Are you curious? So are we. For over 160 years we’ve been seeking the answers to life’s big questions, and the solutions to the world’s grand challenges. We’ve been there at some of the biggest breakthroughs in science, and we don’t plan to stop anytime soon. That’s where you come in.

With science, your options are practically limitless. You could find the answer to a question that hasn’t even been asked, and build a career in a job that hasn’t been invented. Science sets you apart from the crowd and, in today’s job market, that’s important. In tomorrow’s job market, that could be crucial.

Join us and you’ll learn from and be inspired by some of the world’s finest thinkers, alongside other ambitious and talented graduate students. It starts with graduate study in science at the University of Melbourne. Where it goes – well, that’s up to you.

We love science and we hope you do too.
Melbourne has been ranked by The Economist as one of the world’s most liveable cities every year since 2002.

We’re famous for our coffee culture, and we have more restaurants and cafes per number of people than any other city in the world.

As the sporting capital of the world, Melburnians love getting out to watch or play everything from tennis to football to cricket.

Melbourne is always playing host to festivals, live music, theatre and art exhibitions, so you’ll never be short of things to do and see.

Our University

We’re the No. 1 university in Australia
Rated by Times Higher Education, Shanghai Jiao Tong University, CWUR World University Rankings 2019.

We’re No. 1 in Australia for Biological Sciences, Computer Science & Information Systems and Mathematics
Rated by QS Rankings.

We’re No. 1 in Victoria for Geography, Earth Sciences, Environmental Sciences and Physics & Astronomy

Our Campuses

Parkville

Our Parkville campus is its own little city, with cafes, libraries, gyms, specialty stores and even a seasonal farmer’s market.

Burnley

Our Burnley campus is in Melbourne’s inner east, set amongst nine hectares of heritage-listed gardens.

Creswick

Creswick campus sits on 20 hectares surrounded by native and plantation forests, 120 kilometres from Melbourne.

More than 1350 graduate students and 650 graduate research students are part of the Faculty of Science.

We received $80 million in research funding in 2017 alone.

Our Faculty

Including the Centres of Excellence for Exciton Science, Climate Extremes, and Quantum Computation & Communication Technology.

Melbourne is connected by an extensive network of trains, trams and buses that will get you everywhere from our bay beaches in the south to the mountain ranges in the east and right through the heart of the CBD.

We sit in the heart of the Melbourne Biomedical Precinct, a renowned knowledge hub that’s home to 30 hospitals, research organisations and biotechnology institutes.

Melbourne experience

Science at Melbourne
LIBRARIES & LEARNING SUPPORT

Make use of 12 libraries and access to databases, ebooks and ejournals.

- If you’re a night owl, some libraries have extended hours zones available from 7am until 1am for most of the year.

- Get assistance from the Academic Skills Team, with workshops, individual tutorials and resources on essay writing skills, exams preparation or time management.

Take the Diagnostic English Language Assessment (DELA) to receive your personal language profile. You can then sign up for our free English Language Development Program for targeted language support to set you up for success.

- 12 x Libraries
- 7am-1am

EVENTS, ENTERTAINMENT & ACTIVITIES

From trips to the University’s lodge on Mt Buller with the Ski Club to volunteering for the University chapter of a global non-profit, we have a club or society for every interest.

- There’s entertainment on campus almost every day, from public lectures featuring world-renowned speakers to live music in North Court and bustling night markets.

- As a Faculty, we host Science Festival annually during National Science Week. This five-day event includes free activities, trivia, movie screenings, public lectures, a keynote address, and a whole lot more.

Entertainment & activities on campus

- 12 x Libraries

ENRICHMENT OPPORTUNITIES

Become an Ambassador for the Faculty of Science and tap into leadership training and volunteer opportunities.

- Participate in In2Science, a mentoring program that places university students into low-socioeconomic high school science classrooms.

- Make it all count through the Leaders in Communities Award and get your extracurricular experiences recognised on your transcript.

- If you’re a graduate research student, join our long weekend Thesis Boot Camp during your writing-up stage.

- Compete in the 3-Minute Thesis competition, and maybe even win all the way through to the world finals!

INTERNSHIPS, INDUSTRY & EMPLOYABILITY

We’re rated sixth in the world in the 2019 QS Graduate Employability Rankings.

- Apply for Job Ready, a free short course designed to enhance your employability and communication skills.

- Complete an internship or industry project in organisations including government departments, global corporations and even start ups!

- Attend our industry events and other activities throughout the year, with the Faculty and the wider University.

- The STEM Industry Mentoring Program connects Science and Engineering students with alumni and industry professionals. You can make connections in industry to challenge, motivate and inspire you.

CONNECT WITH US

- science.unimelb.edu.au
- pursuit.unimelb.edu.au/science-matters
- 13MELB (13 6352)
- International: +(61 3) 9035 5111
- @unimelb.edu.au
- SciMelb
MASTER OF SCIENCE COURSES

Deepen your knowledge and develop your research skills, while working alongside our leading academics, industry partners, the community and the government. These two-year courses involve research projects that allow you to delve deep, gaining research experience through every phase of the scientific process. Along the way, you’ll build industry skills and know-how to prepare you for whatever science career your future holds.

"I wanted to get hands-on and apply the theory of lectures to a real-life situation. My experience in the Indonesian Institute of Science Physics Research Centre has given me the chance to follow a research path but work with the industry to find out how useful my research could be."

Kahl Mitchell, Master of Science (Physics)

Pathway to PhD or industry

Our Master of Science courses are the best preparation for a PhD in science. You’ll also be building your professional skills while gaining a graduate qualification, so you’ll be ready for whatever future you choose.
MASTER OF SCIENCE (BIOINFORMATICS)

Fast facts:

ATES + DURATION

Commmencing Start Year (February/March) and Mid-Year (July)*

Duration 2 years full-time (part-time available^)

ENTRY REQUIREMENTS

An undergraduate degree with a major in a relevant discipline: biology and biomedicine, computer science or mathematics and statistics, with a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third year level, and completion of MAST10005 Calculus 1 (or equivalent).

SUPERVISION

You do not need to contact a supervisor prior to applying.

FEES

Annual fees in 2021 Domestic: $33 536 Commonwealth Supported Places available International: $46 048

MASTER OF SCIENCE (BIOINFORMATICS)

Bioinformatics combines genetics, molecular biology, biochemistry and physiology with computer science, statistics and applied mathematics.

You’re unlikely to have all these skills before you start, so you’ll take a customised first year based on your background, followed by a common second year that will build your broad knowledge of bioinformatics. This includes a 50-point research project, where you’ll be matched with expert researchers and practitioners from across the Melbourne Biomedical Precinct, developing and applying bioinformatics tools to real-world problems.

With demand for bioinformaticians growing globally, you’ll be well placed to use the skills and networks you develop during this course to build a career with a research-focused company, or with public research institutes like hospitals, universities and government agencies.

Sample Course Plan

Biology/Biomedicine Stream with Research Project Stream A*

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Mathematics & Statistics Stream with Research Project Stream B

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Computer Science Stream with Research Project Stream A

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^Research subjects must be completed in consecutive semesters.
MASTER OF SCIENCE (BIOSCIENCES)

Fast facts:
- START: February/March
- END: February/March (full-time)
- DURATION: 2 years full-time
- FEE: $7,968 Commonwealth Supported Places available

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline: biomedicine, computational biology, ecology, evolutionary biology, environmental science, genetics, physiology, plant science, veterinary science or zoology, with a weighted average mark of at least 65% in the best 50 points (75% equivalent) in appropriate discipline studies at third year level.

SUPERVISION
You will need to find a supervisor before applying, and complete the Supervision Form. You can find this, and more information about our academic staff members and their areas of research, by visiting: go.unimelb.edu.au/bcta

SPOTLIGHT ON CAREERS
We have alumni in government, working with the Federal Department of Environment. Others are in the Northern Territory with the NT Environmental Protection Agency, or somewhere offshore on the coast with the Australasian Marine Oil Spill Centre. We also have lots of alumni conducting great research right here at the University, with associated institutes like the Centre for Aquatic Pollution Identification & Management, and with our partners including Museums Victoria.

Sample Course Plan
Year 1
Sem 1: Current Topics in Developmental Genetics, Thinking & Reasoning with Data, Microscopy for Biological Sciences, Research Project Part 1a
Sem 2: Tissue Engineering and Stem Cells, Advanced Molecular Biology Techniques, Research Project Part 2a

Year 2
Sem 1: Communication for Research Scientists, Research Project Part 3a
Sem 2: Research Project Part 4a

*Research subjects must be completed in consecutive semesters.

MASTER OF SCIENCE (CHEMISTRY)

Fast facts:
- START: February/March
- END: February/March (full-time)
- DURATION: 2 years full-time
- FEE: $9,936 Commonwealth Supported Places available

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant chemistry discipline, with a weighted average mark of at least 65% in the best 50 points (75% equivalent) in appropriate discipline studies at third year level, and at least 25 points (two subjects) of third year university-level chemistry subjects, of which 12.5 points (one subject) must be practical-based.

SUPERVISION
You are encouraged to contact potential supervisors before applying and need to list three potential supervisors as part of your application. You can find out more about our academic staff members and their areas of research online: go.unimelb.edu.au/mstr

SPOTLIGHT ON FACILITIES
Some of our research groups are based in the Bio21 Molecular Science & Biotechnology Institute, which is the University’s core multidisciplinary research and development centre. All of our researchers have access to some of the most advanced and innovative equipment and facilities in the country.

Sample Course Plan
Year 1
Sem 1: Organic Electronics, Synchrotron & NMR Structural Techniques, Communication for Research Scientists, Research Project Part 1a
Sem 2: Catalysis, Lasers in Chemistry, Advanced Materials & Characterisation, Biological & Medicinal Chemistry, Research Project Part 2a

Year 2
Sem 2: Research Project Part 4a

*Research subjects must be completed in consecutive semesters.
MASTER OF SCIENCE (EARTH SCIENCES)

Which part of our planet do you want to explore? Deep beneath the lithosphere, or out into the atmosphere? Our research covers all of it, from the solid Earth to the fluid Earth and the processes that operate at the interface of these regions.

You’ll be able to narrow your focus through the Master of Science (Earth Sciences), choosing from either a geology or atmospheric science stream and drilling down (or up) even further. Your major focus in the course will be your research project, which you’ll complete under the supervision of one of our academic experts. Our current areas of activity include climate variability and change, weather phenomena, the formation of rocks, melts and minerals, sedimentary geology, environmental geosciences, and archaeological science.

If you have a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third year level, with a major in a relevant discipline (e.g., geology, hydrology, soil science, genetics, geography, environmental psychology, landscape management, environmental engineering, etc.), you may be eligible for the Graduate Research Program in Science. This is a 5-year course of study made up of the Master of Science (Earth Sciences) and a PhD in the same field.

SPOTLIGHT ON COLLABORATION

We are a key partner in the Victorian Institute of Earth & Planetary Sciences, – or “VIEPS” – a cooperative education and research initiative that enables our students to study earth sciences or geoscience subjects at different participating institutions. Because of this, you’ll have access to the best academic experience and expertise from across the region, supported by a strong commitment from industry and government partners.

Sample Course Plan

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<th>Research subject</th>
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<td>Climate Science for Decision-Making</td>
<td>General Circulation of the Atmosphere</td>
<td>Elective</td>
<td>Research Project Part 1a</td>
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<tr>
<td>2</td>
<td>Mesoscale Atmospheric Dynamics</td>
<td>Science Communication</td>
<td>Research Project Part 2a</td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Data Assimilation and Model Improvement</td>
<td>Research Project Part 3a</td>
<td></td>
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<tr>
<td>2</td>
<td>Research Project Part 4a</td>
<td></td>
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</tr>
</tbody>
</table>

Fast facts:

DATES + DURATION

Commencing
Start Year (February/March) and Mid-Year (July)
Duration
A year full-time (part-time availablea)

ENTRY REQUIREMENTS

An undergraduate degree with a major in a relevant discipline (agricultural science, biochemistry, botany, chemistry, climate and weather, engineering, environmental science, food science, genetics, geography, geology, mathematics, microbiology, physics, plant science or zoology), with a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third year level.

SUPERVISION

You will need to find a supervisor before applying, and complete the Supervision Form. You can find this, and more information about our academic staff members and their areas of research, by visiting go.unimelb.edu.au/r7ia.

FEES

Annual fees in 2021
Domestic: $33 536
Commonwealth Supported Places available
International: $46 048
International Science Graduate Scholarships available

MASTER OF SCIENCE (ECOSYSTEM SCIENCE)

Fire and frost; drought and flood; summer and winter. Ecosystems are ever-changing. Add the spectre of climate change and it’s clear that understanding and protecting our diverse ecosystems is a major, ongoing challenge. Will you accept that challenge in your career?

Complete a major research project with one of our research teams in conservation biology, ecology, environmental psychology, landscape management, forest science, horticulture, hydrology and more. Complement this with a professional skills module that gives you high-level training in science communication, data analysis, modelling, ethics and leadership in science, and you’re on your way to a career in academic research, environmental consultancies, local government or an environmental NGO.

SPOTLIGHT ON RESEARCH

The Master of Science (Ecosystem Science) is an ideal starting point for research in this field, and our first-ever student, Sarah McColl Gausden, is a perfect example of this pathway.

Sarah’s enjoyment of a fire ecology subject in her Bachelor of Science led her to the Master of Science (Ecosystem Science) and a research project supervised by Associate Professor Trent Pennman. Sarah is now completing a PhD with Dr Pennman, examining whether fire management can be used to maintain and enhance biodiversity in a changing climate.

Sample Course Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Core subject</th>
<th>Research subject</th>
<th>Professional Skills subject</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graduate Seminar: Ecology for Decision-Making</td>
<td>Plants in the Landscape</td>
<td>Research Project in Ecosystem Science Part 1a</td>
<td></td>
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<tr>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Statistics for Research Workers</td>
<td>Communication for Research Scientists</td>
<td>Research Project in Ecosystem Science Part 2a</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>1</td>
<td>Landscape Ecology</td>
<td>Environmental Modelling</td>
<td>Research Project in Ecosystem Science Part 3a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Research Project in Ecosystem Science Part 4a</td>
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</tr>
</tbody>
</table>

*Research subjects must be completed in consecutive semesters.

Sample Course Plan

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<th>Year</th>
<th>Sem 1</th>
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<th>Research subject</th>
<th>Professional Skills subject</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graduate Seminar:</td>
<td>Plants in the Landscape</td>
<td>Research Project in Ecosystem Science Part 1a</td>
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*Research subjects must be completed in consecutive semesters.

Fast facts:

DATES + DURATION

Commencing
Start Year (February/March) and Mid-Year (July)
Duration
A year full-time (part-time availablea)

ENTRY REQUIREMENTS

An undergraduate degree with a major in a relevant discipline (agricultural science, biochemistry, botany, chemistry, climate and weather, engineering, environmental science, food science, genetics, geography, geology, mathematics, microbiology, physics, plant science or zoology), with a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third year level.

SUPERVISION

You will need to find a supervisor before applying, and complete the Supervision Form. You can find this, and more information about our academic staff members and their areas of research, by visiting go.unimelb.edu.au/r7ia.

FEES

Annual fees in 2021
Domestic: $33 536
Commonwealth Supported Places available
International: $46 048
International Science Graduate Scholarships available

*Research subjects must be completed in consecutive semesters.
MASTER OF SCIENCE (EPIDEMIOLOGY)

Fast facts:

DATES + DURATION
Commencing Start Year (February/March) and Mid-Year (July)
Duration 2 years full-time (part-time available^)

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline, with a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third year level.

SUPERVISION
You do not need to contact a supervisor prior to applying.

FEES
Annual fees in 2021
Domestic: $33,536
International: $46,048

Sample Course Plan

Year 1
Sem 1 Epidemiology 1 Biostatistics Epidemiology of Epidemics The Art of Scientific Computation
Sem 2 Epidemiology 2 Linear & Logistic Regression Survival Analysis & Regression for Rates (Siep) Science Communication

Year 2
Sem 1 Epidemiology 3 Infectious Disease Epidemiology Research Project Part 1^* Genetic Epidemiology Infectious Diseases Modelling Research Project Part 2^*
Sem 2

*Research subjects must be completed in consecutive semesters.

SPOTLIGHT ON RESEARCH

Our epidemiologists from the School of Population & Global Health work with organisations like the World Health Organization to translate research into real-world results.

One team has been aiming to alleviate the burden of tuberculosis amongst adolescents and young adults, who still contract and transmit the disease in disproportionate numbers, while another of our researchers is focusing on viral hepatitis and the significant public health consequences of a largely undiagnosed illness.

Become a medical detective, tackling cases that impact global health. Use your powers of deduction, and some maths and data wizardry, to solve puzzles about who gets disease, what causes these diseases and how they can be prevented.

The Master of Science (Epidemiology) teaches you the science of public health. You’ll get a lot of practice working with numbers and other data, but you’ll also build an understanding of clinical research and practice, and develop your critical thinking, business and communication skills.

You’ll study in the highly respected School of Population and Global Health, with unique access to a huge range of resources and research areas of importance for public health in Australia and globally. You’ll also contribute to this research through your own research project. After completing the Master of Science (Epidemiology), you’ll be ready for further study through a PhD, or for work in medical research institutes, pharmaceutical and other biotechnology companies, and government and not-for-profit organisations.

MASTER OF SCIENCE (MATHEMATICS & STATISTICS)

Fast facts:

DATES + DURATION
Commencing Start Year (February/March) and Mid-Year (July)
Duration 3 years full-time (part-time available^)

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline, with a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third year level.

SUPERVISION
You do not need to contact a supervisor prior to applying.

FEES
Annual fees in 2021
Domestic: $33,536
International: $46,048

Sample Course Plan

Year 1
Sem 1 Measure Theory Differential Topology and Geometry Elective The Art of Scientific Computation
Sem 2 Representation Theory Elective Elective Research Project Part 1^*

Year 2
Sem 1 Algebraic Topology Functional Analysis Elective Research Project Part 2^*
Sem 2 Elective Elective Research Project Part 3^*

^Research subjects must be completed in consecutive semesters.
## MASTER OF SCIENCE (PHYSICS)

**Fast facts:**
- **DATES + DURATION**
  - Commencing Start: (February/March)
  - Duration: 4-year full-time (part-time available)*

**ENTRY REQUIREMENTS**
An undergraduate degree with a major in a relevant discipline, chemical physics, engineering, mathematical physics, mathematics, physics or statistics, with a weighted average mark of at least 65% in the best 50 points (UoM equivalent) in appropriate discipline studies at third-year level, and prerequisite studies in quantum mechanics at both second and third-year university level. Studies in electrodynamics and statistical physics at third-year university level are recommended.

**SUPervision**
You do not need to contact a supervisor prior to applying, but you do need to list three potential supervisors from two different research areas in order of preference as part of your application. You can find out more about our academic staff members and their areas of research in the Research Project Information booklet, available by visiting physics.unimelb.edu.au/project-info

**FEES**
Annual fees in 2021
- Domestic: $53,156 Commonwealth Supported Places available
- International: $46,048 International Science Graduate Scholarships available

**SPOTLIGHT ON RESEARCH**
Dr Bryn Sobott, Dr David Peake and Associate Professor Roger Rassool are in Mozambique field-testing their FREED Siphon, which delivers medical-grade oxygen to critically ill newborns without needing an electrical source. Professor Elisabetta Barberio is in a converted mine in rural Victoria, searching for dark matter at the Stawell Underground Physics Laboratory. And Professor Andrew Melatos is looking to the skies and liaising with LIGO in California and Massachusetts as part of the team who proved the existence of gravitational waves in 2016.

**Sample Course Plan**

<table>
<thead>
<tr>
<th>Core subject</th>
<th>Research subject</th>
<th>Professional Skills subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Quantum Mechanics</td>
<td>Quantum Field Theory</td>
</tr>
<tr>
<td>Sem 1</td>
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<td>Statistical Mechanics</td>
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<td></td>
<td>Research Project Part 1*</td>
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<tr>
<td></td>
<td>General Relativity</td>
<td>Condensed Matter Physics</td>
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<tr>
<td>Sem 2</td>
<td></td>
<td>Quantum &amp; Advanced Optics</td>
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<td></td>
<td>Research Project Part 2*</td>
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<tr>
<td>Year 2</td>
<td>Physical Cosmology</td>
<td>Communication for Research Scientists</td>
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<tr>
<td>Sem 1</td>
<td></td>
<td>Research Project Part 3*</td>
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<tr>
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<td>Research Project Part 4*</td>
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</tbody>
</table>

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## MASTER OF BIOTECHNOLOGY

**Fast facts:**
- **DATES + DURATION**
  - Commencing Start: (February/March)
  - Duration: 4-year full-time (part-time available)*

**ENTRY REQUIREMENTS**
An undergraduate degree with a major in a relevant discipline, chemistry or life sciences, with a weighted average mark of at least 65%, including an appropriate sequence of at least 25 points (two subjects) of second-year genetics or biochemistry subject (or equivalent), and either GEN30002, BCOM30002 or equivalent studies in molecular biology, molecular genetics, genomics and/or bioinformatics in the final year of undergraduate study.

**FEES**
Annual fees in 2021
- Domestic: $53,156 Commonwealth Supported Places available
- International: $46,048 International Science Graduate Scholarships available

**SPOTLIGHT ON CAREERS**
The Biotechnology Industry Project helps our students become highly sought after employees by pairing them with industry leaders and setting them to work on real-world assignments. In 2019, industry partners and projects included:

- If you are looking to leverage your existing knowledge and sharpen your business and technical skills in this sector, consider the Graduate Certificate in Biotechnology (Enterprise). Find out more at go.unimelb.edu.au/mudj

**Sample Course Plan**

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<td>Project Management In Science</td>
<td>From Lab to Life</td>
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<td>Sem 1</td>
<td>Genomics &amp; Bioinformatics</td>
<td>Microscopy for Biological Sciences</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>Advanced Molecular Biology Techniques</td>
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<tr>
<td></td>
<td>Science and Technology Internship</td>
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</tr>
<tr>
<td>Year 2</td>
<td>Data &amp; Decision Making</td>
<td>Genetically Modified Organisms</td>
</tr>
<tr>
<td>Sem 1</td>
<td>Leadership in Science</td>
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<td></td>
<td>Scientists, Communication &amp; the Workplace</td>
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<tr>
<td></td>
<td>Elective</td>
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</table>

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*SMA*++

1. Research subjects must be completed in consecutive semesters.

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**Spotlight on Careers**

- **Biotechnology Industry Project** helps our students become highly sought after employees by pairing them with industry leaders and setting them to work on real-world assignments. In 2019, industry partners and projects included:
  - If you are looking to leverage your existing knowledge and sharpen your business and technical skills in this sector, consider the Graduate Certificate in Biotechnology (Enterprise). Find out more at go.unimelb.edu.au/mudj

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*SMA*++

1. Research subjects must be completed in consecutive semesters.
**MASTER OF COMPUTATIONAL BIOLOGY**

**Fast facts:**

**DATES + DURATION**
- Commencing: Start Year (February/March)
- Duration: 3 years full-time (part-time available)

**ENTRY REQUIREMENTS**
- An undergraduate degree with a major in a relevant discipline: biology, biomedicine, computational biology, computer science, mathematics and statistics, or physics, with a weighted average mark of at least 65%, and MAST10005 Calculus 1 (or equivalent).

**Sample Course Plan Year 1**

**BioSciences/Biomedical Background**
- Year 1: Semester 1: Introduction to Programming (Summer), Elements of Probability, Elements of Data Processing, Biological Modelling and Simulation

**Computer Science Background**
- Year 1: Semester 1: Genes, Molecules & Cells, Elements of Probability, Biological Modelling & Simulation

**Statistics Background**
- Year 1: Semester 1: Genes, Molecules & Cells, Introduction to Programming (Summer), Biological Modelling & Simulation
- Year 1: Semester 2: Statistical Genomics, Elements of Data Processing, Algorithms & Complexity, Elective

**Years 2 and 3 (for all above)**
- Year 2: Semester 1: Advanced Biological Modelling: Dynamics, Computational Genomics, Statistics for Bioinformatics, Genomics and Bioinformatics
- Year 2: Semester 2: Environmental Modelling, Advanced Statistical Genomics, Algorithms for Bioinformatics, Elective
- Year 3: Semester 1: Research Project in Computational Biology part 1, Elective, Elective, Elective for Bioinformatics Case Studies
- Year 3: Semester 2: Research Project in Computational Biology part 2, Elective, Elective, Elective for Bioinformatics Case Studies

**Fees**
- Domestic: $33,536
- Commonwealth Supported Places available
- International: $46,048
- International Science Graduate Scholarships available

**Spotlight on Research**

Professor James McCaw, mathematical biologist, worked with colleagues and the Defence Science Technology Group to develop EpiFX, a forecasting tool that uses routinely collected health data to predict disease in the event of a bioterrorist attack or new pandemic. We’re using advanced techniques to study a range of problems in biology like using machine learning to uncover patterns in genetics, all the way through to using applied mathematics and nonlinear equations to help harvest fish from the ocean in a sustainable way.

Mathematics and computation are becoming some of the most important tools to make progress in biology. As part of the Master of Computational Biology you’ll work on an industry project applying the techniques and skills to a problem relevant to that industry. We’re using advanced techniques to study a range of problems in biology like using machine learning to uncover patterns in genetics, all the way through to using applied mathematics and nonlinear equations to help harvest fish from the ocean in a sustainable way.

**Fast facts:**

At the intersection of biology, mathematics and computer science sits computational biology.

This unique discipline requires a unique qualification. The Master of Computational Biology builds specialist skills in data analytics for biology, including systems biology, genomics, and biological and ecological modelling. You’ll also develop complementary skills in business, communications and general scientific acumen.

Computational biology is a growing, in-demand discipline, and jobs requiring these skills are constantly emerging and evolving. We are already using computational biology to track and control the outbreak of disease, to improve control strategies for invasive species, and to understand the role of genomes in defining our appearance. Imagine what we’ll be doing next.
Back in 2012, the Harvard Business Review labelled data science the “sexiest job of the 21st century.”

If by that they meant that jobs in data science were increasing dramatically, that data scientists can work in fields as diverse as health, retail or ecology, and that data scientists are commanding median salaries of upwards of $100,000 per year, then they were spot on. After all, we’re creating more than 2.5 exabytes of data every day. Someone needs to make sense of it all.

You’ll enter the Master of Data Science with a background in computer science or statistics (or both), and the course will be tailored to build your skills in the alternate discipline. You’ll then develop the technological and analytical abilities needed to manage and interpret large and complex collections of data, and use statistical tools, techniques and methodology to solve real-world problems in the data realm.

Sample Course Plan

STATISTICS BACKGROUND

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Programming &amp; Software Development</th>
<th>Algorithms &amp; Complexity</th>
<th>Elective</th>
<th>Statistical Modelling for Data Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Sem 2</td>
<td>Elements of Data Processing</td>
<td>Database Systems &amp; Information Modelling</td>
<td>Computational Statistics &amp; Data Science</td>
<td>Multivariate Statistics for Data Science</td>
</tr>
<tr>
<td>Year</td>
<td>Sem 1</td>
<td>Elective</td>
<td>Advanced Database Systems</td>
<td>Cluster &amp; Cloud Computing</td>
<td>Data Science Project Part 1</td>
</tr>
<tr>
<td>Year</td>
<td>Sem 2</td>
<td>Statistical Machine Learning</td>
<td>Elective</td>
<td>Elective</td>
<td>Data Science Project Part 2</td>
</tr>
</tbody>
</table>

COMPUTER SCIENCE BACKGROUND

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Elective</th>
<th>Advanced Database Systems</th>
<th>Methods of Mathematical Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Sem 2</td>
<td>Statistical Machine Learning</td>
<td>Elective</td>
<td>A First Course in Statistical Learning</td>
</tr>
<tr>
<td>Year</td>
<td>Sem 1</td>
<td>Data Science Project 1</td>
<td>Cluster &amp; Cloud Computing</td>
<td>Elective</td>
</tr>
<tr>
<td>Year</td>
<td>Sem 2</td>
<td>Data Science Project 2</td>
<td>Elective</td>
<td>Computational Statistics &amp; Data Science</td>
</tr>
</tbody>
</table>

SPOTLIGHT ON RESEARCH

IBM predicts that demand for US data scientists will grow 28% by 2020, and there is a similar trend happening around the world, including in Australia. Companies like Microsoft, Google, the Big Banks, BHP, Boeing and the Bureau of Meteorology hire data scientists to analyse and engineer data across all aspects of their businesses.

*Depending on the availability of an appropriate supervisor.

*Research subjects must be completed in consecutive semesters.

Alternative pathways

Want to dip your toe in before committing to a full two year masters?
A Graduate Diploma in Data Science has broader entry requirements and can provide you with an accelerated pathway into a shorter, 1.5 year Master of Data Science.

GRADUATE DIPLOMA IN DATA SCIENCE

Fast facts:

DATES + DURATION
Commencing Start Year (February/March)
Duration 1 year full-time (part-time available)

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline: computer science, data science or statistics, with a weighted average mark of at least 65%, 12.5 points (one subject) of university-level computer science subjects with content focused on computer programming, and completion of MAST10006 Calculus 2 and MAST10007 Linear Algebra (or equivalent).

FEES
Annual fees in 2021
Domestic: $36 160
Commonwealth Supported Places available
International: $46 048

Sample Course Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Methods of Mathematical Statistics</th>
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<tbody>
<tr>
<td>Year</td>
<td>Sem 2</td>
<td>A First Course in Statistical Learning</td>
<td>System &amp; Information Modelling</td>
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</table>

MASTER OF DATA SCIENCE: ACCELERATED 150-POINT PATHWAY

This is available to students entering from the Graduate Diploma in Data Science or who meet the data science entry point.

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Advanced Database Systems</th>
<th>Cluster and Cloud Computing</th>
<th>Statistical Modelling for Data Science</th>
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<td>Year</td>
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<td>Elective</td>
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<tr>
<td>Year</td>
<td>Sem 2</td>
<td>Data Science Project 1</td>
<td>Data Science Project Part 1</td>
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<td>Year</td>
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<td>Data Science Project Part 2</td>
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</tbody>
</table>
**ENVIRONMENTAL SCIENCE AT MELBOURNE**

Our environment is facing some serious challenges - from changing climates to habitat loss, environmental degradation, species extinction and overpopulation. It’s the bad news.

> I was attracted to the University of Melbourne because it is a national and world leader in environmental science. What inspired me most is that I want to make a change in my community and country, so environmental science can be seen as a priority.

Aimen Ksiksi
Master of Environmental Science.

*Check out the Melbourne School of Engineering for more information: eng.unimelb.edu.au*
MASTER OF ECO SYSTEM MANAGEMENT & CONSERVATION

Land management agencies spend approximately 30% of their time consulting with stakeholders, so an advanced understanding of how people live with, use and feel about their surrounding ecosystem is increasingly important for all professionals in this field.

The Master of Ecosystem Management & Conservation has been created in consultation with industry to address their continued need for strong leadership and versatility. Core subjects will set you up for a broad range of careers in the land management sector, with electives allowing you to specialise and build skills and knowledge in areas such as forest ecosystem science.

Through the course, you'll build hands-on skills in the biophysical environment while learning to consult and collaborate with communities and other stakeholders. You'll take immersive subjects at our beautiful bush campus in Creswick, while being based in our urban ecosystem at Parkville.

SPOTLIGHT ON NETWORKS

As our ecosystems, forests and natural landscapes change, what we study and how we work with them changes too. We consulted our industry networks to build a course that will give you work-related skills for now and into the future.

Ecosystems are the plant and animal communities that inhabit them and the human societies that interact with them. This course acknowledges that a deep understanding of both the social and ecological systems is at the heart of all good ecosystem management and conservation.

Sample Course Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Core subject</th>
<th>Professional Skills subject</th>
<th>Foundation subject</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Human Behaviour &amp; Environment</td>
<td>Landscape Ecology</td>
<td>Sustainable Landscapes</td>
<td>Analysing Ecosystems and Their Values</td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td>Fire in the Australian Landscape</td>
<td>Elective</td>
<td>Elective</td>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

You've expanded and enhanced this course, while maintaining the essence of forest science education.

MASTER OF ENVIRONMENTAL SCIENCE

Our environment needs your help. Through the Master of Environmental Science, you'll learn scientifically rigorous ways to solve grand environmental challenges such as air and water quality, climate change, energy transformations, conservation and ecosystem management, and food security.

You can specialise in an environmental science area of your choice, learning from leaders in their fields, while also building professional skills in communication, policy and business. Our Industry Project in Environmental Science also lets you work with one of our industry partners, like Melbourne Water or the Victorian EPA.

SPOTLIGHT ON CAREERS

Cross-disciplinary science is now the norm. No longer are specialist researchers working in isolation. Instead, ecologists work on major infrastructure projects, geographers work with urban utilities, and sustainability experts work with lawyers. And we need people who can stand back and look at the big picture, finding connections and building networks to solve big environmental problems, like environmental contamination, climate issues and bushfires.

Sample Course Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Core subject</th>
<th>Professional Skills subject</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Global Environmental Change</td>
<td>Integrated River &amp; Catchment Management</td>
<td>Thinking &amp; Reasoning with Data</td>
<td>Global Climate Change in Context (Feb)</td>
</tr>
<tr>
<td>Year 2</td>
<td>Environmental Modelling</td>
<td>Environmental Risk Assessment (Winter)</td>
<td>Science Communication</td>
<td>Applied Ecology</td>
</tr>
</tbody>
</table>

You'll finish with the skills to take on a career as an environmental specialist in areas like hydrology, GIS conservation, or risk assessment, or to work as an environmental expert in policy advice and project coordination.
MASTER OF ENVIRONMENT

Fast facts:

**DATES + DURATION**

Commencing: Start Year (February/March) and Mid-Year (July)
Duration: 2 years full-time (part-time available)

**ENTRY REQUIREMENTS**

An undergraduate degree with a major in a relevant discipline, with a weighted average mark of at least 65%, or
An undergraduate degree in any discipline, with a weighted average mark of at least 65%, and two years of documented professional work experience related to the course, post-undergraduate degree.

The Master of Environment also offers a 100-point program for students who have completed:

A research-based honours degree in a relevant discipline, with a weighted average mark of at least 65%, or
An undergraduate degree in any discipline, with a weighted average mark of at least 65%, and five years of documented professional work experience related to the course, post-undergraduate degree.

You will indicate your program preference when applying.

**FEES**

Annual fees in 2021:
Domestic: $27,752 – $38,336 (indicative range)
Commonwealth Supported Places available
International: $37,908 – $45,760 (indicative range)

We offer 12 different streams of study, including a tailored stream that you can design yourself. Depending on your academic background, interests and aspirations, you can choose from over 200 subjects taught across the University. We aim to be truly flexible and collaborative in our approach to teaching and, as such, our cohort is made up of students with a hugely diverse range of backgrounds, from commerce and economics to zoology. You’ll learn to work effectively in this interdisciplinary environment, and develop the technical and analytical skills you need to research and practice in your area of specialisation.

Choose your own adventure in the Master of Environment!

We offer 12 different streams of study, including a tailored stream that you can design yourself. Depending on your academic background, interests and aspirations, you can choose from over 200 subjects taught across the University. We aim to be truly flexible and collaborative in our approach to teaching and, as such, our cohort is made up of students with a hugely diverse range of backgrounds, from commerce and economics to zoology. You’ll learn to work effectively in this interdisciplinary environment, and develop the technical and analytical skills you need to research and practice in your area of specialisation.

Our students come from many different backgrounds and go on to many different futures, with some looking to refocus a current area of specialisation, such as law or policy, and others starting an entirely new career.
We have alumni who’ve gone on to work in government departments or with big businesses in the corporate sector, while others are working with environmental agencies and in global development.

Sample Course Plan

**Climate Change Specialisation**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Sustainability, Governance &amp; Leadership (March)</th>
<th>Climate Science for Decision-Making</th>
<th>Climate Change Mitigation</th>
<th>Foundations of Spatial Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 2</td>
<td>Sem 2</td>
<td>Environmental Policy Instruments</td>
<td>Consumerism &amp; the Growth Economy</td>
<td>Climate Change Politics &amp; Policy</td>
<td>Energy Efficiency Technology</td>
</tr>
<tr>
<td>Year 1</td>
<td>Sem 1</td>
<td>Sustainability &amp; Behaviour Change</td>
<td>The Politics of Food</td>
<td>Energy for Sustainable Development</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 2</td>
<td>Interdisciplinarity &amp; the Environment</td>
<td>Sustainable Buildings (September)</td>
<td>Environmental Industry Research</td>
<td></td>
</tr>
</tbody>
</table>

**SPOTLIGHT ON CAREERS**

Our students come from many different backgrounds and go on to many different futures, with some looking to refocus a current area of specialisation, such as law or policy, and others starting an entirely new career.
We have alumni who’ve gone on to work in government departments or with big businesses in the corporate sector, while others are working with environmental agencies and in global development.

**ENVIRONMENTAL ALUMNI NETWORK**

Newcrest Mining
Department of Environment, Land, Water and Planning
Department of Environment, Land, Water and Planning
Australian Wildlife Conservancy
Aurecon
WWF
EY
United Nations

**FAST FACTS**

**DATES + DURATION**

Commencing: Start Year (February/March) and Mid-Year (July)
Duration: Graduate Diploma: 1 year full-time (part-time available)
Graduate Certificate: 6 months full-time (part-time available)

**ENTRY REQUIREMENTS**

An undergraduate degree with a major in a relevant discipline, with a weighted average mark of at least 65%, or
An undergraduate degree in any discipline, with a weighted average mark of at least 65%, and two years of documented professional work experience related to the course.

The Graduate Diploma and Graduate Certificate in Environment offer you the chance to explore our huge range of subjects, spanning the breadth of this fascinating and diverse discipline.
You’ll choose between the 100-point diploma and the 50-point certificate, with each option providing you with grounding knowledge in sustainability governance and leadership.

You’ll pair this with subjects chosen by you, in consultation with an academic advisor, that will help to hone your focus within the spectrum of environmental studies.
MASTER OF GEOGRAPHY

As we face the challenges arising from significant changes in our physical environment, and the societal, economic and political implications of those changes, knowledge that bridges the social and natural sciences is becoming more and more important.

The Master of Geography addresses this need and provides comprehensive knowledge in three streams: physical, human and integrated geography. You’ll specialise in one of these streams, and choose either a coursework-only option of study or one of two coursework-plus-thesis options (either a 50 or 100-point research project). Project topics span the full spectrum of geography. Past examples include flood management in Bangladesh, love and marriage practices in India, and the politics of climate change mitigation and adaptation in Australia. Coursework subjects provide disciplinary breadth, giving you the solid grounding needed for jobs in natural resource management, research and government institutes, urban planning locally, or development and policy globally.

SPOTLIGHT ON SUBJECTS

Geographers need practical, in-the-field experience, and we offer plenty of opportunities for you to get involved.

Check out our two-week China Field Class, visit New Zealand in the summer through our Global Climate Change in Context subject, or use your mid-year break to spend 12 days in East Timor. You can also cultivate your own field experience via the International Internship in Environment.

Sample Course Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Year</th>
<th>Sem 1</th>
<th>Sem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contemporary Geographical Thought</td>
<td>Research Methods in Geography (Field)</td>
<td>Ethics &amp; Responsibility in Science</td>
<td>Environmental Impact Assessment</td>
<td>Climate Change Politics &amp; Policy</td>
</tr>
<tr>
<td>2</td>
<td>Local Sites, Global Connections</td>
<td>Environmental Policy</td>
<td>International Internship in Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Geography Minor Research Project Part 1</td>
<td>The Disaster Resilient City</td>
<td>Science Communication</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fast facts:

DATES + DURATION
Commencing Start Year (February/March) and Mid-Year (July)
Duration 2 years full-time (part-time available)

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline: anthropology, earth, ocean and/or atmospheric science, ecology and evolutionary biology, economics, environmental science, geography, political science, social science, urban studies or zoology, with a major in a relevant discipline: anthropology, with a major in a relevant field: anthropology,
M A S T E R  O F  U R B A N  H O R T I C U L T U R E

Fast facts:

Dates: Commencing
Start Year (February/March) and Mid-Year (July)
Duration
2 years full-time (part-time available)

Entry Requirements
An undergraduate degree or a graduate certificate with a weighted average mark of at least 65%. The Master of Urban Horticulture also offers a 150-point program for students who’ve completed an undergraduate degree in horticulture or plant science. You’ll be automatically assessed for this when applying.

Fees
Annual fees in 2021
Domestic: $33,536
Commonwealth Supported Places available
International: $46,048
International Science Graduate Scholarships available

Sample Course Plan

<table>
<thead>
<tr>
<th>Year 1</th>
<th></th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 1</td>
<td>Plants in the Landscape</td>
<td>Horticultural Plant Science</td>
</tr>
<tr>
<td>Sem 2</td>
<td>Plant Production &amp; Establishment</td>
<td>Urban Horticulture Issues &amp; Perspectives (July)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elective</td>
</tr>
<tr>
<td>Sem 1</td>
<td>Green Infrastructure for Liveable Cities (Summer)</td>
<td>Plant Health (Nov)</td>
</tr>
<tr>
<td>Sem 2</td>
<td>Urban Soils, Substrates &amp; Water</td>
<td>Managing Urban Landscapes (July)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ecosystem Internship</td>
</tr>
</tbody>
</table>

Spotlight on Facilities

Our Burnley campus, including nine hectares of heritage-listed gardens, is a literal showcase of urban horticulture, with green spaces incorporated into our buildings and teaching areas. The Demonstration, Research and Biodiversity Green Roofs are hubs for our students and researchers – you’ll find yourself gardening, harvesting or just hanging out in these stunning learning spaces.

GRADUATE DIPLOMA AND GRADUATE CERTIFICATE IN URBAN HORTICULTURE

Fast facts:

Diploma
G A R D U A T E  D I P L O M A

Duration
1 Year (part-time available)

Entry Requirements
An undergraduate degree or a graduate certificate with a weighted average mark of at least 65%, or
An honours degree or graduate diploma with a major in any discipline

Fees
Annual fees in 2021
Domestic: $33,536
International: $46,048

Graduate Diploma

Graduate Certificate

GRADUATE DIPLOMA IN URBAN HORTICULTURE

Fast facts:

Diploma
G A R D U A T E  D I P L O M A

Duration
1 Year

Entry Requirements
An undergraduate degree or a graduate certificate with a weighted average mark of at least 65%, or
An honours degree or graduate diploma with a major in any discipline

Fees
Annual fees in 2021
Domestic: $33,536
International: $46,048

GRADUATE CERTIFICATE IN URBAN HORTICULTURE

Fast facts:

Certificate
G R A D U A T E  C E R T I F I C A T E

Duration
6 Months

Entry Requirements
An undergraduate degree or a graduate certificate with a weighted average mark of at least 65%, or
An honours degree or graduate diploma with a major in any discipline

Fees
Annual fees in 2021
Domestic: $33,536
International: $46,048

looking for a tree-change in your career? The Graduate Diploma of Urban Horticulture is perfect if you want to explore the foundations of designing, creating, managing and advocating for urban green spaces. You can complete your Graduate Diploma in a single year and make the most of our industry connections and networks. You can use this as a pathway into the Master of Urban Horticulture, having already completed the equivalent of the first semester or first year of the course.

Whether you’re new to urban horticulture or already have some experience and want to upskill, this course offers a well-rounded introduction to the field.

This garden, designed by Sean Lam (Master of Urban Horticulture), won first place at the 2018 Melbourne International Flower & Garden Show.
MASTER OF INDUSTRIAL RESEARCH (CHEMISTRY)

The Master of Industrial Research (Chemistry) represents a new style of graduate research training, designed for students looking to pursue industry-based careers. Industry perspectives have been built into the course content through collaboration with professionals and peak bodies.

You’ll hone your professional skills, including entrepreneurship, IP law and chemical regulations frameworks, and build a strong theoretical understanding of relevant chemistry disciplines. Most of your time will be dedicated to your research project, completed as an industry placement. This will create an ideal environment for you to develop industry-relevant research experience, preparing you to transition into the private sector workforce in advanced chemical manufacturing or other analytical chemistry industries.

SPOTLIGHT ON COLLABORATION

An industry-based research project is the cornerstone of the Master of Industrial Research (Chemistry).

While based in an industrial lab, you’ll be supervised by an academic staff member and an industry collaborator, benefiting from their individual insights. You’ll complete your project with a detailed understanding of how research works in, and for, the wider industrial workforce. You’ll build strong networks across both academia and industry, preparing you for every possible future.

Sample Course Plan

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 1</td>
<td>Chemical Regulations &amp; Safety</td>
</tr>
<tr>
<td>Sem 2</td>
<td>Elective</td>
</tr>
<tr>
<td>Sem 1</td>
<td>Elective</td>
</tr>
<tr>
<td>Sem 2</td>
<td>Industry Research Project</td>
</tr>
</tbody>
</table>

DOCTOR OF PHILOSOPHY (SCIENCE)

If you’re ready to become a research expert in your chosen field, then dive into a PhD.

In addition to our own leading PhD program, we also offer several joint PhD opportunities, where you can conduct your research at both the University of Melbourne and a top research institution in Germany or India.

To prepare you for your post-PhD career, you can take advantage of the period between a timely submission and being conferred by completing a 3-6 month industry placement through our Specialist Certificate in Research Practice for Scientists, at no cost.

MASTER OF PHILOSOPHY (SCIENCE)

Develop your research skills and contribute independent research outcomes through our two-year MPhil.

This course is examined based on a major thesis that you will write over the course of your research program. When you are done, you’ll be well prepared to tackle a larger PhD project, or ready to use your advanced research, problem solving and communication skills to build a successful career in industry.
Supriya Swaminathan

The course structure is tailored to meet the demands of industry and the hands-on experience through industry projects helped shape my learning in the best possible way. As much as we have the technical knowledge, soft skills, like communication and teamwork, play a major role as these are the skills that helped me translate the technicalities to the business. The technical and soft skills go hand in hand.

Supriya Swaminathan
Master of Data Science

Kaih Mitchell

I wanted to apply the theory of lectures to a real situation. After exploring a research project in the third year of my BSc and doing an international internship, I knew I wanted to get into research. Studying at a graduate level means I can explore content I’m passionate about. In a masters, I get to collaborate and get to know my peers to work together. I’ll definitely be looking at a PhD after my masters, because that’ll be the way to continue doing what I enjoy.

Kaih Mitchell
Master of Science (Physics)
The Faculty of Science is home to around 650 graduate research students, studying everything from sonochemical synthesis to the structural colouration of Christmas beetles. Supporting them are researchers from every stage of their own academic journeys.

Jack Buntine is completing his PhD in the School of Chemistry, supervised by Professor Evan Bieske, Head of School. Heyou Zhang, Haiyan Zhu and Parvinder Kaur Sidhu are also PhD students in Chemistry, studying across several different fields of research.

The School of Ecosystem & Forest Sciences includes graduate research in forestry and horticulture, with Yasika Medhavi Subasinghe exploring the heat tolerance of the Eucalyptus, and Thiet Van Nguyen using tree rings of conifers to understand historical forest disturbances in Vietnam.

Laura Ospina, Leslie Ng and Lu-Yi Wang are all supervised by Associate Professor Devi Stuart-Fox, an evolutionary biologist in the School of BioSciences.
GRADUATE CERTIFICATE IN SCIENCE

DATES + DURATION
Comencing Start Year (February/March), Mid-Year (July)
Duration 1 year full-time or part-time, depending on the stream chosen – integrated geography, physical geography, medicinal chemistry and zoology are available full-time.

ENTRY REQUIREMENTS
An undergraduate degree and at least 37.5 points (three subjects) of specific prerequisite subjects at Level 2 or above for the relevant stream.

FEES
Annual fees in 2021
Domestic: $20,960
Commonwealth Supported Places available
Not available to international students

Did you start exploring geology but end up discovering geography? Or perhaps you dipped your toe into chemistry but came out with physics? The Graduate Diploma and Graduate Certificate in Science allow you to complete the equivalent of a major in one of 15 streams, taking either Level 2, 3 and masters subjects (for the Graduate Diploma) or Level 3 and masters subjects (for the Graduate Certificate), depending on your academic background.

Available streams in both courses include: botany, chemistry, medicinal chemistry, genetics, integrated geography, human geography, physical geography, geology, pure mathematics, applied mathematics, discrete mathematics, operations research, statistics, stochastic processes, physics and zoology. You might then consider further study in your new area of expertise, or take your broad scientific acumen out into the workforce.

GRADUATE DIPLOMA IN SCIENCE

DATES + DURATION
Comencing Start Year (February/March), Mid-Year (July)
Duration 1.5 years full-time or part-time, depending on the stream chosen – integrated geography, physical geography, medicinal chemistry and zoology are available full-time.

ENTRY REQUIREMENTS
An undergraduate degree and at least 25 points (two subjects) of specific prerequisite subjects at Level 1 or above for the relevant stream.

FEES
Annual fees in 2021
Domestic: $33,536
Commonwealth Supported Places available
Not available to international students

The Graduate Diploma in Science (Advanced) gives students with an undergraduate major in one of our available streams the chance to complete 100 additional points of study, potentially including a research component.

You’ll increase your specific knowledge and understanding, and build awareness of current developments and issues relating to your area. You’ll then be well positioned to undertake further research or study, or to enter the workforce with advanced discipline knowledge.

There are eight streams available in the Graduate Diploma in Science (Advanced), including:

- Botany (research component or coursework-only available)
- Chemistry (research component)
- Earth Sciences (research component)
- Genetics (research component)
- Mathematics & Statistics (coursework-only)
- Physics coursework-only
- Zoology (research component)

GRADUATE DIPLOMA IN SCIENCE (ADVANCED)

DATES + DURATION
Comencing Start Year (February/March), Mid-Year (July)
Duration 1 year full-time (part-time available)

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline and appropriate prerequisite studies for the relevant stream.

SUPERVISION
You will need to meet your supervision requirements if you’re applying for a stream including a research component. These requirements can be found by visiting go.unimelb.edu.au/d4r6

FEES
Annual fees in 2021
Domestic: $33,536
Commonwealth Supported Places available
International: $46,948

The Graduate Certificate in Professional Skills for Scientists will provide you with specialist training in organisational management, communication and leadership to complement your existing skills in a scientific discipline.

This will help you to build the broad, transferable and practical skills that today’s job market demands. You’ll develop the theoretical and practical knowledge required to become a successful manager, communicator and leader, and enhance your employability in any business or organisation that requires the expertise of science graduates.

GRADUATE CERTIFICATE IN PROFESSIONAL SKILLS FOR SCIENTISTS

DATES + DURATION
Comencing Start Year (February/March), Mid-Year (July)
Duration 6 months full-time (part-time available)

ENTRY REQUIREMENTS
An undergraduate degree in a relevant discipline, or a graduate degree in a relevant discipline, depending on your academic background.

FEES
Annual fees in 2021
Domestic: $36,199
Commonwealth Supported Places available
International: $23,024

The Specialist Certificate in Research Practice for Scientists is available as a postgraduate coursework subject. This course is available for entry at any time and can be used to complete a graduate degree in a relevant discipline, or coursework-only available.

The internship will provide you with the opportunity to apply your research skills and capacity in an organisational context, gaining practical experience and building professional networks. You’ll further develop your employability skills, including communication, interpersonal understanding, analytical thinking, problem-solving, organisation, project management and time management. You’ll also gain a greater understanding of career planning and professional development considerations, and prospective employer expectations.

SPECIALIST CERTIFICATE IN RESEARCH PRACTICE FOR SCIENTISTS

DATES + DURATION
Comencing This course is available for entry at any time
Duration 6 months part-time

ENTRY REQUIREMENTS
Completion of a PhD in a relevant discipline, or current admission to the DPhil/PhD.

FEES
Annual fees in 2021
Domestic: $8,384
International: $51,512 – not available to international students who require a visa to study in Australia

Once you have completed your training, you will be able to provide evidence of your experience to future employers in your CV, resume or interview. You’ll also gain practical experience with your supervisors, who will provide you with a mentorship experience and a letter of recommendation.

Being a professional, you will have a greater understanding of the management and organisation of research projects, and an appreciation of the importance of effective communication and interpersonal skills.

After completing your Specialist Certificate, you will have a clear understanding of the nature of your career destination, gaining practical experience and building professional networks.

In summary, the Specialist Certificate is an important step in your career development, providing you with the necessary skills and knowledge to succeed in the complex and competitive world of science.

Taken immediately after submission or completion of your PhD in science, the Specialist Certificate in Research Practice for Scientists allows you to undertake a 3-6 month internship with a host organisation in an area relevant to your potential career destination.

The internship will provide you with the opportunity to apply your research skills and capacity in an organisational context, gaining practical experience and building professional networks. You’ll further develop your employability skills, including communication, interpersonal understanding, analytical thinking, problem-solving, organisation, project management and time management. You’ll also gain a greater understanding of career planning and professional development considerations, and prospective employer expectations.

The Graduate Certificate in Research Practice for Scientists is a postgraduate coursework subject that is available for entry at any time. This course is aimed at giving you the skills and knowledge to succeed in the complex and competitive world of science.

The Specialist Certificate is an important step in your career development, providing you with the necessary skills and knowledge to succeed in the complex and competitive world of science.

In summary, the Specialist Certificate is an important step in your career development, providing you with the necessary skills and knowledge to succeed in the complex and competitive world of science.

Once you have completed your training, you will be able to provide evidence of your experience to future employers in your CV, resume or interview. You’ll also gain practical experience with your supervisors, who will provide you with a mentorship experience and a letter of recommendation.

Being a professional, you will have a greater understanding of the management and organisation of research projects, and an appreciation of the importance of effective communication and interpersonal skills.

After completing your Specialist Certificate, you will have a clear understanding of the nature of your career destination, gaining practical experience and building professional networks.

In summary, the Specialist Certificate is an important step in your career development, providing you with the necessary skills and knowledge to succeed in the complex and competitive world of science.
GRADUATE CERTIFICATE IN ARBORICULTURE

DATES + DURATION
Commencing
Start Year (February), Mid-Year (July) and Spring (September, November)
Duration
6–2 years part-time

ENTRY REQUIREMENTS
An undergraduate degree, or
A relevant TAFE or Higher Education Advanced Diploma (or equivalent), and three years of documented, relevant work experience, or
A relevant TAFE Diploma AND four and a half years of documented, relevant professional experience, or
At least six years of documented, relevant professional experience, including at least three years in a demonstrated supervisory role.

Fees
Annual fees in 2021
Domestic: $16,768
International: $23,024 – not available to international students who require a visa to study in Australia

GRADUATE CERTIFICATE IN GARDEN DESIGN

DATES + DURATION
Commencing
Start Year (February/March), Mid-Year (July)*
Duration
3 year part-time
Students commencing in Semester 2 are only able to enrol in one subject in their first semester.

ENTRY REQUIREMENTS
An undergraduate degree, or
A relevant TAFE or Higher Education Advanced Diploma (or equivalent), and three years of documented, relevant work experience, or
A relevant TAFE Diploma AND four and a half years of documented, relevant professional experience, or
At least six years of documented, relevant professional experience, including at least three years in a demonstrated supervisory role.

Fees
Annual fees in 2021
Domestic: $16,768
Not available to international students

GRADUATE CERTIFICATE IN BUSHFIRE PLANNING & MANAGEMENT

DATES + DURATION
Commencing
Start Year (February)
Duration
1 year part-time

ENTRY REQUIREMENTS
An undergraduate degree with a major in a relevant discipline, with a weighted average mark of at least 65%, or
An undergraduate degree with a major in any area, with a weighted average mark of at least 60%, and at least 25 points (two subjects) in one or more of chemistry, biology, mathematics or statistics subjects (or equivalent), or
An undergraduate degree with a major in any area and a Graduate Certificate in Environment, with a weighted average mark of at least 60%, or
A two-year associate degree or diploma in a relevant discipline and five years of documented, relevant professional experience, and an appropriate level of performance on a test conducted by the Selection Committee to confirm generic skills necessary for successful study in the program.

GRADUATE CERTIFICATE IN GREEN INFRASTRUCTURE

DATES + DURATION
Commencing
Start Year (February)
Duration
1 year part-time

ENTRY REQUIREMENTS
An undergraduate degree, and two years of documented, relevant professional experience.

Fees
Annual fees in 2021
Domestic: $16,768
International: $23,024 – not available to international students who require a visa to study in Australia

Melburnians are very proud of their trees. The City of Melbourne has 77,000 to care for and we’re planting more all the time.

The Graduate Certificate in Arboriculture is designed for professionals managing trees in the urban forest. You’ll build your skills by studying tree planning and bushfire management, selection for a changing climate, tree physiology and growth, the impact of climate on tree pathology, entomology and ecology, and community consultation for forest planning. To accommodate any existing work commitments, classes are delivered via intensive workshops over six days, followed by online activities. Become an advocate for our urban trees and the important role they play in keeping cities beautiful and liveable!

Bushfire is an accepted part of the Australian landscape - restorative and destructive in equal measure.

As our climate changes, the way we plan for and manage an inevitable increase in bushfires needs to change as well. The Graduate Certificate in Bushfire Management & Planning will develop your existing skills in this area, with input from the Victorian Bushfires Royal Commission, the Victorian Building Commission, the Victorian Department of Planning and Community Development, the Country Fire Authority and the Fire Protection Association of Australia.

With two specialist streams, you’ll be able to focus your studies on ‘planning’, if you have a role in the design or regulation of development in a bushfire environment, or ‘management’, if you’re an environmental scientist, bushfire consultant or natural resource manager. You could spend a week in the bush at our beautiful Creswick campus for a residential intensive, followed by classes at Parkville and additional off-campus study.

Green infrastructure proves that all spaces, even roofs and walls, can (and should) go green. The Graduate Certificate in Green Infrastructure, the first course of its kind in Australia, will teach you how to use these vegetation systems to improve our urban environments.

You’ll learn about cross-disciplinary approaches to the planning, design and management of green infrastructure to improve city environments, including urban trees, green roofs and walls, and water-sensitive urban design. A great skills development program for urban planners and managers, as well as new or established horticulturalists, this course relies on real-world, problem-based learning to develop your practical knowledge in the field, with classes delivered via intensive workshops and online activities.

If you’re passionate about the design and creation of beautiful garden spaces, the Graduate Certificate in Garden Design can help you turn that passion into a career.

You’ll learn about holistic design principles, how to choose and use the right plants for the right situations, and develop skills in drawing and graphic presentation. Classes are primarily held in the late afternoons/evenings and on weekends, catering for seasoned industry professionals and newly-inspired green thumbs alike.
HOW TO APPLY

APPLYING FOR A MASTERS BY COURSEWORK

First, check the entry requirements for the course you’re interested in. You’ll find these on the corresponding pages in this guide. It is important to remember that meeting these requirements doesn’t guarantee entry. Then, get ready by organising certified or original copies of your academic transcripts and proof of English proficiency. The entry requirements will tell you if you are required to provide other documents, or if there are supervision requirements.

If you are a new prospective student, you’ll then need to register as an applicant. Even if you apply for multiple courses, you’ll only have to do this once.


WHAT DOES ‘BEST 50 POINTS’ MEAN?

Entry to our Master of Science degrees is assessed on the ‘best 50 points’ at third year level standard. For Australian universities, this usually equates to 4-6 subjects, while at an international university it may equate to 8-12 subjects. These subjects will be completed in the later part of your degree and will be relevant to the graduate course for which you’re applying.

APPLYING FOR GRADUATE RESEARCH

First, check the entry requirements for the course you’re interested in. You’ll find these on the corresponding pages in this guide. It is important to remember that these requirements don’t guarantee entry. Next, find a supervisor using the information in the box below. Then, get ready by organising your documentation:

- A current CV including professional experience related to your proposed field of research, prior research, educational background and details of any research publications.
- Copies of all academic transcripts, completion statements (if relevant) and grading schemes showing numerical grades.
- Contact information for two academic referees.
- A letter or email indicating that your nominated supervisor supports your application.

If you are a new prospective student, you’ll then need to register as an applicant. Even if you apply for multiple courses, you’ll only have to do this once. Start here: go.unimelb.edu.au/ww6a, and then continue through this system and submit your application online.

To ensure the highest chance of success in obtaining a scholarship, you should submit an application before the relevant deadlines listed below (even if you have not yet completed your current degree). Applicants submitting after these deadlines will have a lower chance of being awarded a scholarship, and outcomes will take longer.

For domestic students, applications are due by:
- 31 October with notification expected by 22 December

For international students, applications are due by:
- 30 September with notification expected by 31 January

To find a supervisor, conduct some research through our Find an Expert website, or by viewing current research groups on our School websites, and then contact the relevant School using the email address below.

BioSciences: biosciences-gr@unimelb.edu.au
Chemistry: chemistry-gr@unimelb.edu.au
Earth Sciences: earthsci-gr@unimelb.edu.au
Ecosystem & Forest Sciences: sdfs@unimelb.edu.au
Geography: geography-gr@unimelb.edu.au
Mathematics & Statistics: mathstats-gr@unimelb.edu.au
Physics: physics-gr@unimelb.edu.au
FEES AND FINANCING

The fees listed on each course entry page are for 2020. They should be used as a guide to the total amount you’ll need to pay.

Fees are as available at time of printing and assume full-time study, unless otherwise indicated. Fees are subject to annual review and are normally shown as course fee per year. One year is equivalent to one EFTSL (Equivalent Full-Time Student Load) or a standard annual full-time load.

If the duration of the course is one year or less, we have provided an estimate of the total program fee (assuming completion in 2020). For courses that cannot be completed in one year, the total program fee may include an indexing of the 2020 course fee.

For courses of more than one year, the fee is an estimate for one year of study (100 credit points) in 2020. Tuition fees for the second and subsequent years may increase.

Additional information about fees for all types of graduate study is available at: study.unimelb.edu.au/how-to-apply/fees.

Commonwealth Supported Places

CSPs may be awarded to eligible domestic students applying for certain courses, but are not guaranteed. See individual course pages to find out eligibility.

If you are enrolled in a Commonwealth Supported Place, your tuition fees are subsidised by the Australian Government. You’ll pay a student contribution amount, which is determined each year by the Government and is based on the subjects you take, not the course you are studying.

You may defer payment of your student contribution amount via HECS-HELP if you are eligible.

HECS-HELP

HECS-HELP is a loan scheme that allows eligible domestic students in a CSP to defer student contribution payments.

In the HECS-HELP scheme the Australian Government pays your student contribution amount. You only repay your HECS-HELP loan once your income meets the threshold. A HECS-HELP loan is not means-tested.

Australian Fee Place

If you’re enrolling in an Australian Fee Place, you’ll be charged tuition fees for each year that you are enrolled. Tuition fees are calculated according to your course and study load each semester.

You may defer payment of your fees via FEE-HELP if you are eligible.

FEE-HELP

FEE-HELP is a loan scheme that helps eligible Australian fee-paying students (full or part-time) pay graduate tuition fees.

FEE-HELP can cover all or part of your tuition fees. The Australian Government pays the amount of the loan direct to the University. You’ll make repayments on your loan through the Australian Taxation Office (ATO) whenever your income is above the threshold, or you can make a voluntary repayment to the ATO at any time.

FEE-HELP is not means-tested and there is no loan fee for graduate study. If you already have a HECS-HELP loan from your undergraduate studies, you can still access a FEE-HELP loan.

Graduate Access Melbourne

If you’re a domestic student and your personal circumstances have had a sustained, adverse effect on your academic achievement, or you’re a member of a specified group that is underrepresented in higher education, you may be eligible for Graduate Access Melbourne. This may increase your chances of being accepted and of receiving a CSP or a scholarship.

Domestic students can apply using one or more of the following Graduate Access Melbourne categories:
- Personal difficulties
- Disability or chronic medical condition
- Disadvantaged socioeconomic circumstances
- Rural or isolated background
- Recognition as an Indigenous Australian
- Previous status as a refugee or current holder of a humanitarian visa
- Women in engineering

For more information about eligibility and details, visit: go.unimelb.edu.au/ouh6.

International Graduate Science Scholarships

A select number of $10,000 fee remission scholarships are available to international students enrolling in eligible courses, who have an entry score of at least 80% (UoM equivalent), or at least 85% (UoM equivalent) for the Master of Science (Mathematics & Statistics). See individual course pages to find out eligibility.

Research Training Program

Most domestic graduate research students are offered a Research Training Program (RTP) Fee Offset Scholarship, which is funded by the Australian Government.

If you are enrolled under the RTP you are exempt from tuition fees for the normal duration of your course. This exemption is valid for up to four years for students enrolled in a doctoral program and up to two years for a research masters degree.

RTP places are available to Australian citizens, permanent residents and New Zealand citizens accepted into the Doctor of Philosophy or Doctor of Science Scholarships

These scholarships provide stipends and fee offsets to domestic and international graduate research students based on academic merit. Applicants will be automatically considered for these scholarships when applying. For more information about eligibility, visit: go.unimelb.edu.au/ouh6.

Scholarships and awards

The University of Melbourne and Faculty of Science have a range of scholarships, awards and other funding opportunities available to graduate students, both domestic and international. Scholarships may be based on merit, or needs and circumstances, and range from one-off payments to annual stipends, full tuition waivers and funding for specific activities or items, such as relocation, residential costs or overseas study. For a full list of scholarships and further information, visit: go.unimelb.edu.au/ouh6.