

The University of Queensland Computing Society

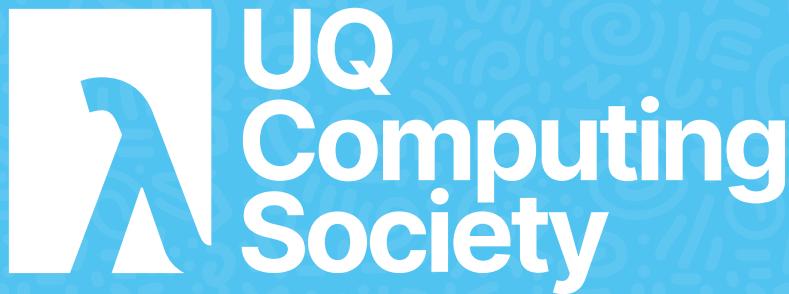
FIRST YEAR GUIDE



2026 Edition

Learn. Code. Create.

PUBLISHED BY

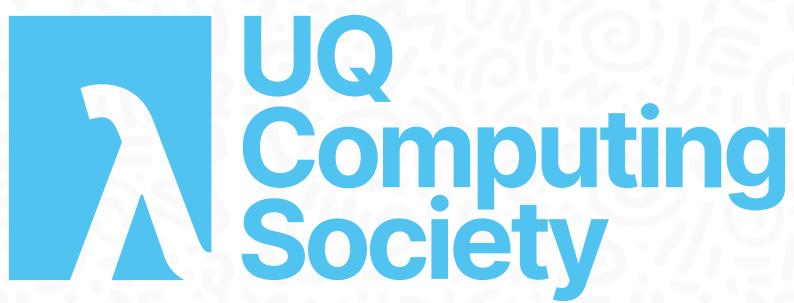


in 2026

Compiled by the 2026 UQCS Committee to guide your journey.

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WHO WE ARE

The University of Queensland Computing Society (UQCS) brings together students with a broad range of interests ranging from digital design to software engineering. Our weekly events cover a variety of educational, social, and industry-oriented emphases to contribute to the development of the next generation of innovators.

In addition to our regular events, we host several major events throughout the year. Our flagship events are CodeJam (Semester 1), Hackathon (Semester 2), and High Frequency Networking (Semester 2). We also host trivia nights, and industry events such as our Industry Panel and Mock Interviews in Semester 1.

Each year, we attract over 500 paying members and facilitate an extremely active Discord community. Our membership includes undergraduate and postgraduate students, as well as recent graduates and experienced alumni, some having been active in the society since our founding in 2011. In 2019, UQCS was awarded the **Best Faculty Club of the Year** from amongst UQ's 220+ clubs by the UQ Union, and in 2020 our regular tech talks were crowned the **Best Event Series** at UQ.

800+
MEMBERS

2400
DISCORD
MEMBERS

1000
PIZZAS

4500
INSTAGRAM
FOLLOWERS



CodeJam, Semester 1 2025

WHAT WE OFFER

TECHNICAL TALKS



INDUSTRY AND NETWORKING EVENTS

CAREER BUILDING



COMPETITIVE PROGRAMMING GROUP

HACKATHONS



SOCIAL EVENTS

MEET THE COMMITTEE

The 2026 UQCS Executive Committee (T6) is the team leading the society this year. They organise events, manage partnerships, and keep things on track with the support of the general committee.

President



Zain Al-Saffi

Secretary



April Kidd

Treasurer



John Pioc

Industry Officer



Jevi Waugh

Events Officer



Clare Johnston

Media Officer



Richard Yu

MEET THE COMMITTEE

The general committee helps with events and projects. They're a key part of keeping UQCS running!



Sean McLennan



Jason Jung



Suvin Chin Chandran



Gideon McKinlay



Chris Meng



Tyreece Paul



Ryan Hurst



Blåhaj

SEMESTER 1 EVENTS

UQCS reserves the rights to alter this events calendar based on society needs

Week 0

Semester 1 Market Day

UQCS has a stall at every O-Week Market Day, alongside 220+ UQU clubs and societies. Come meet the team, grab some freebies, and find out what's happening this semester.

Tech Clubs BBQ

The Tech Club BBQ is a welcome event hosted early in the semester by Brisbane's tech societies!

Week 1

First Year Panel

A casual Q&A where first-years hear directly from current students, graduate engineers, researchers, and a lecturer. Panelists share their experiences with internships, uni life, and how they got started in tech.

Student Talk

Come join UQCS for an academic events, where our members shares insights into their studies, research experiences, and pathways within computer science.

Week 2

Semester 1 Launch Party

Kick off the semester with a joint social hosted by UQ's biggest clubs. Meet new people, enjoy food and games, and find your community across UQ.

Week 2

Optiver Tradeathon

A hands-on workshop run by Optiver where students explore market-making and trading through games, simulations, and real-world strategy.

Week 4

Career Launchpad

An intro session on how to start preparing for technical interviews, hosted by Joel Mackenzie, lecturer of Algorithms and Data Structures.

Week 3

Resume Workshop with UQLIT

A collaborative resume workshop with UQLIT, helping you build a strong resume for internships and grad roles. Learn what recruiters look for, common mistakes to avoid, and how UQCS and UQLIT can support you along the way.

Week 5

SEMESTER 1 EVENTS

UQCS reserves the rights to alter this events calendar based on society needs

Week 5

Build for Impact Hackathon

A weekend-long hackathon focused on building tech projects with real-world impact, focusing on a innovative solution.

Week 6

Getting the Internship/Grad Talk

An intro session on how to start preparing for internships and grad roles early in your degree. Covers key tips, timelines, and how UQCS can support your journey.

Week 7

Industry Panel

Hear from engineers and recruiters from within the industry. They'll share insights on careers in tech, landing roles, and what they look for in students

Week 7

GameJam

GameJam is a cross-university, gaming-themed coding comp for all things games! Build prototypes, create mods, or develop interactive projects and compete for a share of a \$5,000 prize pool.

Week 9

CodeJam

CodeJam is UQCS's flagship coding competition where students solve programming challenges in teams. A prep session, How to CodeJam, is held beforehand to help first-timers get familiar with the format.

Week 10

What is Computer Science?

An academia-focused networking event where you can learn about the many pathways a computer science degree can open up.

Week 13

End of Semester Drinks

A relaxed social to wrap up the semester with drinks, snacks, and good company.

SEMESTER 2 EVENTS

UQCS reserves the rights to alter this events calendar based on society needs

Week 0

Semester 2 Market Day

UQCS has a stall at every O-Week Market Day, alongside 220+ UQU clubs and societies. Come meet the team, grab some freebies, and find out what's happening this semester.

Student Talk

Come join UQCS for an academic events, where our members shares insights into their studies, research experiences, and pathways within computer science.

Week 2

Mock Interviews with UQLIT

Practice 1-on-1 behavioural interviews and connect with industry reps from several companies. Perfect prep for internship and grad application.

Week 1

Semester 2 Launch Party

Kick off the semester with a joint social hosted by UQ's tech clubs. Meet new people, enjoy food and games, and find your community.

Week 3

Hackathon and How to Hackathon

A weekend-long coding comp with a \$5000 prize pool, five fully catered meals, unlimited Red Bull, and exclusive merch. New to it all? How to Hackathon runs beforehand to help first-timers get prepped.

Week 2

Student Talk

Come join UQCS for an academic events, where our members shares insights into their studies, research experiences, and pathways within computer science.

Week 5

Social Event

Come along to a UQCS social night to unwind, catch up with friends, and meet new faces interested in all things computing.

Week 4

Stay up to date with our events through our Discord, Instagram, and Facebook!

SEMESTER 2 EVENTS

UQCS reserves the rights to alter this events calendar based on society needs

Week 6

Student Talk

Come join UQCS for an academic events, where our members shares insights into their studies, research experiences, and pathways within computer science.

High Frequency Networking

Our premier networking event, in collaboration with UQLIT and EBESS, offers top sponsors a direct line to leading recruiters, talented graduates, and experienced senior engineers. Connect and prepare for the upcoming internship season.

Week 9

Social Event

Come along to a UQCS social night to unwind, catch up with friends, and meet new faces interested in all things computing.

Week 7

Week 12

Study Night

In preparation for the final weeks, join us as we run sessions to help prepare you for either your final exams or assessments!

Week 11

AGM

Join us for our Annual General Meeting (AGM), where we'll elect the committee for the upcoming year. This important event provides an opportunity to shape our future leadership.

Week 13

End of Semester Drinks

A relaxed social to wrap up the semester with drinks, snacks, and good company.

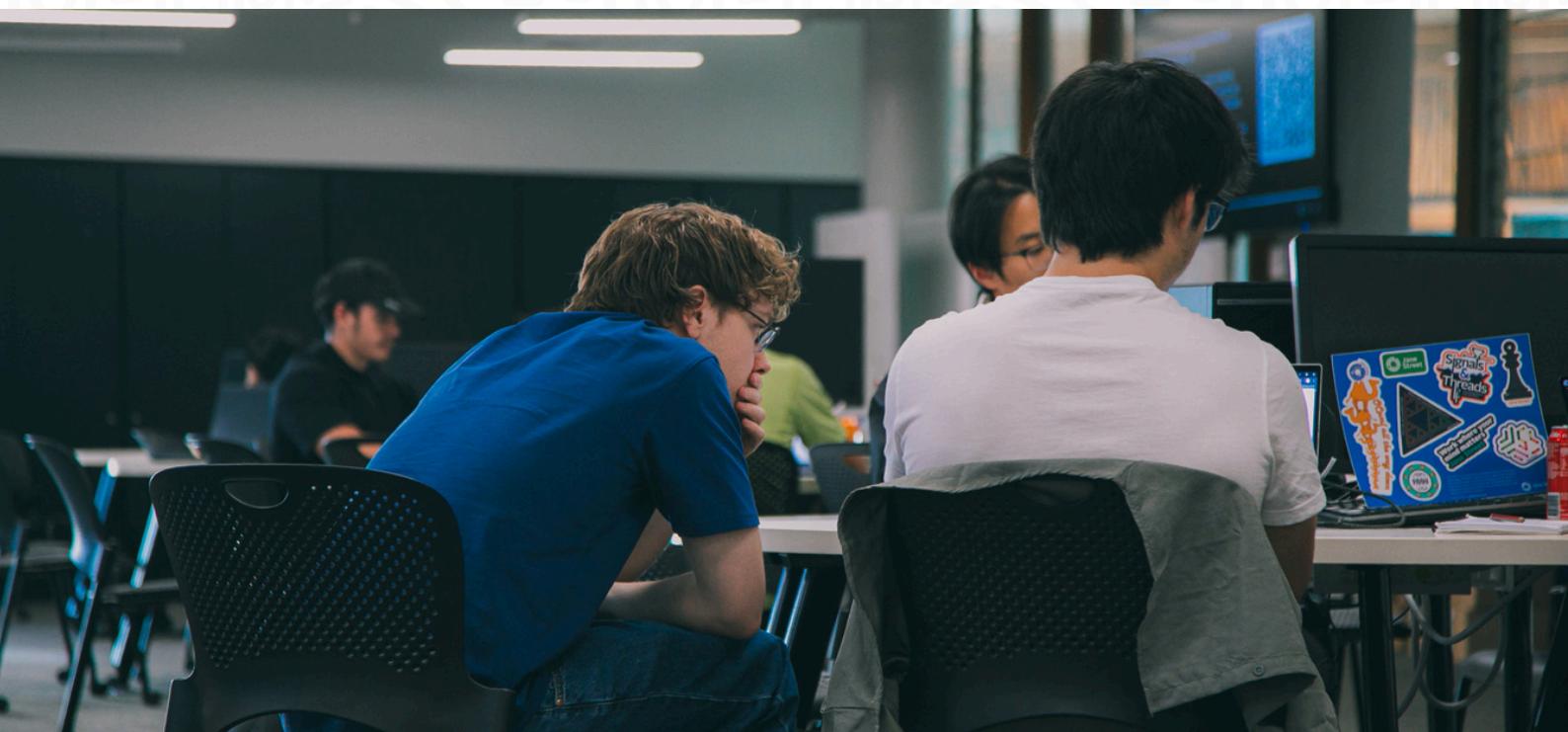
Stay up to date with our events through our Discord, Instagram, and Facebook!

CPG

CPG (Competitive Programming Group) is a weekly event where participants work either individually or in teams to solve programming problems under time constraints. The problems are similar to those seen in programming competitions and technical interviews, but the emphasis is firmly on learning rather than winning. Sessions often include discussion of strategies, walkthroughs of solutions, and time to practise applying new techniques.

Despite the scary-sounding name, CPG is very beginner friendly. You don't need prior competitive programming experience to join, and you certainly don't need to be an algorithms expert. Newcomers are encouraged to join teams with more experienced members, ask questions freely, and learn by doing. CPG organisers and regulars are always around to help explain concepts, debug ideas, and point you in the right direction.

CPG helps you build strong problem-solving and coding skills that transfer directly to technical interviews and programming competitions. You'll practise breaking down unfamiliar problems, reasoning under pressure, and writing fast, correct code efficiently. CPG also ties into other UQCS events like CodeJam, SPAR, and AllUni, often running follow-up sessions to review competition questions and solutions.



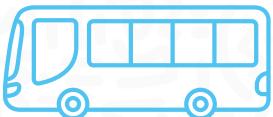
CodeJam, Semester 1 2025

Stay up to date with our events through our [Discord](#), [Instagram](#), and [Facebook](#)!

MUST KNOWS

for your first year!

GETTING TO CAMPUS



50¢

PUBLIC TRANSPORT

UQ St Lucia is well-connected by public transport, and your main options are bus, ferry, and (kind of) train. Use the **Translink Journey Planner** or **Google Maps** to find the best route based on where you're coming from.

There are two main bus hubs on campus:

- UQ Lakes – best for Southside and East Brisbane.
- Chancellors Place – best for North and West Brisbane.

Tip: If you are taking the M2 during peak time, it might be worthy to consider catching a train to/from Park Road Train Station instead!

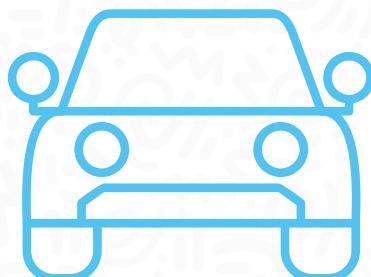
Depending on where you're coming from, driving part of the way can actually be faster. Many students choose to drive to a nearby busway and catch a quick bus to campus.

Parking is available on campus, but there are both capped and uncapped zones meaning some spots are much more affordable than others. You'll also need the PayStay app to pay for parking so make sure this is ready before you drive in for the first time!

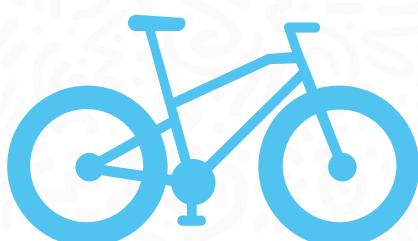
Always check the UQ Parking website for the latest rates and zone info.

Tip: Spots fill up by 9AM usually, so aim for earlier or later classes if you're driving in regularly. Also, parking is free on weekends and public holidays!

DRIVING IN



CYCLING IN



Cycling to UQ is quite common, especially if you live nearby. There are bike racks all across campus, and you can find them on **UQ Maps**.

If you want secure storage, UQ offers bike lockers in certain locations. Showers and change rooms are also available near the main bike facilities.

Find out more at
<https://campuses.uq.edu.au/cycling>

HUNGRY ON CAMPUS?

UQ St Lucia has a variety of food and drink options on campus!

The grid contains the following logos:

- Guzman Y Gomez Mexican Kitchen
- Subway
- EzyMart
- Oriental Corner
- Lolly Shop Treat Yourself
- The Bagel Boys Traditional Kettle Boiled
- Kenko Sushi House
- Saint Lucy caffè e cucina
- pizza caffè BY UQU
- Patina AT ALUMNI COURT
- main course
- Chatime
- REDROOM
- MARKET CART
- Bobo Machine
- Darwin's BY UQU
- BOOST
- BELLTOP
- BREWPOINT
- Cafe Nano
- ON A ROLL BAKERY
- Expresso BY UQU
- merlo COFFEE ROASTERS



Chris Meng

“

If you buy food, make sure you always get that **UQ mates rates**.
But Fr tho the chips from **UQ main course** are soooo good.

”



Tyreece Paul

“

Hawken Drive has some hidden gems for dinner, especially late nights after studying. **IGA** covers all your caffeine and cheap food cravings. **On a Roll** has \$3 coffee with **UQ Mates Rates** which has saved countless mornings.

”

HUNGRY ON CAMPUS?

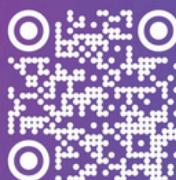
Within the food, drink, and retail options at UQ, all UQU outlets offer Mates Rates discounts to UQ students!

Join UQU Mates Rates here <https://uqu.com.au/mates-rates>



FREE TO JOIN

Save 10% off all purchases at our UQU outlets all year long!



SCAN QR CODE OR VISIT
[WWW.UQU.COM.AU/MATES-RATES](https://uqu.com.au/mates-rates)
TO ACTIVATE YOUR DISCOUNT

*Excludes alcohol purchases, second hand textbooks and Schonell Functions and Catering

BROUGHT TO YOU BY
 YOUR
STUDENT UNION

Additionally, you can view outlet specific offers on their page found on the UQU website!

Check it out here <https://uqu.com.au/food-retail-outlets/>

LECTURER ADVICE



Joel Mackenzie
COMP3506 - Algorithms and
Data Structures
COMP3610 - Concurrency:
Theory and Practice

“ Introduce yourself to others in the same courses as you and see if you can get an informal support network in place. University is much different to high school, so having people you can ask for help or to check in with will be invaluable, especially in the first semester as you're transitioning to a new environment and a new style of learning.

Your flight is cancelled because the pilot is sick. A man stands up and says, "Don't worry, I've got 100 hours of watching YouTube plane videos. Let me fly the plane." Would you trust him with your life? Of course not. In four years, you will be one of two people: the man who thinks he can do it because he watched the videos, or the Pilot who knows he can because he did the hard yards. The choice is yours!

”

”

Earn skills, not grades. Your 7s mean nothing if you can't leverage them to build something. Don't cheat. Cheating isn't learning, and it will catch up with you. It debases your education, our institution, and ultimately erodes your integrity.

Do your best but be aware of diminishing returns. Embrace "good enough." Learn when to stop. It's rarely worth doubling your effort for a 1% improvement. Manage your time and don't let work pile up. Take care of yourself: eat, rest, exercise, study. And when you study, study. When you rest, rest. Put the phone away. Learn to focus on a single task.

Learn from your mistakes. Critical feedback is a gift, not a punishment. Teachers who take the time to uncover your weaknesses are trying hard to help you grow. When you need help, ask for it. We want you to succeed, and you may be surprised by how far we'll go to help you do so.

Ask questions. Raise your hand. Risk sounding dumb. Who cares what other people think? Don't compare your outcomes to other people, only to yourself yesterday. Small improvements sustained over time add up to big change. Be humble. The only person you need to prove yourself to is yourself.

Cherish this time; it will fly by. One day you'll realize how lucky it was to have years dedicated to learning alongside people striving toward the same goals. Good luck. Have fun.

”



Paul Vrbik
CSSE1001 - Introduction to
Software Engineering
COMP3400 - Functional and
Logic Programming

Learn from your mistakes. Critical feedback is a gift, not a punishment. Teachers who take the time to uncover your weaknesses are trying hard to help you grow. When you need help, ask for it. We want you to succeed, and you may be surprised by how far we'll go to help you do so.

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OUR PERSONAL ADVICE



Zain Al-Saffi

“

First year is very daunting and that is how it should be, it is the first time you get treated as an adult with no hand holding, hence use it to discover what works for you, and what motivates you to wake up every morning. What works for one person might not work for another. It's your own personal journey that you can make unique to yourself.

Another thing to take note of is be someone that takes accountability and does not blame external factors for why things don't go your way. For example there is a lot of doom and gloom about CS online, however those who complain refuse to adapt to market conditions instead of changing what they have control over, such as their competency, knowledge, work ethic or strategy. Be someone who adapts to situations, instead of making excuses for your complacency. Don't let one failure stop you from pursuing what you want. Aim for the skies and not mediocrity

”



April Kidd

“

University is a brand new opportunity to do what you genuinely enjoy. The first year is definitely the scariest part, but as someone who just came out the other side of it, if you apply yourself and put your head down, you can do incredible things!

Always put your 100% of what you can whenever you can, and remember, time is flying, but you're the pilot!

”

“

When I was a first year the most daunting thing for me was making friends. I had just moved from a small town, knew absolutely no one at UQ and was a bit introverted at times. What made it 10x easier for me to make friends was a quote I saw online that goes: "everyone's friendly, you just have to make the first move". So my advice is be the first one to say hi, give compliments and invite people to something like a coffee date or to study. Be the first one to make a move.

”



John Pioc

OUR PERSONAL ADVICE



Jevi Waugh

“ University doesn't magically become great on its own. You have to step into it. Make the first move socially, even when it feels awkward, because almost everyone else is hoping someone will do it first. Commit to one or two clubs and actually show up. That's where real friendships form. If you drift, uni can get lonely fast, so give your weeks structure instead of waiting to feel motivated. Grades matter, but they are not the whole picture. The skills you build and the things you create outside class will carry you much further than marks alone.

Talk to your lecturers. Build real connections with them. They notice the students who show up, and care, and those are the students they recommend for opportunities you'll never see on a job board. Take your sleep seriously and look after your physical health. Train, move, and build routines that support you. When your body is looked after, your mind works better, you handle pressure more easily, and everything else in uni becomes more manageable.

”



Clare Johnston

“ Hard work always pays off! Try to attend as many events as you can since you never know who you'll meet or what doors they may open. Try to go to all your classes and don't be afraid to make friends within your cohort, it always helps to see a friendly face. It may seem scary at first if you don't have friends to go with, but don't let this discourage you as I'm certain many others are in the exact same boat

”



Richard Yu

“ University will be freest time in your life because for most people because after university you will be working 40 hours a week until the day your body breaks down or you die. So treasure this time well.

Lectures and academics makes 50% of what University can offer, the other 50% is extra-curricular. Participate in extra-curricular activities, build connections and friends. Friends are best made through extra-curricular activities and seldom through classes. I had found myself to lose contact with people after we stopped taking classes together. However, I have found people that I have met through extra-curricular such as clubs and common interest such as sport lasted longer and formed a deeper connection.

In the real world, hard work does not always equal success but it sure can increase your chances.

”

Brief

ACADEMIC ADVICE

for your first year!

DEGREE STRUCTURE

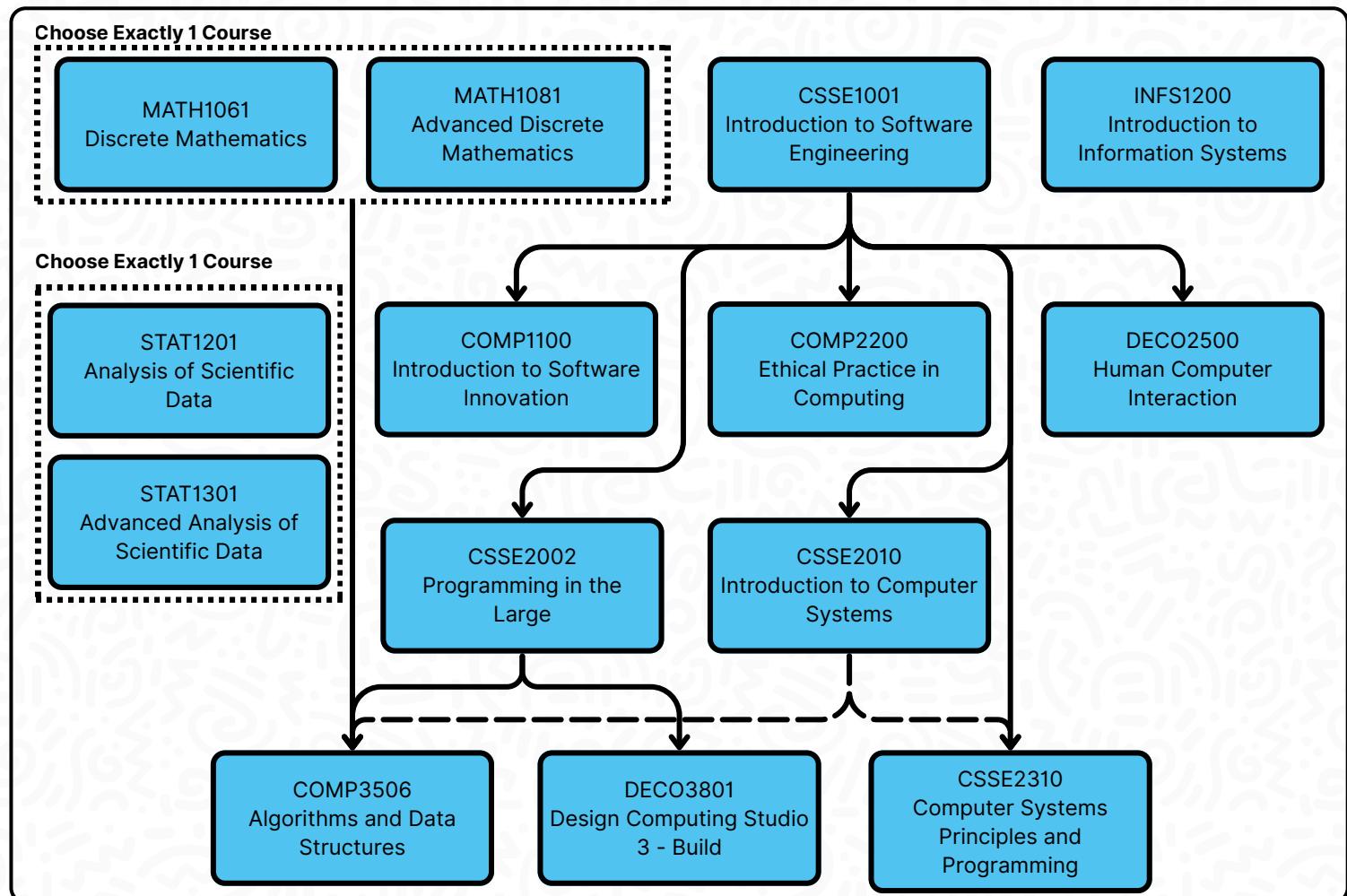
The following information is a general guide and may not reflect the specific structure of your program. UQCS strongly recommends regularly checking the official UQ program structure and course plans, as these can vary depending on your degree, major, and commencement year.

Bachelor of Computer Science (48 Units)

CORE	CORE	CORE	CORE	CORE	CORE	CORE	CORE
CORE	CORE	CORE	CORE	PLAN	PLAN	PLAN	PLAN
PLAN	PLAN	PLAN	PLAN	ELECTIVE	ELECTIVE	ELECTIVE	ELECTIVE

Core Courses Flowchart

Courses you need to do when completing a Bachelor of Computer Science (2026 Program)



- Lines indicate prerequisites (e.g. CSSE1001 is prerequisite to CSSE2002)
- Dotted lines indicate recommended prerequisites

FAQS

Are prerequisites enforced?

The following information is a general guide and may not reflect the specific structure of your program. UQCS strongly recommends regularly checking the official UQ program structure and course plans, as these can vary depending on your degree, major, and commencement year.

What happens if I fail a course?

Most UQ courses have hurdle requirements, mandatory assessments (like exams or projects) that must be passed to pass the course. If you fail a hurdle, you will fail the course even if your overall grade is above a 4.

Depending on the course and your performance, you might be eligible for a supplementary assessment or exam. This is a second chance to meet the hurdle requirement. If you pass the supplementary, you'll receive course credit, but the highest grade awarded is a 4 (Pass) and it will be written as a 3S4 on your transcript to indicate a supplementary was taken to pass the course.

If the course you failed is not compulsory, you may be able to replace it with a different elective. However, for mandatory courses, you will need to retake and pass them in order to meet your program requirements and graduate.

Do I need to choose a major?

No, selecting a major is not compulsory. Majors are structured specialisations designed by UQ to guide your study path. Though the single major BCompSc is already However, many students choose a "no major" pathway for more flexibility. We explore this option in detail in our Majors Overview section.

What if I'm in a double degree?

Students in a double degree usually take courses from both programs each semester, for example, two computer science courses and two from the other degree. Some degrees in EAIT (like Mathematics or Engineering) share overlapping courses, which can free up space for more electives in either program.

What if I've never coded before?

Many students begin the CS program without any prior coding experience. UQ's curriculum is designed with beginners in mind and starts from the basics. While some students may have prior experience, all students are taught from the same starting point. UQCS also provides additional resources for new coders, which you can find in our Resources section.

COURSES

Introduction to Software Engineering (CSSE1001)

What is the course?

This course serves as the first step into programming, using Python as the foundation. Designed for beginners, it introduces core programming concepts and problem-solving techniques essential to software development. You'll learn how to write clean, well-structured code and gain confidence in debugging and gain confidence in debugging and building simple software systems.

What will you learn?

- Fundamental programming concepts (variables, loops, conditionals, functions)
- How to debug and test your code effectively
- Basics of object-oriented programming (OOP) in Python
- Techniques for writing readable, maintainable and modular code
- Introduction to software development practices used by professionals

Course Highlights

- No prior coding experience required
- Hands-on Python exercises and weekly coding tutorials
- Build an application/game in assignment
- Early exposure to key software engineering ideas
- Builds strong foundation for computer science courses

Discrete Mathematics (MATH1061)

What is the course?

Discrete Mathematics is the mathematical foundation of computer science, introducing key structures and techniques used in logic, algorithms and computing theory. This course is designed to build the reasoning and abstraction skills essential for programming, algorithms, data structures and cryptography.

What will you learn?

- Propositional and predicate logic, and methods of proof
- Sets, relations and functions
- Graph theory fundamentals and basic number theory
- Counting techniques and introductory probability
- Binary operations, groups and finite fields

Course Highlights

- Builds logical and mathematical foundations for computer science
- Strong focus on problem-solving and rigorous thinking
- Core preparation for algorithms, cryptography and theoretical CS

*Students may also choose to take Advanced Discrete Mathematics (MATH1081)

COURSES

Introduction to Information Systems (INFS1200)

What is the course?

Students will explore essential concepts in the world of data, including database design and implementation, relational database technology, data modeling and management, SQL querying, normalisation, and data security. This course in Information Systems is designed for beginners seeking hands-on experience and a solid introduction to working with data.

What will you learn?

- Understand fundamentals in data modelling and relational database design
- Learn to write and execute SQL queries to retrieve and manage data
- Apply normalization techniques to organise data efficiently
- Explore key concepts in data security and integrity
- Gain practical experience in designing and implementing databases

Course Highlights

- Gaining practical experience managing and querying real-world datasets using SQL
- Learning how to efficiently store, organize and optimise data for performance and accuracy
- Apply data modelling and normalisation techniques to ensure structured, reliable datasets

Introduction to Software Innovation (COMP1100)

What is the course?

This introductory course explores innovation through the lens of computer science and information technology. Students will work in teams on a discipline-specific project to learn how innovations are created and delivered. From ideation to prototyping, this course equips beginners with the tools, processes, and collaborative experience needed to participate in technology-driven innovation.

What will you learn?

- Understand the meaning and process of innovation in technology
- Learn how to work effectively in a technology project team
- Apply decision-making strategies within the innovation lifecycle
- Use prototyping tools and methods to bring ideas to life
- Develop skills to communicate and deliver innovative solutions

Course Highlights

- Hands-on experience in delivering a real-world innovation project
- Learning how to turn ideas into prototypes using industry-relevant tools
- Developing teamwork, communication, and project planning skills

COURSES

Analysis of Scientific Data (STAT1201)

What is the course?

Students will understand the nature of scientific data and statistical analysis, developing skills necessary for research and critical judgement in science. This course teaches students about types of data, how each can be visualised and summarised, making informed decisions and predictions from statistical analysis and how to use mathematical tools to derive conclusions from scientific studies.

What will you learn?

- Explain the nature of scientific data within research
- Identify factors related to the designing and planning of scientific study
- Critically evaluate the role of data analysis, statistics and ethics within research
- Applying statistical procedures with software for exploratory data analysis
- Develop conclusions with clear planning and communication of results

Course Highlights

- Analysing scientific research and publications with critical evaluation techniques
- Planning and carrying out a research project using software while communicating results
- Developing teamwork, communication, and project planning skills

*Students may also choose to take Advanced Analysis of Scientific Data (STAT1301)

Ethical Practice in Computing (COMP2200)

What is the course?

Ethics in computer science has become a critical role in professional software development. Students will explore how everyday design and decisions can lead to social, legal and ethical consequences and grant exposure to the consequences of their technological choices beyond compliance.

What will you learn?

- Applying professional codes of conducts and frameworks for ethical decision making, bias and inclusion
- Identify and explain the consequences of technological choices within the bounds of the law
- Develop moral sensitivity and principles reasoning needed for responsible computing

COURSES

Programming in the Large (CSSE2002)

What is the course?

Programming in the Large builds on foundational coding skills, guiding students through advanced software engineering practices using Java. Through the construction of a complete application, students develop disciplined coding habits and learn to make thoughtful design decisions aligned with modern programming standards.

What will you learn?

- Apply object-oriented programming principles to structure and organize code effectively.
- Use unit testing, exception handling, and documentation to create reliable, maintainable software.
- Design and build scalable applications with a focus on software quality and best practices.

Course Highlights

- Build a complete Java application using professional coding techniques.
- Develop disciplined software habits through structured design and testing.
- Learn modern programming practices to write clean, efficient, and maintainable code.

Human Computer Interaction (DECO2500)

What is the course?

A studio based course providing students with an introduction to human-computer interaction and interaction design, including UI/UX, human-centered design and identifying problems within a application. Students will work on a project requiring the application off core concepts to design an interactive system and work collaboratively with a team.

What will you learn?

- Understanding Human-Computer Interaction through design elements
- Identifying problems and designing a product that solves the it with human-centered design
- Evaluating a user interactive system with HCI evaluation techniques
- Design a functional and interactive solution from design principles
- Analyse results of evaluation methods

Course Highlights

- Building frameworks, sketches and ideas and turning them into a functional product
- Learn how to critically evaluate a problem and design an effective human-centered solution
- Developing teamwork, communication and project planning skills while managing individual work

COURSES

Introduction to Computer Systems (CSSE2010)

What is the course?

Introduction to Computer Systems explores how computers work from the ground up, bridging the gap between hardware and software. Using both C and assembly language, students learn to build low-level applications while gaining hands-on experience with digital logic, computer architecture, and microcontroller-based systems.

What will you learn?

- Understand digital logic, circuits, and machine-level data representation.
- Explore computer organization, memory architecture, and system interfacing.
- Program microcontrollers and write assembly and C code for low-level system control.

Course Highlights

- Build physical applications by combining C, assembly, and hardware logic.
- Learn how computers execute code and manage data at the architectural level.
- Gain practical experience with low-level programming and building circuits.

Computer Systems Principles and Programming (CSSE2310)

What is the course?

This course introduces fundamental programming and computer systems concepts, with an emphasis on UNIX (Linux) environments and systems programming in C. Students will study core operating system principles such as processes, threads, virtual memory, file systems, and basic networking and learn how these services are provided to user programs through system calls. The course also provides hands-on experience with the Linux command line, including using common shell commands, writing simple shell scripts, and developing C programs that interact directly with the operating system.

What will you learn?

- Write, compile, run and debug C programs in a UNIX (Linux) environment.
- Understand and implement core operating system concepts such as processes, threads, inter-process communication, synchronisation, virtual memory, and file systems.
- Version control and Vim
- Design and build networked applications, including client–server programs using sockets, and understand the structure and protocols of the IP networking stack.

Course Highlights

- Become comfortable using the UNIX shell, writing scripts, and managing files and permissions.
- Gain practical, industry-relevant skills: use version control, debug complex programs and apply secure and defensive programming techniques
- Hands-on systems programming in C. Write programs from scratch that interact directly with the operating system using system calls

COURSES

Algorithms and Data Structures (COMP3506)

What is the course?

This course introduces students to core data structures and algorithms, focusing on how abstract data types are represented and manipulated in memory and storage. You'll explore the foundations of efficient computation, including performance analysis and the use of key data structures like lists, trees, hash tables, and graphs. Mastery of these concepts is not only essential for building robust software but also critical for success in technical interviews and coding assessments.

What will you learn?

- Understand abstract data types and their real-world applications
- Analyse the time and space complexity of algorithms
- Implement core data structures
- Apply sorting and searching techniques to solve computational problems
- Develop problem-solving skills valued in software engineering and tech industry interviews

Course Highlights

- Developing efficient, scalable code using appropriate data structures
- Comparing performance and trade-offs of different data representations
- Building and manipulating data structures for use in real-world systems
- Gaining foundational skills that are heavily tested in technical interviews

Design Computing Studio 3 - Build (DECO3801)

What is the course?

A studio-based capstone design projects course in which interdisciplinary teams design and implement a significant software/IT prototype in a practice-based setting and according to a project brief specification with industry level project deadlines. The course consolidates and expands on students' previous experience, with a focus on project-based learning. The course enables students to showcase technical and professional skills gained during their study program and apply these effectively to assess abilities in teamwork, project management, communication skills, and the analysis of user experience, ethics, and security in relation to the design and implementation of a substantial software prototype project.

Note: It is advisable to “pre-form” your group with peers you would want on your team before coming into the course to have the highest chance of success.

What will you learn?

- New technologies depending on the project you select
- Agile development and project management skills
- How to communicate with external stakeholders in the design phase

Course Highlights

- Building a tangible product in a team of 6 that you get to showcase to your peers, faculty and industry connections
- Managing expectations and deadlines when designing and developing a product

MAJORS

Choosing a Major

At UQ, Computer Science students can choose from the following majors:

- **Artificial Intelligence**
- **Cyber Security**
- **Data Science**
- **Programming Theory**

Majors are specialised pathways that allow students to develop deeper expertise in a particular area of computer science. While all students must complete the core compulsory courses to graduate, majors offer a structured set of electives aligned with specific skill sets and career goals. Each major is explored in greater detail in its own section.

Majors are available only to students enrolled solely in the Bachelor of Computer Science. Students undertaking a dual degree (e.g. Computer Science + Arts) are not eligible to declare a major, but may use majors as a guide when selecting electives.

The No Major Pathway

The no major option is ideal for students who want flexibility and breadth in their degree. Rather than specialising in a single area, you can explore a wide range of topics and tailor your learning to suit your interests. Many students use this pathway to discover what they're truly passionate about. However, it's important to ensure your course choices still meet graduation requirements, so planning ahead is strongly recommended.

Students often suggest loosely basing your course selection around a major that interests you. This keeps your learning structured while still allowing room to branch out. Talk to peers, senior students, or members of the UQCS community to find out which courses are engaging or useful.

Most importantly, use this pathway to challenge yourself, not to avoid difficult courses. Take advantage of the freedom it offers to build a degree that reflects your interests, curiosity, and long-term goals.

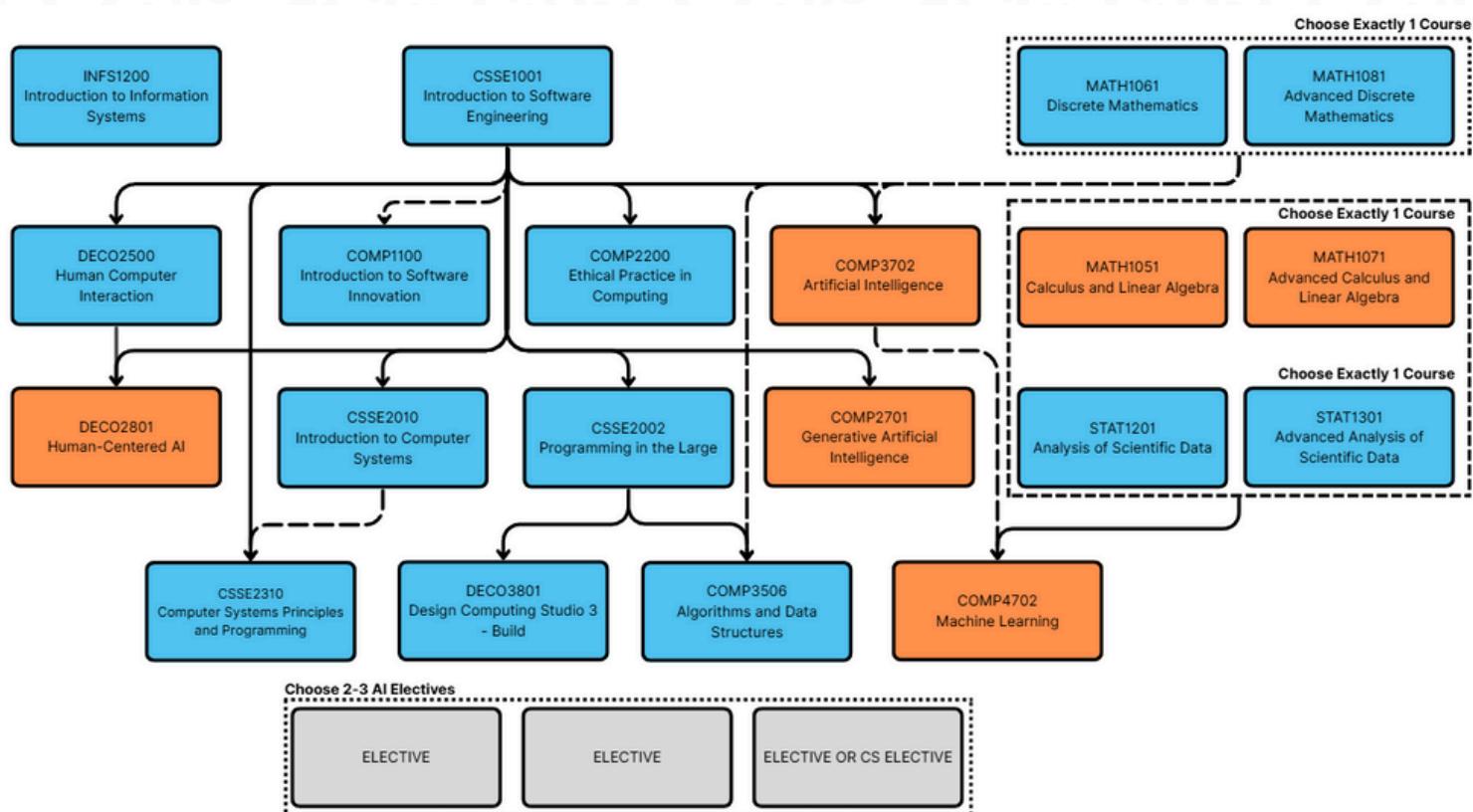
ARTIFICIAL INTELLIGENCE

The Artificial Intelligence major focuses on the design and analysis of algorithms that enable computers to learn from data and make predictions or decisions without being explicitly programmed. You will study core topics such as supervised and unsupervised learning, neural networks, deep learning, probabilistic models and analysis. These are supported by foundations in mathematics, statistics and programming.

You will learn how to build models that can detect patterns, make forecasts and drive automated decision-making in complex environments. The major also explores real-world applications across fields like healthcare, finance, robotics and policy design, preparing you to contribute to the development of intelligent systems

Career Possibilities:

- **AI Engineer**
- **Machine Learning Engineer**
- **Data Engineer**
- **Software Engineer**
- **Data Scientist**
- **Research Scientist**



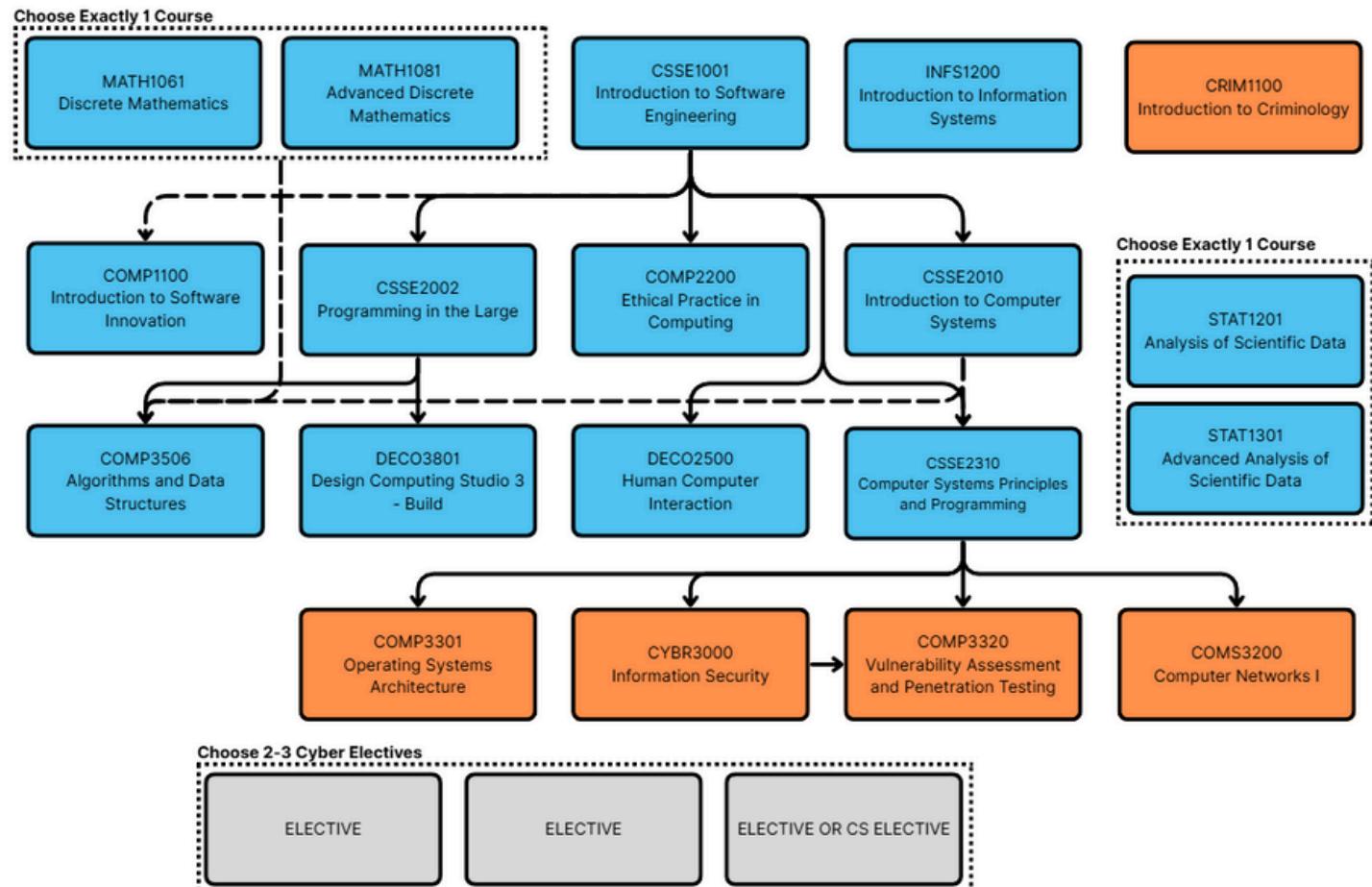
CYBER SECURITY

The Cyber Security major at UQ focuses on the theory and practical skills needed to protect digital systems and networks from malicious threats. Students will study core concepts in system and network security, secure programming, cryptography, and risk management. The program also includes hands-on experience in ethical hacking, penetration testing, and digital forensics, enabling students to understand how attacks occur and how to design effective defences.

Throughout this major, students will explore the processes involved in identifying vulnerabilities, responding to security breaches, and implementing long-term security solutions. Emphasis is placed on both technical knowledge and the legal and ethical considerations of cyber operations. This prepares graduates to work across a range of domains where digital security is critical.

Career Possibilities:

- **Cyber Security Analyst**
- **Ethical Hacker**
- **Security Architect**
- **Networks Engineer**
- **Systems Engineer**
- **Software Engineer**



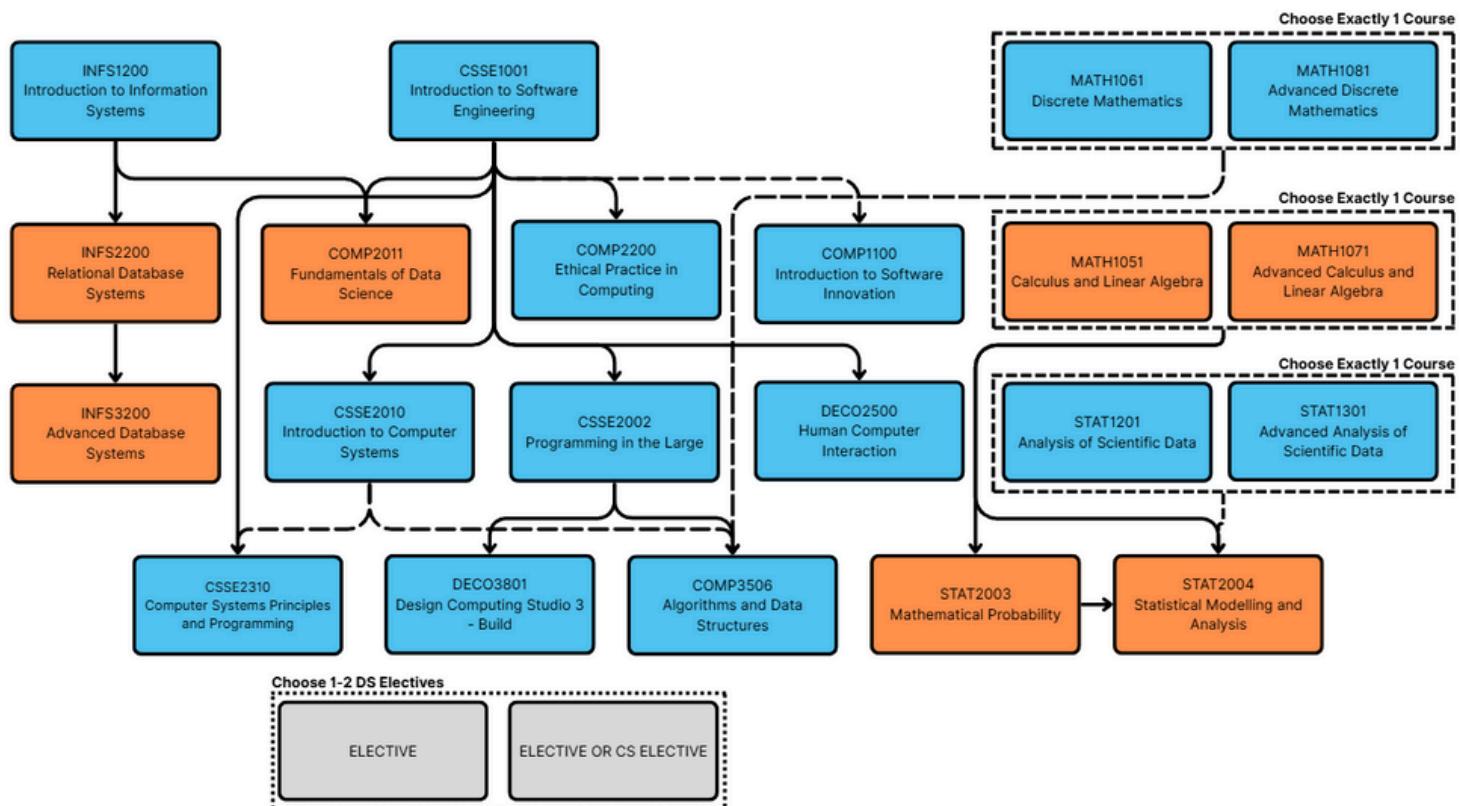
DATA SCIENCE

The Data Science major teaches you how to work with large-scale data, from collection through to analysis and interpretation. You'll study foundational techniques in data wrangling, statistical modelling, machine learning for data, and data visualisation, as well as tools for handling both structured and unstructured data. Courses also cover database systems, programming for data analysis, and the ethical considerations of data use.

This major prepares you to transform raw data into meaningful insights that support decision-making in business, science, and government. You'll gain the skills to work across the full data pipeline from managing data storage to building predictive models, equipping you for roles that require both technical expertise and analytical thinking.

Career Possibilities:

- **Data Scientist**
- **Business Analyst**
- **Data Engineer**
- **Cloud Engineer**
- **Research Scientist**
- **Software Engineer**



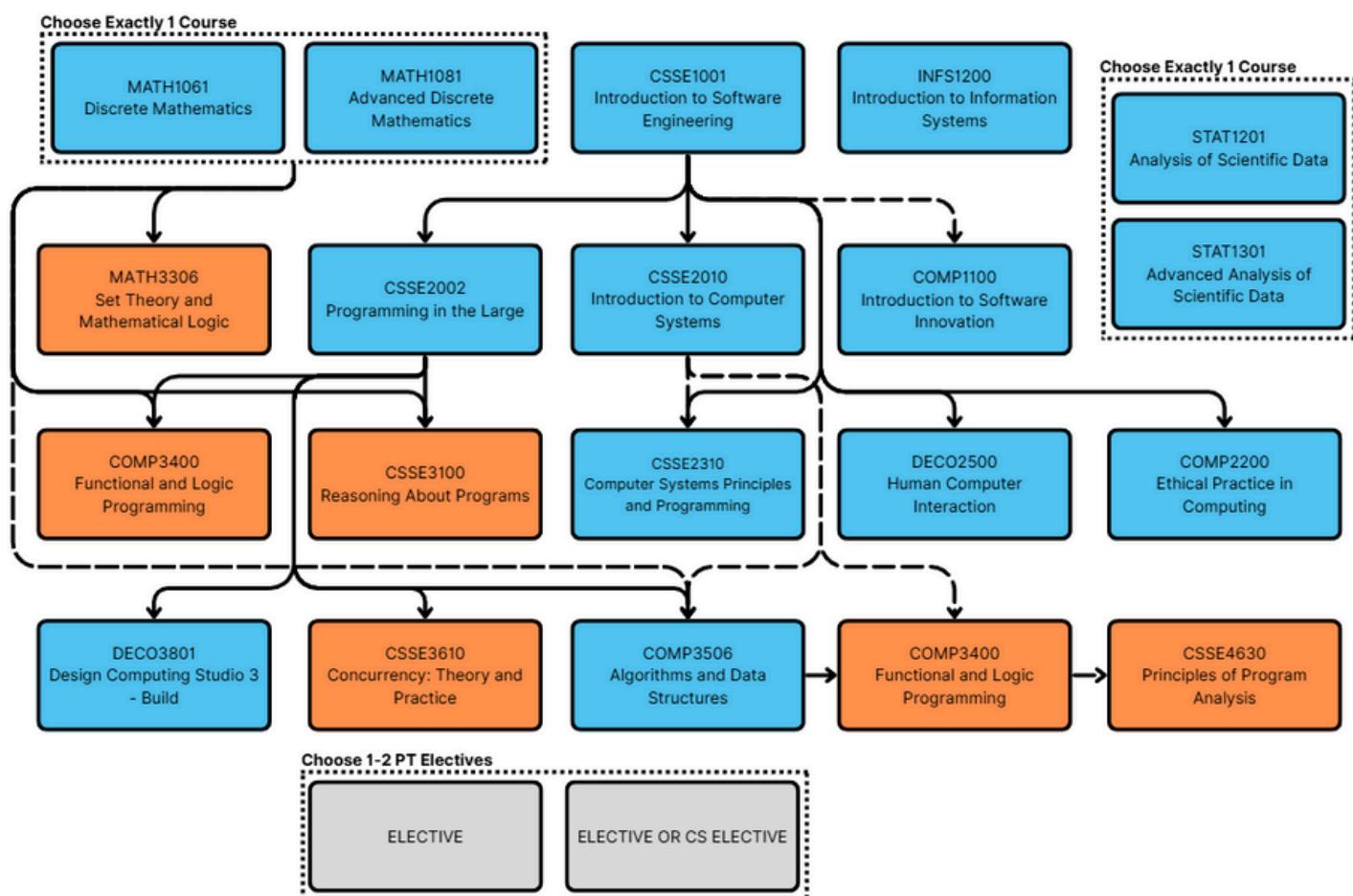
PROGRAMMING THEORY

The Programming Theory major explores the principles behind the design, implementation, and use of programming languages. You'll study different programming paradigms such as functional, object-oriented, and logic-based approaches and learn how these influence the way software is written and executed. Core topics include language syntax and semantics, compiler construction, and software correctness.

This major focuses not only on writing code, but on understanding how languages work and how they can be improved or adapted for different problem domains. You'll gain deep insight into both the theory and practice of programming, supporting careers that involve building complex, reliable, and efficient software systems.

Career Possibilities:

- **Software Engineer**
- **Computational Scientist**
- **Systems Analyst**
- **Research Scientist**
- **Software Architect**
- **Cyber Security Analyst**



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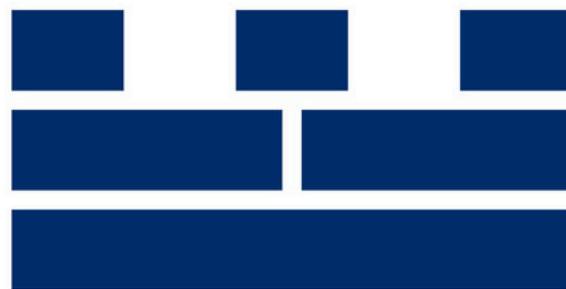
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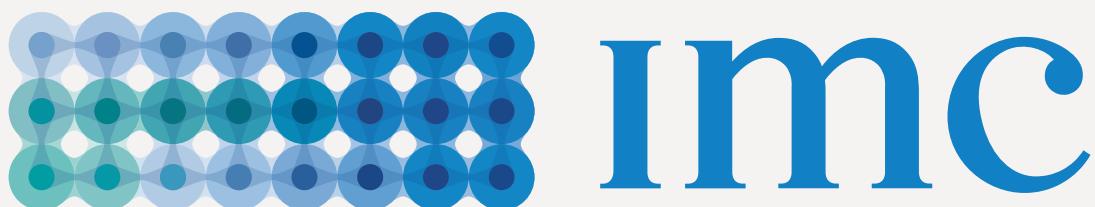
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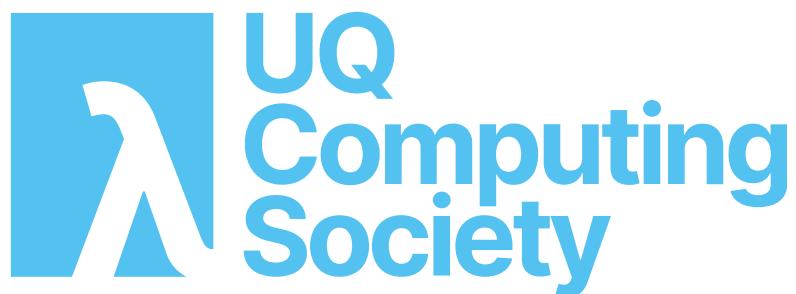
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