BACHELOR OF

Scientists are discoverers looking into the unknown, from the depths of the Antarctic Ocean to the workings of the human brain. A Tohu Paetahi Pūtaiao—Bachelor of Science (BSc) will help you gain the essential skills you need to become a science innovator in the evolving job market of the future. You could be developing new technologies, treating diseases, protecting the environment, or addressing the many other problems that require expert scientific minds.

In this three-year degree, you can choose from more than 25 majors, focusing on everything from Biotechnology to Environmental Studies to Space Science. Our BSc gives you the ability to combine your interests and career aspirations to create a degree that is individual to you.

Our career-focused curriculum means that you'll graduate with the knowledge and skills to both understand scientific theories and undertake research. Your BSc will position you ahead of other graduates in Aotearoa New Zealand and the world, with skills in collecting, analysing, and understanding data, thinking critically and creatively, and communicating your ideas effectively.

As a student, you'll find yourself surrounded by people passionate about science. Our staff are world leaders in their fields of research, and you'll benefit from their expertise in lecture theatres and laboratory sessions. Much of their ground-breaking research is carried out in the University's excellent facilities and out in the field, utilising Wellington's vibrant science community. Wellington is home to many national organisations and has the highest concentration of science organisations in the country. Our capital-city location places our University at the heart of science discovery, and our relationships with Wellington's science community provide you with opportunities to gain valuable work experience and summer internships. You'll be surrounded by researchers who are key voices in significant debates, discussions, and discoveries.

The 2023 QS World University Rankings by Subject placed Development Studies, Earth and Marine Sciences, Geography, and Psychology at Victoria University of Wellington in the top 150 worldwide. In the latest Performance-Based Research Fund national assessment of research excellence, we were ranked first in New Zealand for the proportion of top-quality researchers across Biomedical Science, Earth Sciences, and Human Geography.

Join us in the heart of science discovery in Aotearoa and change the world for the better.

FIND OUT MORE ✓ info@vuw.ac.nz i www.wgtn.ac.nz/bsc

i www.wgtn.ac.nz/science



CAREER OPPORTUNITIES

A BSc provides the ideal foundation for a career in any scientific area. Employers recognise that Wellington's Science graduates, with adaptable skills and the ability to think critically and creatively about challenging issues, are especially suited to the jobs of the twenty-first century.

You could become a clinical psychologist, conservation biologist, data scientist, marine scientist, meteorologist, physicist, or teacher—the possibilities are endless and, in our changing world, your future career may not even exist yet.

www.wgtn.ac.nz/careers

POSTGRADUATE STUDY

A BSc may lead to further study at Honours, Master's, or PhD level. Postgraduate study is the ideal grounding for a career in any area of science, from biotechnology to theoretical physics, and is a requirement for some careers in science.

www.wgtn.ac.nz/science/postgraduate

SCHOOL SUBJECTS

It is useful to have studied Science and Mathematics at NCEA Level 3. Some Science courses have specific NCEA Level 3 entry requirements, and others have no specified criteria. You'll find entry requirements on the subjects and courses pages (from page 137).

If you feel you haven't studied enough science at secondary school or have not met the NCEA (or equivalent) requirements for a subject, there are alternative pathways available—the Future Students team can give you more information.



MAJORS

Major	Code
Actuarial Science	ACTS
Artificial Intelligence	AIML
Biology	BIOL
Biotechnology	BTEC
Cell and Molecular Bioscience	CBIO
Chemistry	CHEM
Computer Graphics and Games	CGRG
Computer Science	COMP
Data Science	DATA
Development Studies	DEVE
Ecology and Biodiversity	EBIO
Electronic and Computer Systems	ELCO
Environmental Science	ENSC
Environmental Studies	ENVI
Geography	GEOG
Geology	ESCI
Geophysics	GPHS
Information Systems	INFO
Marine Biology	BMAR
Mathematics	MATH
Physical Geography	PHYG
Physics	PHYS
Psychological Science*	PSYC
Science Communication	SCOM
Space Science	SPCE
Statistics	STAT

*Subject to regulatory approval.

OTHER SUBJECTS

Science in Society (SCIS) is a minor offered in a range of disciplines and is designed to develop scientific literacy and communication of scientific ideas.

DEGREE REQUIREMENTS

Three years of full-time study (or longer if studying part time).

A total of 360 points is required:

- at least 210 points from courses above 100 level, including at least 120 points from the BSc Schedule
- at least 75 points from courses numbered 300–399
- at least 15 points from ENGR 121–123, ENGR 142, MATH, PHYS, QUAN, STAT.

Other important information

You may also select a second major or minor for your BSc in undergraduate subject areas for the Bachelor of Arts, Bachelor of Biomedical Science, Bachelor of Design Innovation, Bachelor of Health, and Bachelor of Science.

For more information about minors, see page 43.

MAJOR REQUIREMENTS

It is recommended that you apply for admission as soon as possible (see page 22 for details).

The requirements listed below are the requirements to complete a major; degree regulations are listed in the University's *Calendar*.

You must complete major requirements in at least one major below. Many courses have specific prerequisites—check the subjects and courses pages (from page 137).

In most cases, but not all, the courses listed in (a) of the major requirements below are what you need to take in your first year. To find out details of what a course is about and when it is taught, refer to the subjects and courses pages (from page 137).

Actuarial Science (ACTS)

- a. Complete six courses at 100 level: ACCY 130, ECON 130, ECON 141, MATH 142, MATH 151 (or at least a B+ in QUAN 111), MATH 177.
- b. Complete four courses at 200 level: ACTS 201, ECON 201, FINA 201 or FINA 202, MATH 277.
- c. Complete four courses at 300 level: ACTS 301, either FINA 303 or FINA 306, STAT 335, and one further course from ACTS 336, FINA 303, FINA 306, MATH 377.

Artificial Intelligence (AIML)

- a. Complete five courses at 100 level:
 - AIML 131
 - ▶ COMP 102 or COMP 112
 - ▶ COMP 103
 - Either ENGR 121 and ENGR 123 or MATH 161 and one of MATH 177, QUAN 102, or STAT 193.
- b. Complete five courses at 200 level:
 - AIML 231, AIML 232
 - ▶ one course from COMP 261, NWEN 241, SWEN 221
 - MATH 177 or STAT 292
 - one course from DATA 201, DATA 202, ENGR 222.

- c. Complete four courses at 300 level:
 - AIML 335 or AIML 339
 - two further courses from AIML 331–335
 - one further course from AIML 331–338, COMP 361, DATA 301, DATA 303, DATA 304, SWEN 303, SWEN 304.

Biology (BIOL)

- a. Complete four courses at 100 level: BIOL 111, BIOL 113, BIOL 114, and STAT 193 or equivalent.
- Complete courses worth 60 points from BIOL, BMSC, or BTEC 201–299.
- c. Complete courses worth 60 points from BIOL, BMSC, or BTEC 301–399.

The Biology major is not recommended if you wish to progress into the Bachelor of Science with Honours (BSc(Hons)) or Master of Science (MSc) in Biological Sciences. If you're interested in doing this, you should enrol in one of the other Biological Sciences majors (Biotechnology, Cell and Molecular Bioscience, Ecology and Biodiversity, or Marine Biology).

Biotechnology (BTEC)

- a. Complete four courses at 100 level: BIOL 111, BTEC 101, CHEM 121, and either CHEM 122 or PHIL 106 (or the non-100 level alternatives SCIS 211 or PHIL 361).
- b. Complete four courses at 200 level:
 - ▶ BIOL 241, BTEC 201
 - two courses from BIOL 236, BIOL 244, BIOL 252, CHEM 201, CHEM 205.
- c. Complete three courses at 300 level:
 - ▶ BTEC 301, SCIE 310
 - one course from BIOL 340, BMSC 301, BMSC 334, BMSC 339, CHEM 301, CHEM 305.

Cell and Molecular Bioscience (CBIO)

- a. Complete four courses at 100 level: BIOL 111, BIOL 113, BIOL 114, CHEM 121.
- b. Complete four courses at 200 level: BIOL 241, BIOL 243, BIOL 244, BIOL 252.
- c. Complete three courses at 300 level:
 - ▶ BIOL 340, BMSC 339
 - one course from BMSC 334, BMSC 335, BMSC 343, BMSC 354, BTEC 301.

Chemistry (CHEM)

- a. Complete four courses at 100 level:
 - ▶ CHEM 121, CHEM 122
 - one course from ENGR 121, MATH 100–199, PHYS 101, PHYS 142–145, QUAN 111
 - one course from BIOL 111, BMSC 117, BTEC 101, ESCI 111, ESCI 112, GEOG 114.
- Complete four courses at 200 level: CHEM 201, CHEM 202, CHEM 203, and either CHEM 205 or CHEM 206.
- c. Complete four courses at 300 level from CHEM 301, CHEM 302, CHEM 303, CHEM 305, CHEM 306.

Computer Graphics and Games (CGRG)

- a. Complete the following courses at 100 level:
 - ▶ CGRA 151
 - COMP 102 or COMP 112
 - ► COMP 103
 - DSDN 102 or DSDN 132
 - ▶ ENGR 121 or MATH 151.
- b. Complete the following courses at 200 level:
 - ▶ CGRA 252
 - COMP 261 or SWEN 221
 - ▶ NWEN 241
 - one course from ANFX 201, CGRA 259, MATH 245
 - one course from ENGR 123, MATH 161, MATH 251.
- c. Complete three courses at 300 level:
 - ▶ CGRA 359
 - ▶ two further courses from CGRA 300-399, SWEN 303.

Computer Science (COMP)

- a. Complete the following courses at 100 level:
 - COMP 102 or COMP 112
 - ▶ COMP 103
 - either ENGR 121 and ENGR 123 or MATH 161 and one of MATH 177 or QUAN 102 or STAT 193.
- Complete four courses at 200 level: COMP 261, and three further courses from AIML, CGRA, COMP, CYBR, NWEN, or SWEN 200–299.
- c. Complete 60 points at 300 level:
 - ▶ two courses from COMP, SWEN, NWEN 300-399
 - 30 further points from AIML, CGRA, COMP, CYBR, NWEN, SWEN 300–399.

Data Science (DATA)

- a. Complete three courses at 100 level:
 - ▶ DATA 101
 - one course from COMP 102, COMP 112, COMP 132, INFO 102
 - one course from MATH 177, QUAN 102, STAT 193.
- b. Complete four courses at 200 level:
 - DATA 201, DATA 202
 - one course from MATH 277, QUAN 203, STAT 292
 - one further course from AIML 231, AIML 232, COMP 261, GEOG 215, INFO 206 (or INFO 264), MATH 245, MATH 251, MATH 261, MATH 277, PHIL 269, QUAN 201, QUAN 203, STAT 292, STAT 293.
- c. Complete four courses at 300 level:
 - DATA 301, DATA 303
 - one course from COMP 309 or DATA 302*
 - one course from AIML 331–339, DATA 304–399, COMP 307, ECON 303, GEOG 315, INFO 304, INFO 307, INFO 310, INFO 311, MARK 317, MATH 353, MGMT 315, MGMT 316, STAT 391, STAT 392, STAT 394, SWEN 304.

*Students who have passed AIML 231 may substitute one of (DATA 304–399, STAT 391, STAT 392, STAT 394) for DATA 302.

Development Studies (DEVE)

- Complete three courses at 100 level: GEOG 112 and one approved regional-based course and one approved subject-based course.
- b. Complete three courses at 200 level: GEOG 212 and one approved regional-based course and one approved subject-based course.
- c. Complete three courses at 300 level: GEOG 312, GEOG 316, and one approved 300-level course.

Lists of approved regional- and subject-based courses are on page 164 and online. GEOG 324 and GEOG 325 are strongly recommended for anyone interested in development studies research practice. These courses are required for the GEOG and PHYG majors, so if you're taking Development Studies as a double major with one of these majors, you cannot count these courses as part of the Development Studies major.

This major requires careful planning. We recommend you look at the Geography, Environment and Earth Sciences website (www.wgtn.ac.nz/sgees) and talk to a student success adviser.

Ecology and Biodiversity (EBIO)

- a. Complete four courses at 100 level: BIOL 111, BIOL 113, BIOL 114, STAT 193.
- b. Complete four courses at 200 level: BIOL 222, BIOL 241 or STAT 292, and two further courses from BIOL 227, BIOL 228, BIOL 236, BIOL 241.
- c. Complete three courses at 300 level: BIOL 327 and two further courses from BIOL 325, BIOL 328, BIOL 329.

Electronic and Computer Systems (ELCO)

- a. Complete five courses at 100 level:
 - either COMP 102 or COMP 112
 - either MATH 142 and MATH 151 or ENGR 121 and ENGR 122
 - either ENGR 141 and ENGR 142 or PHYS 142 and PHYS 145.
- b. Complete four courses at 200 level:
 - ▶ EEEN 202, EEEN 203, EEEN 204
 - one course from AIML 231, EEEN 201–299, ENGR 201, NWEN 241.
- c. Complete four courses from EEEN 301–399, RESE 321, RESE 322.

Environmental Science (ENSC)

This must be studied with a second major from Biology, Chemistry, Ecology and Biodiversity, Geography, Geology, Geophysics, Marine Biology, Mathematics, Physical Geography, Physics, or Statistics.

- Complete four courses from BIOL, CHEM, ESCI, GEOG, MATH, PHYS, STAT 100–199, including: STAT 193 and one course in MATH.
- b. Complete GEOG 214 and courses worth 40 points from BIOL, CHEM, ESCI, GEOG, MATH, PHYS, STAT 200–299 (in addition to those required by the partner major).
- c. Complete courses worth 60 points at 300 level, including:
 - ▶ ENSC 301
 - either ENSC 302 or ENSC 303
 - ▶ further approved 300-level course(s).

Environmental Studies (ENVI)

- a. Complete four courses at 100 level: GEOG 112, GEOG 114, STAT 193 or QUAN 102; one course from ESCI 111, MAOR 123, POLS 111, PUBL 113.
- b. Complete three courses at 200 level:
 - ▶ GEOG 214
 - MAOR 216
 - one further course from GEOG 200–299.
- c. Complete three courses at 300 level:
 - ▶ GEOG 314
 - courses worth at least 40 further points from: MAOR 301, PUBL 307, GEOG 300–399, SCIS 300–399.

Geography (GEOG)

- a. Complete four courses at 100 level: ESCI 111, GEOG 112, GEOG 114, STAT 193 or equivalent.
- b. Complete three courses at 200 level: GEOG 215, GEOG 217, and one course from GEOG 212, GEOG 214, GEOG 216, GEOG 222.
- c. Complete four courses at 300 level:
 - ▶ GEOG 324, GEOG 325
 - ▶ one course from GEOG 312-316 or GEOG 322
 - one further course from GEOG 300–399.

Geology (GEOL)

- a. Complete four courses at 100 level:
 - ► ESCI 111, ESCI 112
 - 15 points from CHEM 113–122, ENGR 121–142, MATH 141–177, PHYS 101–199, QUAN 102–111, STAT 193
 - at least 15 points from ENGR 121–142 or any 100-level MATH/PHYS/QUAN/STAT course.
- b. Complete four courses at 200 level: ESCI 202, ESCI 203, ESCI 204, ESCI 241.
- c. Complete five courses at 300 level: ESCI 301, ESCI 302, ESCI 341, ESCI 342; and either ESCI 303 or ESCI 305.

Geophysics—Meteorology (GPHS)

- a. Complete six courses at 100 level:
 - ▶ either COMP 102 or COMP 112 or COMP 132
 - either ESCI 111 or ESCI 112
 - either MATH 142 and MATH 151 or ENGR 121 and ENGR 122
 - either PHYS 101 and PHYS 142 or ENGR 141 and ENGR 142.
- b. Complete four courses at 200 level:
 - two courses from ENGR 222, MATH 200–299 (not including MATH 261)
 - ▶ two courses from PHYS 200-299.
- c. Complete four courses at 300 level:
 - MATH 322, MATH 323
 - two further courses from DATA, MATH, or PHYS 300–399.

Geophysics—Solid Earth (GPHS)

- a. Complete five courses at 100 level:
 - either COMP 102 or COMP 112 or COMP 132
 - ▶ ESCI 112
 - either MATH 142 and MATH 151 or ENGR 121 and ENGR 122
 - either PHYS 101 and PHYS 142 or PHYS 101 and PHYS 131 or ENGR 141 and ENGR 142.
- b. Complete five courses at 200 level:
 - ► ESCI 203
 - one course from PHYS 200–299
 - two further courses from ESCI 241, DATA 202, ENGR 222, MATH 200–299 (not including MATH 261), PHYS 200–299.
- Complete four courses at 300 level: ESCI 305, ESCI 344, MATH 323, and one further course from ESCI, MATH or PHYS 300–399.

Information Systems (INFO)

- a. Complete three courses at 100 level: INFO 101, INFO 102 (or one of COMP 102, COMP 112, COMP 132), INFO 103.
- b. Complete three courses at 200 level: INFO 201, INFO 202, INFO 203.
- Complete three courses at 300 level: one course from INFO 301–304, and two further courses from INFO 301–399.

If you are completing a major in Information Systems, you may obtain a specialisation in Business Analysis, IT Solutions, or Organisational Data. Go to www.wgtn.ac.nz/bcom for more information.

Marine Biology (BMAR)

- a. Complete four courses at 100 level: BIOL 111, BIOL 113, BIOL 114, STAT 193.
- b. Complete four courses at 200 level: BIOL 227, BIOL 228, BIOL 271, STAT 292.
- c. Complete three courses at 300 level:
 - ▶ BIOL 371, BIOL 372
 - either BIOL 370 or BIOL 373.

Mathematics (MATH)

- a. Complete three courses at 100 level: MATH 142, MATH 151, MATH 161.
- b Complete one course from: COMP 100–199, DATA 202, ENGR 222, MATH 245, STAT 293.
- c. Complete eight courses from MATH 200–399, of which at least four courses must be from MATH 300–399.

Physical Geography (PHYG)

- a. Complete four courses at 100 level:
 - ▶ ESCI 111, GEOG 114
 - either ESCI 112 or GEOG 112
 - one course in MATH, PHYS, QUAN, STAT.
- b. Complete three courses at 200 level:
 - ▶ GEOG 222
 - ▶ two courses from GEOG 215, GEOG 220, GEOG 224.
- c. Complete four courses at 300 level:
 - ▶ GEOG 324, GEOG 325
 - ▶ two courses from GEOG 318, GEOG 319, GEOG 321.

Physics (PHYS)

- Complete four courses at 100 level: MATH 142 and MATH 151 or ENGR 121 and B+ or better in ENGR 122, PHYS 142, PHYS 145.
- b. Complete five courses at 200 level:
 - ▶ PHYS 241 and PHYS 242
 - one of PHYS 243 or PHYS 245
 - one course from CHEM 205–206, EEEN 201–204, PHYS 201–259
 - one further course from COMP 261, MATH 200–299, NWEN 241, STAT 292.
- c. Complete four courses at 300 level: PHYS 304, PHYS 305, PHYS 307, PHYS 345.

Psychological Science (PSCI)*

- a. Complete four courses at 100 level: MAOR 126, PSYC 121, PSYC 122, STAT 193 (or QUAN 102).
- b. Complete five courses at 200 level: PSYC 201, PSYC 202, PSYC 221, PSYC 232, PSYC 242.
- c. Complete three courses at 300 level: PSYC 301, PSYC 302, PSYC 321.

Educational Psychology (EDPS) and Psychological Science (PSCI) can only be taken as a double major in the BPsyc.

*Subject to regulatory approval.

Science Communication (SCOM)

- a. Complete two courses at 100 level: COMS 101, SCIS 101.
- b. Complete three courses at 200 level: COMS 201, SCIS 211, SCIS 213.
- c. Complete three courses at 300 level:
 - SCIS 311
 - either SCIS 314 or SCIS 316
 - at least 15 further points from COMS 300–399, SCIS 300–399.
- d. One further course from SCIS 200–399.
- Complete the requirements of a minor or major in another BSc or BBmedSc subject, except the Science in Society minor.

Note: With permission of the associate dean, a candidate may be exempted from requirement (e) if they have previously completed a set of courses equivalent to a BSc or BBmedSc major or minor.

Space Science (SPCE)

- a. Complete four courses at 100 level:
 - SPCE 101, SPCE 102
 - ▶ one course from COMP 102, COMP 112, or COMP 132
 - one course from ENGR 121, MATH 132, MATH 141, MATH 142, or QUAN 111.
- b. Complete four courses at 200 level: SPCE 201, SPCE 245 (or PHYS 245), DATA 201, and GEOG 215
- c. Complete four courses at 300 level: SPCE 301, SPCE 345, GEOG 315; and one course from ESCI 305, SCIS 311, or SPCE 360.

Statistics (STAT)

- a. Complete either MATH 177 or STAT 193 and one further course from MATH 100–199 or STAT 100–199.
- b. Complete four courses at 200 level:
 - either STAT 292 and STAT 293 or MATH 243 and MATH 277
 - ► two further 200-level Science courses.
- c. Complete four courses at 300 level:
 - STAT 332 or STAT 393
 - ▶ one further course from STAT 300-399
 - two further courses at 300 level from DATA 303, DATA 304, MATH, or STAT.

DEGREE EXAMPLES

BSc majoring in Marine Biology and Data Science

YEAR 1		YEAR 2		YEAR 3	
1/3	2/3	1/3	2/3	1/3	2/3
BIOL 113	BIOL 111	BIOL 228	BIOL 227	BIOL 370	BIOL 372
15 points	15 points	20 points	20 points	20 points	15 points
BIOL 114	STAT 193	STAT 292	BIOL 271	BIOL 371	DATA 301
15 points	15 points	15 points	20 points	20 points	15 points
DATA 101	COMP 132	DATA 202	DATA 201	DATA 303	DATA 300 level
15 points	15 points	15 points	15 points	15 points	15 points
Elective	Elective		STAT 293	DATA 302	Elective
15 points	15 points		15 points	15 points	15 points
60 points	60 points	50 points	70 points	70 points	60 points
120 points		120 points		130 points	

Total points required: 360

Total points completed: 370

BSc majoring in Geography and Science Communication

YEAR 1		YEAR 2		YEAR 3	
1/3	2/3	1/3	2/3	1/3	2/3
ESCI 111	GEOG 112	GEOG 212	GEOG 215	GEOG 324	GEOG 325
15 points	15 points	20 points	20 points	10 points	10 points
GEOG 114	STAT 193	SCIS 211	GEOG 217	GEOG 300 level	GEOG 300 level
15 points	15 points	15 points	20 points	20 points	20 points
COMS 101	Elective	COMS 201	SCIS 213	SCIS 311	SCIS 300 level
20 points	15 points	20 points	15 points	15 points	15 points
SCIS 101	Elective	Elective		SCIS 300 level	SCIS 300 level
15 points	15 points	15 points		15 points	15 points
65 points	60 points	70 points	55 points	60 points	60 points
125 points		125 points		120 points	

Total points required: 360 Total points completed: 370

BSc majoring in Chemistry with a minor in Psychological Science*

YEAR 1		YEAR 2		YEAR 3	
1/3	2/3	1/3	2/3	1/3	2/3
CHEM 121 15 points	CHEM 122 15 points	CHEM 201 15 points	CHEM 203 15 points	CHEM 300 level 15 points	CHEM 300 level 15 points
MATH 141 15 points	BIOL 111 15 points	CHEM 202 15 points	CHEM 205/206 15 points	CHEM 300 level 15 points	CHEM 300 level 15 points
PSYC 121 15 points	PSYC 122 15 points	PSYC 232 15 points	PSYC 242 15 points	Elective 15 points	Elective 15 points
Elective 15 points	STAT 193 15 points	PSYC 201/221 15 points	Elective 15 points	Elective 15 points	PSYC 300 level 15 points
60 points	60 points	60 points	60 points	60 points	60 points
120 points		120 points		120 points	
*Subject to regulatory approval. Total points required: 36					

Total points completed: 360

 Key:
 Major 1
 Major 2
 Minor
 Elective



"The support system I've received as a student has been outstanding. Staff are highly knowledgeable, approachable, and always willing to provide guidance and mentorship. The academic resources available for students have been invaluable in enhancing my learning experience and have enriched my understanding of physics.

"I love studying in Wellington. The city's environment has definitely contributed to my overall positive experience as a student. Wellington's rich cultural scene provides ample opportunities in all fields and the city's welcoming atmosphere has made me feel at home and form meaningful connections with students and faculty members. Wellington's natural beauty provides a perfect balance between city life and access to nature. The hills may be a hike but the views are worth it!"

TESSA FRAZER

Student, Bachelor of Science in Physics and Bachelor of Music in Classical Performance