

BACHELOR OF COMPUTER SCIENCE (3506)

Approved Abbreviation: BCompSc

Western Sydney University Program Code: 3506

AQF Level: 7

CRICOS Code: 041105G

This program applies to students who commenced in 2022 or later.

Students should follow the program structure for the session start date relevant to the year they commenced.

For Commencement Year 2019 to 2021 please refer to: 3506.9 - Bachelor of Computer Science (<http://handbook.westernsydney.edu.au/hbook/course.aspx?course=3506.9>)

For Commencement Year 2014 to 2016 please refer to: 3506.7 - Bachelor of Computer Science (<http://handbook.westernsydney.edu.au/hbook/course.aspx?course=3506.7>)

The Bachelor of Computer Science provides an in-depth technical understanding of computer software systems, underpinned by theoretical foundations and practical techniques. The program provides a solid foundation for computer science study in computer theory, software design, development, and applications. It provides you with the knowledge and skills to develop effective and innovative solutions to problems. A range of specialised majors are offered in Cyber Security, Artificial Intelligence, Systems Programming, Networked Systems, Technology Entrepreneurship and Cloud Computing. Students work on real world projects and complete an industry experience project giving them an edge to access excellent career opportunities as programmers, system or software developers, or AI engineers.

Study Mode

Three years full-time.

Program Advice

Program advice (CDMS@westernsydney.edu.au)

Prospective students should visit the following websites for general enquiries about this program.

Enquire about this program (<https://enquiry.westernsydney.edu.au/courseenquiry/>) | Local Admission (<https://www.westernsydney.edu.au/future/>) | International Admission (<https://www.westernsydney.edu.au/international/home/apply/admissions/>) |

Location

| Campus | Attendance | Mode | Advice |
|-----------------------------------|------------|----------|-----------|
| Parramatta Campus - Victoria Road | Full Time | Internal | See above |
| Penrith Campus | Full Time | Internal | See above |

Accreditation

The Bachelor of Computer Science currently is accredited with the Australian Computer Society at the professional level.

Work Integrated Learning

Western Sydney University seeks to enhance student learning experiences by enabling students to engage in the culture, expectations and practices of their profession or discipline. This program includes a placement or other community-based unpaid practical experience.

There is a mandatory work component required for completion of this program. Please contact the Program Advisor listed above for information.

International students should also refer to the link below for more information and a link to the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS).

Work Integrated Learning (WIL) for international students (https://www.westernsydney.edu.au/currentstudents/current_students/services_and_facilities/international_student_support/working_in_australia/work_integrated_learning/)

Admission

Assumed Knowledge: HSC Mathematics and any two units of HSC English.

Applications from Australian and New Zealand citizens and holders of permanent resident visas may be made via the Universities Admissions Centre (UAC) or directly through the Western Portal. Use the links below to apply via UAC or Western Sydney University. Applications made directly to Western Sydney do not have an application fee.

<http://www.uac.edu.au/>
<https://westernsydney.uac.edu.au/ws/>

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Local applicants who are applying through the Universities Admissions Centre (UAC) will find details of minimum English proficiency requirements and acceptable proof on the UAC website. Local applicants applying directly to the University should also use the information provided on the UAC website.

International students currently completing an Australian Year 12 in or outside Australia, an International Baccalaureate in Australia or a New Zealand National Certificate of Educational Achievement (NCEA) level 3 must apply via UAC International.

<http://www.uac.edu.au/>

All other International applicants must apply directly to the University via the International Office.

International students applying to the University through the International Office can find details of minimum English proficiency requirements and acceptable proof on their website.

International Office (<http://www.westernsydney.edu.au/international/>)

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and Western Sydney University.

Program Structure

Qualification for this award requires the successful completion of 240 credit points which include the subjects listed in the recommended sequence below.

Recommended Sequence

Full-time start-year intake

| Course | Title | Credit Points |
|-----------------------|-----------------------------|---------------|
| Year 1 | | |
| Autumn session | | |
| MATH 1028 | Statistical Decision Making | 10 |
| COMP 1005 | Programming Fundamentals | 10 |

| | | |
|----------------------------|--|------------|
| COMM 1026 | Principles of Professional Communication 1 | 10 |
| MATH 1006 | Discrete Mathematics | 10 |
| Credit Points | | 40 |
| Spring session | | |
| COMP 2008 | Computer Organisation | 10 |
| COMP 2014 | Object Oriented Programming | 10 |
| INFS 2001 | Database Design and Development | 10 |
| COMP 2004 | Computer Networking | 10 |
| Credit Points | | 40 |
| Year 2 | | |
| Autumn session | | |
| COMP 2019 | Systems Programming 1 | 10 |
| COMP 2009 | Data Structures and Algorithms | 10 |
| Select two electives | | 20 |
| Credit Points | | 40 |
| Spring session | | |
| INFS 3003 | Artificial Intelligence | 10 |
| INFO 3006 | Information Security | 10 |
| COMP 3009 | Distributed Systems and Programming | 10 |
| Select one elective | | 10 |
| Credit Points | | 40 |
| Year 3 | | |
| Autumn session | | |
| INFO 3008 | Professional Development | 10 |
| Select three electives | | 30 |
| Credit Points | | 40 |
| Spring session | | |
| COMP 3018 | Professional Experience | 10 |
| INFS 3008 | Formal Software Engineering | 10 |
| Select two electives | | 20 |
| Credit Points | | 40 |
| Total Credit Points | | 240 |

Full-time mid-year intake

| Course | Title | Credit Points |
|-----------------------|--|---------------|
| Year 1 | | |
| Spring session | | |
| COMP 1005 | Programming Fundamentals | 10 |
| INFS 2001 | Database Design and Development | 10 |
| COMP 2004 | Computer Networking | 10 |
| Select one elective | | 10 |
| Credit Points | | 40 |
| Autumn session | | |
| MATH 1028 | Statistical Decision Making | 10 |
| COMM 1026 | Principles of Professional Communication 1 | 10 |
| MATH 1006 | Discrete Mathematics | 10 |
| Select one elective | | 10 |
| Credit Points | | 40 |
| Year 2 | | |
| Spring session | | |
| COMP 2008 | Computer Organisation | 10 |
| COMP 2014 | Object Oriented Programming | 10 |

| | | |
|----------------------------|-------------------------------------|------------|
| Select two electives | | 20 |
| Credit Points | | 40 |
| Autumn session | | |
| COMP 2019 | Systems Programming 1 | 10 |
| COMP 2009 | Data Structures and Algorithms | 10 |
| INFO 3008 | Professional Development | 10 |
| Select one elective | | 10 |
| Credit Points | | 40 |
| Year 3 | | |
| Spring session | | |
| INFO 3006 | Information Security | 10 |
| INFS 3008 | Formal Software Engineering | 10 |
| COMP 3009 | Distributed Systems and Programming | 10 |
| INFS 3003 | Artificial Intelligence | 10 |
| Credit Points | | 40 |
| Autumn session | | |
| COMP 3018 | Professional Experience | 10 |
| Select three electives | | 30 |
| Credit Points | | 40 |
| Total Credit Points | | 240 |

Accelerated Pathway - Summer Sessions

| Course | Title | Credit Points |
|-------------------------|--|---------------|
| Year 1 | | |
| Autumn session | | |
| MATH 1028 | Statistical Decision Making | 10 |
| COMP 1005 | Programming Fundamentals | 10 |
| COMM 1026 | Principles of Professional Communication 1 | 10 |
| MATH 1006 | Discrete Mathematics | 10 |
| Credit Points | | 40 |
| Spring session | | |
| COMP 2008 | Computer Organisation | 10 |
| COMP 2014 | Object Oriented Programming | 10 |
| INFS 2001 | Database Design and Development | 10 |
| COMP 2004 | Computer Networking | 10 |
| Credit Points | | 40 |
| Summer A session | | |
| Select two electives | | 20 |
| Credit Points | | 20 |
| Year 2 | | |
| Autumn session | | |
| COMP 2009 | Data Structures and Algorithms | 10 |
| COMP 2019 | Systems Programming 1 | 10 |
| Select two electives | | 20 |
| Credit Points | | 40 |
| Spring session | | |
| INFO 3006 | Information Security | 10 |
| INFS 3008 | Formal Software Engineering | 10 |
| COMP 3009 | Distributed Systems and Programming | 10 |
| INFS 3003 | Artificial Intelligence | 10 |
| Credit Points | | 40 |
| Summer A session | | |
| INFO 3008 | Professional Development | 10 |

| | |
|-----------------------------------|------------|
| Select one elective | 10 |
| Credit Points | 20 |
| Year 3 | |
| Autumn session | |
| COMP 3018 Professional Experience | 10 |
| Select three electives | 30 |
| Credit Points | 40 |
| Total Credit Points | 240 |

Suggested Elective Subjects

| Subject | Title | Credit Points |
|--|---|---------------|
| COMP 3003 | Cloud Computing Architecture | 10 |
| COMP 3006 | Computer Graphics | 10 |
| COMP 3007 | Computer Networks and Internets | 10 |
| INFO 3002 | Ethical Hacking Principles and Practice | 10 |
| INFO 3015 | Internet of Things and Smart Environments | 10 |
| COMP 3012 | Introduction to Cloud Computing | 10 |
| MATH 2009 | Introduction to Data Science | 10 |
| From 2022 MATH 2009 Introduction to Data Science is replaced by COMP 2025 Introduction to Data Science | | |
| COMP 2025 | Introduction to Data Science | 10 |
| COMP 3013 | Mobile Applications Development | 10 |
| INFO 3007 | Network Security | 10 |
| COMP 3014 | Networked Systems Design | 10 |
| COMP 3015 | Operating Systems Programming | 10 |
| MATH 3007 | Predictive Modelling | 10 |
| From Spring 2022 MATH 3007 Predictive Modelling is replaced by COMP 3032 Machine Learning | | |
| COMP 3032 | Machine Learning | 10 |
| COMP 3033 | Quantum Computing and Communication | 10 |
| COMP 3027 | Robotic Programming | 10 |
| COMP 3020 | Social Web Analytics | 10 |
| COMP 2020 | Technologies for Web Applications | 10 |
| MATH 2014 | Visual Analytics | 10 |
| From 2022 MATH 2014 Visual Analytics is replaced by COMP 2026 Visual Analytics | | |
| COMP 2026 | Visual Analytics | 10 |
| INFS 3017 | Web Systems Development | 10 |
| COMP 3025 | Wireless and Mobile Networks | 10 |

Majors

The majors listed below have been designed specifically for this program and are recommended for Bachelor of Computer Science students.

Artificial Intelligence, Major (0031) (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/artificial-intelligence-major/>)

Cyber Security, Major (0066) (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/cyber-security-major/>)

Networked Systems, Major (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/networked-systems-major/>)

Systems Programming, Major (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/systems-programming-major/>)

Technology Entrepreneurship, Major (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/technology-entrepreneurship-major/>)

Minor

Cloud Computing, Minor (0128) (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/cloud-computing-minor/>)

Note: students may use some of their elective space to complete a Major or the Minor

Minor elective spaces

Elective subjects may be used toward obtaining an additional approved minor (40 credit points). Western Sydney University offers minors in a range of areas including Sustainability and Indigenous Studies.

Global Sustainability Minor (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/global-sustainability-minor/>)

Indigenous Australian Studies Minor (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/indigenous-australian-studies-minor/>)

Western Sydney University also offers the following innovative transdisciplinary minors which we encourage those students who have elective space to consider.

Equitable Technologies (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/equitable-technologies-minor/>)

Urban Evolution (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/urban-evolution-minor/>)

Migration and Global Change (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/migration-global-change-minor/>)

Personal Innovation (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/personal-innovation-minor/>)

Innovating, Creating and Problem Solving (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/innovating-creating-problem-solving-minor/>)

Eco-Socially Conscious Design and Manufacturing (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/eco-socially-conscious-design-manufacturing-minor/>)

Water for Life (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/water-life-minor/>)

Climate Justice (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/climate-justice-minor/>)

Global Workplaces (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/global-workplaces-minor/>)

Innovating For Humans (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/innovating-humans-minor/>)

Search for majors and minors (<https://hbook.westernsydney.edu.au/archives/2021-2022/majors-minors/>)

Students can apply for an elective minor via MySR.

MyStudentRecords (MySR) (<https://student-selfservice.westernsydney.edu.au/StudentSelfService/ssb/studentCommonDashboard/>)