

# Bachelor of Computer Science (Advanced)

## Contents

Program Notes .....	2
Computer Science Major .....	3
Artificial Intelligence Major .....	4
Cybersecurity Major .....	5
Data Science Major .....	6
Distributed Systems and Networking Major .....	7
Elective Tables .....	8

# Bachelor of Computer Science (Advanced)

## Program Notes

### Level I Mathematical Sciences Course

- Students must complete either *MATHS 1004 Mathematics for Data Science* or *MATHS 1012 Mathematics IB*, but may not present both towards their degree.
- To enrol in *MATHS 1012 Mathematics IB* students must first pass *MATHS 1011 Mathematics IA*, this is presented as a level I elective. Entry into *MATHS 1011 Mathematics IA* requires *SACE Stage 2 Specialist Mathematics*, or a pass in *MATHS 1013 Mathematics IM*.
- Students starting in semester 2 that choose to study *MATHS 1012 Mathematics IB*, will need to take either *MATHS 1011* or *MATHS 1013* in their first semester of study, and take *MATHS 1012* in a later semester.
- Students interested in the Artificial Intelligence or Data Science majors are strongly encouraged to take *MATHS 1012 Mathematics IB*.

### Programming Experience

- Students with prior programming experience do not need to complete *ENG 1002 Programming (Matlab and C)*, and can replace it with a level I Elective.
- If *ENG 1002 Programming (Matlab and C)* is replaced, the following courses must be completed in order, first *COMP SCI 1102*, then *COMP SCI 2103* and then *COMP SCI 2201*. However, these courses and *COMP SCI 2000* may be completed one semester earlier than in the study plans.

### General Electives

- General Electives must include **Broadening Electives** to the value of **9 units** that are not from the following subject areas: COMP SCI, MATHS, PURE MTH, APP MATH, STATS. *ENG 1002* does not count towards the Broadening electives requirement.
- Electives may be any University of Adelaide Undergraduate course for which the student meets the pre-requisites. Please check the availability, restriction and incompatible section on the course planner for elective choices.
- How to choose an elective course in your area of interest? Please refer to the steps via the link: <https://ecms.adelaide.edu.au/study-with-us/student-support/enrolment>

### Computer Science Internships

- Internships are available to students and allow students to build and apply skills to a relevant workplace setting.
- Students will need to apply for approved internships on [CareerHub](#), and if successful in gaining an internship will be enrolled by the faculty in either *COMP SCI 3700 ECMS Internship* (3 units) or *COMP SCI 3710 ECMS Internship* (6 units).
- Both *COMP SCI 3700 ECMS Internship* and *COMP SCI 3710 ECMS Internship* can be counted as a level III COMP SCI elective.
- For more information see: <https://ecms.adelaide.edu.au/study-with-us/student-support/internships/computer-mathematical-sciences>

### Links and Further Information

- [Course Planner](#) Information about University courses, including availability, class times, restrictions and prerequisites.
- [University Calendar](#) All academic program rules.
- **Contact Ask ECMS:** [askecms@adelaide.edu.au](mailto:askecms@adelaide.edu.au) • +61 8 8313 4148 • [www.ecms.adelaide.edu.au](http://www.ecms.adelaide.edu.au)

# Bachelor of Computer Science (Advanced)

## Computer Science Major

Course	Units	Status
<b>Year 1</b>		
S2	COMP SCI 1104 Grand Challenges in Computer Science	3
S2	COMP SCI 1106 Introduction to Software Engineering	3
S2	* ENG 1002 Programming (Matlab and C)	3
S2	^ Level I Mathematical Sciences Course	3
S1	COMP SCI 1102 Object Oriented Programming	3
S1	^ Level I General Elective	3
S1	# Level I General Elective	3
S1	# Level I/II/III General Elective	3
<b>Year 2</b>		
S2	COMP SCI 2000 Computer Systems	3
S2	COMP SCI 2103 Algorithm Design & Data Structures	3
S2	# Level I/II/III General Elective	3
S2	# Level I/II/III General Elective	3
S1	COMP SCI 2201 Algorithm & Data Structure Analysis	3
S1	COMP SCI 2207 Web & Database Computing	3
S1	COMP SCI 2008 Topics in Computer Science	6
<b>Year 3</b>		
S2	COMP SCI 3004 Operating Systems	3
S2	# Level III General Elective	3
S2	Level III Computer Science Elective	3
S2	Software Engineering and Project Elective	3
S1	COMP SCI 3020 Advanced Topics in Computer Science	6
S1	Professional Elective	3
S1	Level III Computer Science Elective	3

Core Course	Elective Course (see elective tables)
CM = Completed	CR = Credit Awarded
EN = Currently Enrolled	ENROL = Add to Enrolments

Software Engineering and Project Elective Table			
S2	COMP SCI 3006 Software Engineering & Project	3	
S2	COMP SCI 3310 Software Engineering & Project (Artificial Intelligence)	3	
S2	COMP SCI 3311 Software Engineering & Project (Data Science)	3	
S2	COMP SCI 3312 Software Engineering & Project (Cybersecurity)	3	
S2	COMP SCI 3313 Software Engineering & Project (Distributed Systems & Networking)	3	

Remaining Elective Tables found on [Elective Tables](#) page.

### Degree Notes

^ **Level I Mathematical Sciences Course:** Please refer to Level I Mathematical Sciences Course notes on [Program Notes](#) page.

\* **ENG 1002 Programming (Matlab and C):** Please refer to Programming Experience notes on [Program Notes](#) page.

# **General Electives:** Please refer to [Program Notes](#) page for information on general elective requirements.

# Bachelor of Computer Science (Advanced) Artificial Intelligence Major

Course	Units	Status
<b>Year 1</b>		
S2	COMP SCI 1104 Grand Challenges in Computer Science	3
S2	COMP SCI 1106 Introduction to Software Engineering	3
S2	* ENG 1002 Programming (Matlab and C)	3
S2	^ Level I Mathematical Sciences Course	3
S1	COMP SCI 1102 Object Oriented Programming	3
S1	^ Level I General Elective	3
S1	** Level I General Elective	3
S1	# Level I/II/III General Elective	3
<b>Year 2</b>		
S2	COMP SCI 2000 Computer Systems	3
S2	COMP SCI 2103 Algorithm Design & Data Structures	3
S2	# Level I/II/III General Elective	3
S2	# Level I/II/III General Elective	3
S1	COMP SCI 2201 Algorithm & Data Structure Analysis	3
S1	COMP SCI 2207 Web & Database Computing	3
S1	COMP SCI 2008 Topics in Computer Science	6
<b>Year 3</b>		
S2	COMP SCI 3004 Operating Systems	3
S2	Artificial Intelligence Elective	3
S2	Artificial Intelligence Elective	3
S2	COMP SCI 3310 Software Engineering & Project (Artificial Intelligence)	3
S1	COMP SCI 3020 Advanced Topics in Computer Science	6
S1	Professional Elective	3
S1	COMP SCI 3007 Artificial Intelligence	3

Core Course	Elective Course (see elective tables)	Major Course/ Major Elective (see table)
CM = Completed	CR = Credit Awarded	EN = Currently Enrolled
		ENROL = Add to Enrolments

\*\* Recommended electives:

- STATS 1000 Statistical Practice I or STATS 1005 Statistical Analysis and Modelling I
- STATS 2107 Statistical Modelling and Inference II

Artificial Intelligence Elective Table		
S1	COMP SCI 3315 Computer Vision	3
S2	COMP SCI 3314 Introduction to Statistical Machine Learning	3
S2	COMP SCI 3316 Evolutionary Computation	3

Remaining Elective Tables found on [Elective Tables](#) page.

## Degree Notes

^ **Level I Mathematical Sciences Course:** Please refer to Level I Mathematical Sciences Course notes on [Program Notes](#) page.

\* **ENG 1002 Programming (Matlab and C):** Please refer to Programming Experience notes on [Program Notes](#) page.

# **General Electives:** Please refer to [Program Notes](#) page for information on general elective requirements.

# Bachelor of Computer Science (Advanced) Cybersecurity Major

Course	Units	Status
<b>Year 1</b>		
S2	COMP SCI 1104 Grand Challenges in Computer Science	3
S2	COMP SCI 1106 Introduction to Software Engineering	3
S2	* ENG 1002 Programming (Matlab and C)	3
S2	^ Level I Mathematical Sciences Course	3
S1	COMP SCI 1102 Object Oriented Programming	3
S1	^ Level I General Elective	3
S1	# Level I General Elective	3
S1	# Level I/II/III General Elective	3
<b>Year 2</b>		
S2	COMP SCI 2000 Computer Systems	3
S2	COMP SCI 2103 Algorithm Design & Data Structures	3
S2	# Level I/II/III General Elective	3
S2	# Level I/II/III General Elective	3
S1	COMP SCI 2201 Algorithm & Data Structure Analysis	3
S1	COMP SCI 2207 Web & Database Computing	3
S1	COMP SCI 2008 Topics in Computer Science	6
<b>Year 3</b>		
S2	COMP SCI 3004 Operating Systems	3
S2	Cybersecurity Elective	3
S2	COMP SCI 3307 Secure Programming	3
S2	COMP SCI 3312 Software Engineering & Project (Cybersecurity)	3
S1	COMP SCI 3020 Advanced Topics in Computer Science	6
S1	Professional Elective	3
S1	COMP SCI 3308 Cybersecurity Fundamentals	3

Core Course	Elective Course (see elective tables)	Major Course/ Major Elective (see table)
CM = Completed	CR = Credit Awarded	EN = Currently Enrolled
		ENROL = Add to Enrolments

\*\* Recommended electives:

- COMP SCI 2005 Systems Programming

Cybersecurity Elective Table		
N/A	COMP SCI 3309 Cybersecurity A Practical Application	3
S1	COMP SCI 3001 Computer Networks & Applications	3
S2	MATHS 3026 Cryptography III	3

Remaining Elective Tables found on [Elective Tables](#) page.

## Degree Notes

^ **Level I Mathematical Sciences Course:** Please refer to Level I Mathematical Sciences Course notes on [Program Notes](#) page.

\* **ENG 1002 Programming (Matlab and C):** Please refer to Programming Experience notes on [Program Notes](#) page.

# **General Electives:** Please refer to [Program Notes](#) page for information on general elective requirements.

# Bachelor of Computer Science (Advanced)

## Data Science Major

Course	Units	Status
<b>Year 1</b>		
S2	COMP SCI 1104 Grand Challenges in Computer Science	3
S2	COMP SCI 1106 Introduction to Software Engineering	3
S2	* ENG 1002 Programming (Matlab and C)	3
S2	^ Level I Mathematical Sciences Course	3
S1	COMP SCI 1102 Object Oriented Programming	3
S1	^ Level I General Elective	3
S1	** Level I General Elective	3
S1	# Level I/II/III General Elective	3
<b>Year 2</b>		
S2	COMP SCI 2000 Computer Systems	6
S2	COMP SCI 2008 Topics in Computer Science	3
S2	COMP SCI 2103 Algorithm Design & Data Structures	3
S1	COMP SCI 2201 Algorithm & Data Structure Analysis	3
S1	COMP SCI 2207 Web & Database Computing	3
S1	# Level I/II/III General Elective	3
S1	Professional Elective	3
<b>Year 3</b>		
S2	COMP SCI 3004 Operating Systems	3
S2	** Level I/II/III General Elective	3
S2	COMP SCI 3311 Software Engineering & Project (Data Science)	3
S2	COMP SCI 3314 Introduction to Statistical Machine Learning	3
S1	COMP SCI 3020 Advanced Topics in Computer Science	6
S1	Data Science Elective	3
S1	COMP SCI 3306 Mining Big Data	3

Core Course	Elective Course (see elective tables)	Major Course/ Major Elective (see table)
CM = Completed	CR = Credit Awarded	EN = Currently Enrolled
		ENROL = Add to Enrolments

\*\* Recommended electives:

- STATS 1000 Statistical Practice I or STATS 1005 Statistical Analysis and Modelling I
- STATS 2107 Statistical Modelling and Inference II

Data Science Elective Table		
S1	COMP SCI 3305 Parallel and Distributed Computing	3
S1	STATS 3001 Statistical Modelling III	3
S1	STATS 3006 Mathematical Statistics	3

Remaining Elective Tables found on [Elective Tables](#) page.

### Degree Notes

^ **Level I Mathematical Sciences Course:** Please refer to Level I Mathematical Sciences Course notes on [Program Notes](#) page.

\* **ENG 1002 Programming (Matlab and C):** Please refer to Programming Experience notes on [Program Notes](#) page.

# **General Electives:** Please refer to [Program Notes](#) page for information on general elective requirements.

# Bachelor of Computer Science (Advanced)

## Distributed Systems and Networking Major

Course	Units	Status
<b>Year 1</b>		
S2	COMP SCI 1104 Grand Challenges in Computer Science	3
S2	COMP SCI 1106 Introduction to Software Engineering	3
S2	* ENG 1002 Programming (Matlab and C)	3
S2	^ Level I Mathematical Sciences Course	3
S1	COMP SCI 1102 Object Oriented Programming	3
S1	^ Level I General Elective	3
S1	# Level I General Elective	3
S1	# Level I/II/III General Elective	3
<b>Year 2</b>		
S2	COMP SCI 2000 Computer Systems	3
S2	COMP SCI 2103 Algorithm Design & Data Structures	3
S2	# Level I/II/III General Elective	3
S2	# Level I/II/III General Elective	3
S1	COMP SCI 2201 Algorithm & Data Structure Analysis	3
S1	COMP SCI 2207 Web & Database Computing	3
S1	COMP SCI 2008 Topics in Computer Science	6
<b>Year 3</b>		
S2	COMP SCI 3004 Operating Systems	3
S2	# Level III General Elective	3
S2	COMP SCI 3012 Distributed Systems	3
S2	COMP SCI 3313 Software Engineering & Project (Distributed Systems & Networking)	3
S1	COMP SCI 3020 Advanced Topics in Computer Science	6
S1	Professional Elective	3
S1	COMP SCI 3001 Computer Networks & Applications	3

Core Course	Elective Course (see elective tables)	Major Course
CM = Completed	CR = Credit Awarded	EN = Currently Enrolled
		ENROL = Add to Enrolments

\*\* Recommended electives:

- COMP SCI 2005 Systems Programming

### Degree Notes

^ **Level I Mathematical Sciences Course:** Please refer to Level I Mathematical Sciences Course notes on [Program Notes](#) page.

\* **ENG 1002 Programming (Matlab and C):** Please refer to Programming Experience notes on [Program Notes](#) page.

# **General Electives:** Please refer to [Program Notes](#) page for information on general elective requirements.

# Bachelor of Computer Science (Advanced)

## Elective Tables

Course		Units	Status
<b>Level I Mathematical Sciences Course Table</b>			
S2	<a href="#">MATHS 1004 Mathematics for Data Science I</a>	3	
SS S1 S2	<a href="#">MATHS 1012 Mathematics IB</a>	3	
<b>Professional Elective Table</b>			
S1	<a href="#">ENTREP 3901 Tech eChallenge</a>	3	
S1	<a href="#">MATHS 3025 Professional Practice III</a>	3	
<b>Computer Science Elective Table</b>			
Not Available	<a href="#">COMP SCI 2204 Advanced Programming Paradigms</a>	3	
Not Available	<a href="#">COMP SCI 3309 Cybersecurity A Practical Application</a>	3	
S1	<a href="#">COMP SCI 1010 Puzzle Based Learning</a>	3	
S1	<a href="#">COMP SCI 2005 Systems Programming</a>	3	
S1	<a href="#">COMP SCI 3001 Computer Networks &amp; Applications</a>	3	
S1	<a href="#">COMP SCI 3007 Artificial Intelligence</a>	3	
S1	<a href="#">COMP SCI 3305 Parallel and Distributed Computing</a>	3	
S1	<a href="#">COMP SCI 3306 Mining Big Data</a>	3	
S1	<a href="#">COMP SCI 3308 Cybersecurity Fundamentals</a>	3	
S1	<a href="#">COMP SCI 3315 Computer Vision</a>	3	
S1	<a href="#">ELEC ENG 3088 Computer Architecture</a>	3	
S2	<a href="#">COMP SCI 2203 Problem Solving &amp; Software Development</a>	3	
S2	<a href="#">COMP SCI 3012 Distributed Systems</a>	3	
S2	<a href="#">COMP SCI 3307 Secure Programming</a>	3	
S2	<a href="#">COMP SCI 3314 Introduction to Statistical Machine Learning</a>	3	
S2	<a href="#">COMP SCI 3316 Evolutionary Computation</a>	3	
SS S1 S2	<a href="#">COMP SCI 3700 ECMS Internship (see <a href="#">Program Notes</a>)</a>	3	
SS S1 S2	<a href="#">COMP SCI 3710 ECMS Internship (see <a href="#">Program Notes</a>)</a>	6	