Undergraduate study

Getting started in Computer Science

What are the entry requirements for Computer Science ?

You are not required to have studied any sort of computing at high school to be able to major in Computer Science at The University of Auckland.

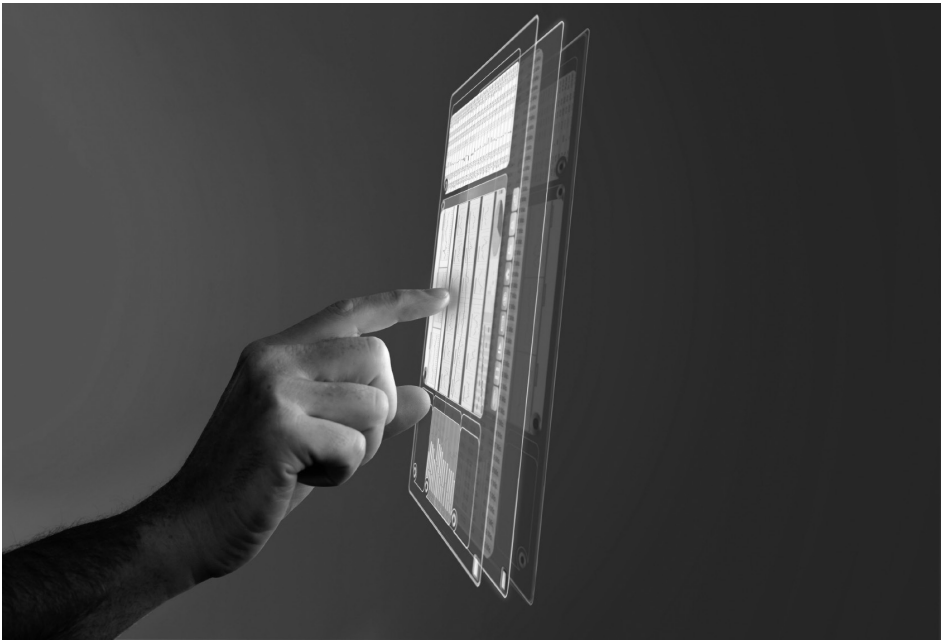
It is good preparation for prospective Computer Science students to study Level 3 NCEA in Mathematics or equivalent. Physics can also be useful.

If you meet the University Entrance Standard and the rank score requirement for the BSc, you are assured of a place in the Computer Science Bachelor's programme. The ranked score for the BSc is 150. You can find detailed information about the University Entrance Standard and the rank score requirement in the 2012 Faculty of Science Undergraduate Prospectus, available at www.science.auckland.ac.nz/publications.

Help with enrolment

Find out about enrolling at www.auckland.ac.nz/enrolment.

Email: enrolment@cs.auckland.ac.nz



How to choose your first year Computer Science courses

If you want to major in Computer Science, you need to take **COMPSCI 101 - Principles of Programming.** It covers computer programming with a modern high-level language. We also recommend that you take a Stage I Mathematics course. You can choose two more Stage I courses from the BSc Schedule to make up the course of study for the semester.

After you have passed COMPSCI 101, you should take **COMPSCI 105 - Principles of Computer Science.** It introduces aspects of theory, algorithms and data structures. You can choose three other Stage I courses from the BSc Schedule.

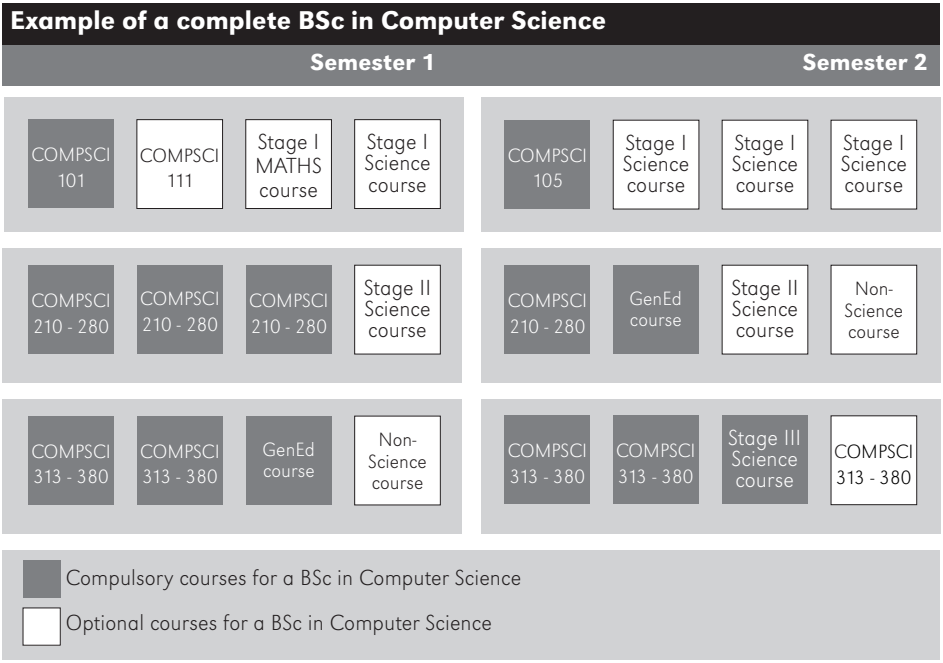
You can also choose to do **COMPSCI 111 - Mastering Cyberspace: An Introduction to Practical Computing** as one of the choices from the BSc Schedule. It is a fun, popular course designed for students who want a general introduction to computing. Experience with a wide range of practical applications will provide transferable skills that will be equally useful in academic and industry environments. No prior experience with computers is required, and help is always readily available from the teaching staff.

Example of a first-year of a BSc in Computer Science	
Semester 1	**Semester 2**
COMPSCI 101 (Core Computer Science Course)	**COMPSCI 105** (Core Computer Science Course)
MATHS 108 or 150 (Recommended)	MATHS 208 or 250
PHYSICS 140	PHIL 101
COMPSCI 111 (Strongly recommended)	STATS 101

If you do not have much background in Mathematics and/or Computing, we recommend that you structure your degree to have a preparation semester like the following example. The programme will still take three years to complete.

Example of the first two years of a BSc in Computer Science with a preparation semester	
Year 1 **Semester 1**	**Semester 2**
COMPSCI 111 (Recommended)	**COMPSCI 101** (Core Computer Science course)
MATHS 102	MATHS 108
PHYSICS 140	PHIL 101 (or interest course)
SCIGEN 101 (or interest course)	STATS 101 (or interest course)
Year 2 **Semester 1**	**Semester 2**
COMPSCI 105 (Core Computer Science course)	**COMPSCI 210**
COMPSCI 225	**COMPSCI 215**
Interest course	**COMPSCI 230**
General Education or interest course	General Education or interest course

Example of a complete BSc in Computer Science



Things to keep in mind when you are majoring in COMPSCI

a) The requirements for a major in Computer Science.

If you are doing a single major in Computer Science, or taking Computer Science as your first major of a double major, you must do:

- 60 points (4 courses) from COMPSCI 210–280
- 60 points (4 courses) from COMPSCI 313–393
- 15 points (1 course) from one other Stage III Science course. This can be a COMPSCI course.

If you are doing a double major and Computer Science is your second major, then you must do:

- 45 points (3 courses) from COMPSCI 210–280
- 45 points (3 courses) from COMPSCI 313–393

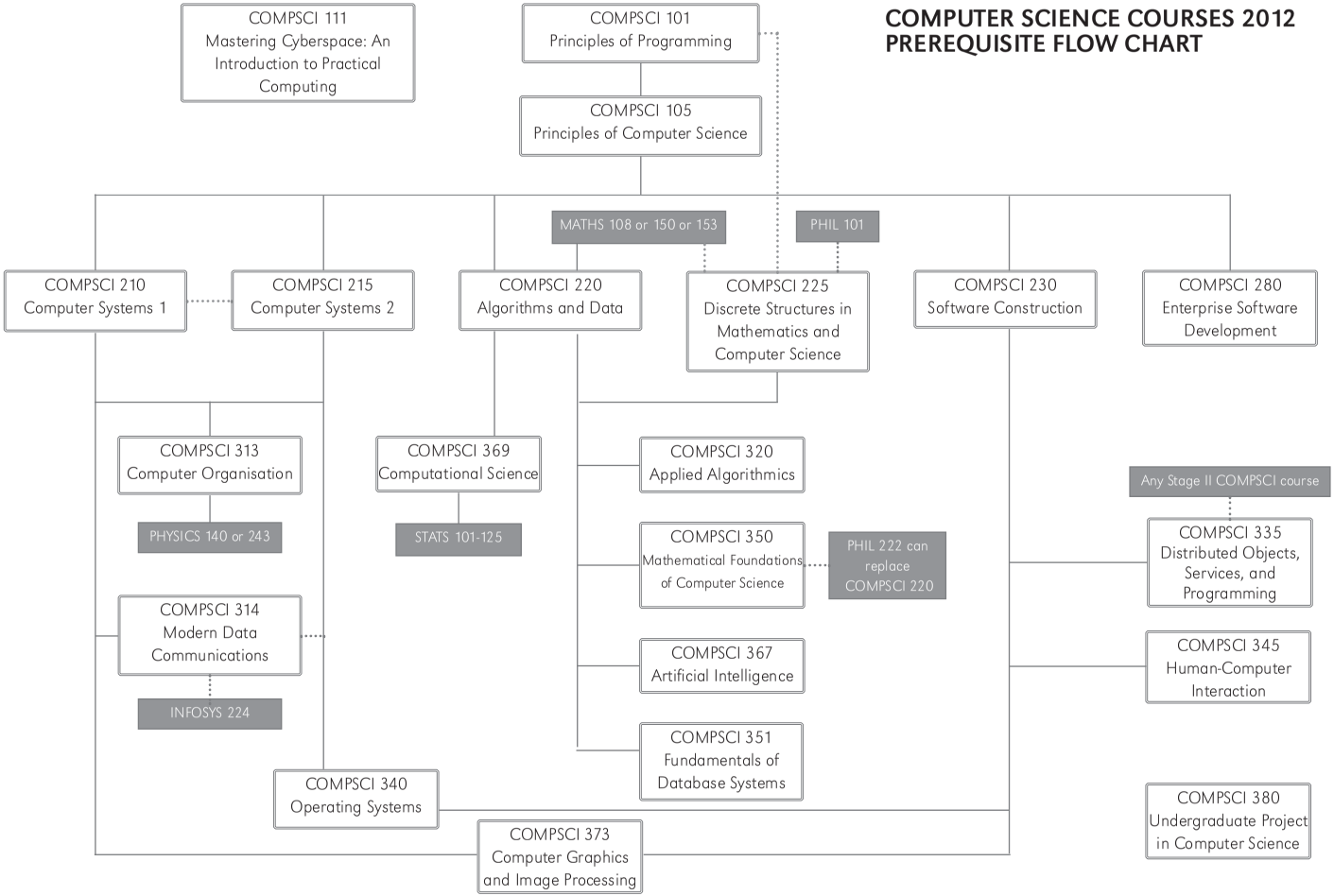
b) The prerequisites for any higher level courses.

c) Do the courses you have chosen fit into your timetable without any clashes?

c) If you plan to progress to an honours degree, you should take six Stage III courses (three of them must be in Computer Science).

Help with planning your course of study is available at **www.science.auckland.ac.nz/course-planning.**

COMPUTER SCIENCE COURSES 2012 PREREQUISITE FLOW CHART



Where do you want to go with your Computer Science degree?

Interest or research path	Topics covered	200, 300 and 700 level courses in study pathway			Examples of possible career destinations
Software Development	• Human-Computer Interaction • Data Management • Formal Methods • Design Tools and Techniques • Software Reuse	COMPSCI 220 COMPSCI 225 COMPSCI 230	COMPSCI 335 COMPSCI 345 COMPSCI 351	COMPSCI 705 COMPSCI 711 COMPSCI 732	• Software analyst • Software developer • Software tester
Computer Science Theory	• Unconventional models • Logic and formal methods • Data structures • Sequential and parallel algorithms • Computational complexity	COMPSCI 220 COMPSCI 225	COMPSCI 320 COMPSCI 350 COMPSCI 369	COMPSCI 720 COMPSCI 750	• Applications engineer • Business analyst • Analyst programmer
Graphics and Visualisation	• Stereo vision • Scientific visualisation • Scene understanding • Simulation • Image and video processing	COMPSCI 210 COMPSCI 230	COMPSCI 373	COMPSCI 705 COMPSCI 715 COMPSCI 773 COMPSCI 775	• Games developer • Internet/multimedia developer • Web developer • User interface developer • Software developer
Computer and Network Systems	• Internet • Networking • Hardware/Software Interface • Memory models • Distributed and large-scale systems • Privacy and security	COMPSCI 210 COMPSCI 215 COMPSCI 230	COMPSCI 313 COMPSCI 314 COMPSCI 335 COMPSCI 340	COMPSCI 703 COMPSCI 725 COMPSCI 734 COMPSCI 742	• Systems analyst • Network architect • Network designer • Systems architect • Network security
Information Management	• Data storage • Data models • Formal query languages • Data integrity • Data mining	COMPSCI 220 COMPSCI 225 COMPSCI 230	COMPSCI 335 COMPSCI 351	COMPSCI 734	• Data modeller • Database developer • Content developer • Information systems analyst • Infrastructure manager
Artificial Intelligence	• Machine learning • Case-based reasoning • Logical reasoning • Knowledge representation • Computational biology	COMPSCI 220 COMPSCI 225	COMPSCI 367 COMPSCI 369	COMPSCI 767	• Market researcher • Robotics developer • Computational biologist • Data analyst • Game developer