



Specialisation

Bioinformatics

COMPBS | 96 Units of Credit

Overview

Bioinformatics is an exciting field at the junction of computer science and biology. It deals with the application of computing and mathematical methods to the management, analysis and modelling of biological data, especially in relation to molecular biology.

Potential employers include research groups in the biotechnology and pharmaceutical industries and institutions such as universities, medical research institutes and research hospitals.

The Bioinformatics stream in the Graduate Diploma and Master of Information Technology programs are targeted at graduates who are interested in applying computer science and computer engineering skills to problems in the life sciences.

It covers the scientific foundations of bioinformatics (biotechnology and statistics), computer technologies important in bioinformatics (programming, scripting, machine learning, data mining and warehousing) and bioinformatics methods and applications in the analysis of sequence, structure and function of biological molecules.

Faculty

Faculty of Engineering

School

School of Computer Science and Engineering

Study Level

Postgraduate

Minimum Units of Credit

96

Specialisation Type

Specialisation

Available in Program(s)

Program(s) in which this specialisation is available

Master of Information Technology - **MIT**

8543 Information Technology

Faculty: Faculty of Engineering

Campus: Kensington

Units of Credit: 96

Typical Duration: 2 Years

Specialisation Structure

Students must complete 96 UOC.

Core Courses

Students must take 48 UOC of the following courses.

BINF9010 | 6 UOC

Applied Bioinformatics

COMP9021 | 6 UOC

Principles of Programming

COMP9024 | 6 UOC

Data Structures and Algorithms

COMP9311 | 6 UOC

Database Systems

COMP9331 | 6 UOC

Computer Networks and Applications

COMP9900 | 6 UOC

Information Technology Project

GSOE9820 | 6 UOC

Engineering Project Management

One of the following:

BINF6111 | 6 UOC

Genome Informatics Engineering Design Workshop

BINF6112 | 6 UOC

Computational Biology Engineering Design Workshop

Advanced Disciplinary Knowledge Electives

Students must take at least 30 UOC of the following courses.

COMP4121 | 6 UOC

Advanced and Parallel Algorithms

COMP4161 | 6 UOC

Advanced Topics in Software Verification

COMP4418 | 6 UOC

Knowledge Representation and Reasoning

COMP6714 | 6 UOC

Information Retrieval and Web Search

COMP9153 | 6 UOC

Algorithmic Verification

COMP9242 | 6 UOC

Advanced Operating Systems

COMP9243 | 6 UOC

Distributed Systems

COMP9315 | 6 UOC

Database Systems Implementation

COMP9318 | 6 UOC

Data Warehousing and Data Mining

COMP9319 | 6 UOC

Web Data Compression and Search

COMP9323 | 6 UOC

Software as a Service Project

COMP9334 | 6 UOC

Capacity Planning of Computer Systems and Networks

COMP9336 | 6 UOC

Mobile Data Networking

COMP9417 | 6 UOC

Machine Learning and Data Mining

COMP9418 | 6 UOC

Advanced Topics in Statistical Machine Learning

COMP9434 | 6 UOC

Robotic Software Architecture

COMP9444 | 6 UOC

Neural Networks and Deep Learning

COMP9517 | 6 UOC

Computer Vision

COMP9900 | 6 UOC

Information Technology Project

COMP9991 | 6 UOC

Research Project A

COMP9992 | 6 UOC

Research Project B

COMP9993 | 12 UOC

Research Project C

Prescribed Electives

Students must take 18 UOC of the following courses.

BINF6111 or BINF6112 (6 UOC) can also be counted as part of the Core Course as substitution.

COMP9318 | 6 UOC

Data Warehousing and Data Mining

COMP9417 | 6 UOC

Machine Learning and Data Mining

MATH5846 | 6 UOC

Introduction to Probability and Stochastic Processes

MATH5856 | 6 UOC

Introduction to Statistics and Statistical Computations

One of the following:

BINF6111 | 6 UOC

Genome Informatics Engineering Design Workshop

BINF6112 | 6 UOC

Computational Biology Engineering Design Workshop

Project Option

Students can substitute COMP9900 and 6 or 12 UOC of Advanced Disciplinary Knowledge courses with the following research project course combinations subject to meeting the following criteria:

- completed (or have advanced standing in) 72 UOC; and
- obtained agreement from a CSE academic supervisor; and
- maintained a distinction level performance in the program.

Students who complete these research projects are not required to complete COMP9900 Information Technology Project.

COMP9991 | 6 UOC

Research Project A

COMP9992 | 6 UOC

Research Project B

Level 4 or Higher COMP Electives

Students must complete a minimum of 24 UOC of the following courses, up to a maximum of 36 UOC.

any level 4 Computer Science course

any level 6 Computer Science course

any level 9 Computer Science course

Enrolment Disclaimer

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements.

Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

[Pre-2019 Handbook Editions](#)

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Authorised by Deputy Vice-Chancellor (Academic)

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