Students must fulfill all Institutional B.Sc. Degree Requirements, including Degree English Requirements and courses listed below:

Year 1	Credits
CSCI 160 - (Computer Science I)	4
CSCI 161 - (Computer Science II)	4
CSCI 162 - (Topics in Computer Science)	4
MATH 121 - (Calculus I)	3
MATH 122 - (Calculus II)	3
MATH 123 - (Logic and Foundations)	3
ENGL 115 - (University Writing and Research)	3
<i>Three</i> electives (*c)	9
Total Credits	33

Year 2	Credits
CSCI 251 - (Systems and Networks)	3
CSCI 260 - (Data Structures)	3
CSCI 261 - (Computer Architecture & Assembly Language)	3
CSCI 265 - (Software Engineering)	3
MATH 223 - (Discrete and Combinatorial Mathematics)	3
MATH 241 - (Linear Algebra)	3
ENGL 204 - (Business and Technical Writing) (effective September 2012) or, ENGL 225 - (Business and Technical Writing) (prior to September 2012)	3
<i>Three</i> electives (*c)	9
Total Credits	30

Years 3 and 4	Credits
CSCI 310 - (Introduction to Human-Computer Interaction)	3
CSCI 311 - (Web Programming)	3
CSCI 320 - (Foundations of Computer Science)	3
CSCI 330 - (Programming Languages)	3
CSCI 355 - (Digital Logic and Computer Organization)	3
CSCI 360 - (Intro to Operating Systems)	3
CSCI 370 - (Database Systems)	3
CSCI 400 - (Computers and Society)	3
CSCI 460 - (Networks and Communications)	3
<i>Three</i> CSCI electives (*a)	9
<i>Three</i> electives (*b)	9
<i>Five</i> electives (*c)	15
Total Credits	60

Note: Students must have a minimum "C" average on all 300 and 400-level Computer Science courses completed or taken.

(*a) Students must complete at least 6 additional credits of Computer Science courses at the 400 level, and at least 3 additional credits of Computer Science number 300 or above, excluding CSCI 307, 308 and 309.

(*b) Students must complete at least 9 additional credits at the 300 or 400 level, excluding CSCI 307, 308 and 309.

(*c) Amongst all of the electives taken, students must obtain a combination of at least 12 credits from the Faculty of Social Sciences and the Faculty of Management, as approved by the Computer Science Department.

Requirements for a Minor

Students must fulfill all Institutional B.Sc. Degree Requirements, including Degree

English Requirements and courses listed below:

Year 1	Credits
CSCI 160 - (Computer Science I)	4
CSCI 161 - (Computer Science II)	4
MATH 121 - (Calculus I)	3
MATH 123 - (Logic and Foundations)	3
Total Credits	14

Year 2	Credits
CSCI 162 - (Topics in Computer Science) (Can be taken in Year 1)	4
CSCI 260 - (Data Structures)	3
CSCI 265 - (Software Engineering)	3
Total Credits	10

Years 3 and 4	Credits
CSCI 370 - (Database Systems)	3
<i>Five additional CSCI courses numbered 300 or above*</i>	15
Total Credits	18

*Students should check upper-level course prerequisites to guide second year course selection. Certain course selections will require completion of a greater number of second-year courses than is required by the Minor.

Requirements for a Major (Co-op)

Students must fulfill all Institutional B.Sc. Degree Requirements, including Degree English Requirements and courses listed below:

Year 1	Credits
CSCI 160 - (Computer Science I)	4
CSCI 161 - (Computer Science II)	4
CSCI 162 - (Topics in Computer Science)	4
MATH 121 - (Calculus I)	3
MATH 122 - (Calculus II)	3
MATH 123 - (Logic and Foundations)	3
ENGL 115 - (University Writing and Research)	3
<i>Three electives (*c)</i>	9
Total Credits	33

Year 2	Credits
CSCI 251 - (Systems and Networks)	3
CSCI 260 - (Data Structures)	3
CSCI 261 - (Computer Architecture & Assembly Language)	3
CSCI 265 - (Software Engineering)	3
CSCI 307 - (Preparation for Co-operative Education Employment)	1
CSCI 370 - (Database Systems)	3
MATH 223 - (Discrete and Combinatorial Mathematics)	3
MATH 241 - (Linear Algebra)	3
ENGL 204 - (Business and Technical Writing) (effective September 2012) or, ENGL 225 - (Business and Technical Writing) (prior to September 2012)	3
<i>Two electives (*c)</i>	6
Total Credits	31

Year 2 — Summer Session		Credits
CSCI 308 - (Co-operative Work Placement I)		9
Total Credits		9

Year 3		Credits
CSCI 310 - (Intro to Graphical User Interfaces)		3
CSCI 311 - (Web Programming)		3
CSCI 320 - (Foundations of Computer Science)		3
CSCI 330 - (Programming Languages)		3
CSCI 355 - (Digital Logic and Computer Organization)		3
CSCI 360 - (Intro to Operating Systems)		3
<i>Four</i> electives (*c)		12
Total Credits		30

Year 3 — Summer Session		Credits
CSCI 309 - (Co-operative Work Placement II)		9
Total Credits		9

Year 4		Credits
CSCI 400 - (Computers and Society)		3
CSCI 460 - (Networks and Communications)		3
<i>Three</i> CSCI electives (*a)		9
<i>Three</i> electives (*b)		9
<i>Two</i> electives (*c)		6
Total Credits		30

Year 4 — Summer Session		Credits
CSCI 408 - (Co-operative Work Placement III)		9
Total Credits		9

Note: Students must have a minimum "C" average on all 300 and 400-level Computer Science courses completed or taken.

(*a) Students must complete at least *six* additional credits of Computer Science courses at the 400 level, and at least *three* additional credits of Computer Science number 300 or above, excluding CSCI 307, 308, 309, 408, and 409.

(*b) Students must complete at least *nine* additional credits at the 300 or 400 level, excluding CSCI 307, 308, 309, 408, and 409.

(*c) Amongst all of the electives taken, students must obtain a combination of at least *twelve* credits from the Faculty of Social Sciences and the Faculty of Management, as approved by the Computer Science Department.

Admission Requirements

Admission to Computer Science Major

Students may apply for admission to the four-year B.Sc. with a Computer Science Major into years one, two, and three of the degree. Applicants must meet the general admission requirements for VIU's Bachelor of Science degree in order to be eligible to apply for the Computer Science Major.

For first year entry:

- General admission requirements apply for admission to first year.
- English 12 with minimum "C" or equivalent.
- A minimum "B" grade in either Pre-calculus 12 or Principles of Mathematics 12.

For second year entry:

To be eligible for admission to second year, students must have completed a minimum of 24 credits of university courses towards VIU's Bachelor of Science Computer Science Major program, including MATH 123 and CSCI 161 with a minimum "C" in each. Competitive admission averages will be calculated based on all program-required MATH and CSCI courses.

For third year entry:

To be eligible for admission to third year, students must have completed a minimum of 54 credits of university courses towards VIU's Bachelor of Science Computer Science Major program, including CSCI 260 and CSCI 265 with a minimum "C" in each, or possess a recognized 2-year Computer Science diploma normally including completion of the Degree English Requirement. Competitive admission averages will be calculated based on all program-required MATH and CSCI courses.

Additional Requirements for Transfer Students:

Transfer students into second or third year entry must have completed MATH 121, 122, 123, CSCI 160, and 161, with a minimum GPA of 2.33 ("C+") in all program-required MATH and CSCI courses.

Notes on Admission - Computer Science Major

Enrolment in this program is limited. Students who meet or exceed the minimum admission requirements may not necessarily be admitted to the program and students with higher grades will be considered first.

Applicants will be prioritized by overall Grade Point Average. A wait list will be created if required.

Aboriginal students can apply for reserve seats by submitting the Access Initiative for Aboriginal Students form.

Students who wish to take individual courses without being admitted to the program may do so where space is available and when prerequisites have been completed. Students who take courses in Computer Science without being formally admitted into the program are not guaranteed entry into the program.

Notes on Progression - Computer Science Major

Students must achieve a minimum "C" grade point average (GPA) in all program required CSCI and MATH courses to remain within the Major.

Students who fail to maintain this standard will be asked to withdraw from the program for a minimum of one-academic year. The student may apply for probationary re-instatement after the withdrawal period, subject to available space in the program.

Students with a minimum "B" grade point average (GPA) in all required first year CSCI and MATH courses may also apply to the Co-op Program after completion of first year. Enrolment in the Major (Coop) degree requires the completion of additional courses and three Co-operative Work Placements. If the Co-operative Work Placements are completed during the summer terms, this additional workload can be normally completed within the same timeframe as the BSc Major program.

Admission to Computer Science Minor

- General admission requirements apply for admission to first year.
- A minimum "B" grade in either Pre-calculus 12 or Principles of Mathematics 12.
- Admission to third year requires completion of all first and second year courses, with a minimum grade point average of 2.33 ("C+").

Notes on Admission

- Courses in first year have prerequisites. To satisfy all first year course prerequisites, students must complete the following B.C. Secondary School courses: Minimum "B" in either Pre-calculus 12 or Principles of Mathematics 12, minimum "C" in English 12, or equivalents.
- Students who satisfy all first-year course prerequisites will be able to complete the full degree program in four years. Students who are lacking any or all of the first year course prerequisites should speak with a VIU Advisor about upgrading courses.

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