EARTH SCIENCES
UNDERGRADUATE HANDBOOK
2017

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

SCIENCE

Welcome to the School of Environment

Earth Sciences at the University of Auckland combines geology and physical geography into an integrated programme that is relevant to contemporary issues within the Earth and at its surface.

Earth Sciences is offered by the School of Environment, and as one of the largest schools of its type in Australasia we offer a diverse range of courses for undergraduate and postgraduate study. The School houses a vibrant community of more than 50 instructors and researchers. Collectively, this mix of interests creates a rich and stimulating teaching and research environment.

New Zealand and the South Pacific region offer an exciting environmental laboratory to examine a range of globally relevant research questions. Studying with us at Auckland provides the perfect gateway to access this unique natural laboratory.

Earth Sciences is available as a subject major to students studying the Bachelor of Science degree programme. Undergraduate studies in Earth Sciences feature practical, real-world experiences and field trips form an important part of several courses. The core second and third year field courses are especially popular and offer students the opportunity to apply their learning outside the classroom.

Undergraduate Earth Sciences is an excellent foundation for a wide range of careers and several options for postgraduate study. The School provides the opportunity to undertake postgraduate research across a range of topics alongside many of New Zealand's leading scientists. We have an impressive array of field equipment and analytical facilities to support our research activities.

I am confident that you will find studying Earth Sciences a satisfying and rewarding experience, and we look forward to working with you to meet your academic goals.

PROFESSOR PAUL KENCH
Head, School of Environment

▲ *EARTHSCI 301 field course. Photo by N. Hudson*

◀ *EARTHSCI 303-Sedimentary Paleoenvironments field trip. Cover photo by K. Campbell*

Bachelor of Science in Earth Sciences

Earth Sciences is available as a major in the BSc degree. It combines courses from Geology and Physical Geography and allows students to explore the processes that have shaped Earth, from its deepest interior to its surface, and into neighbouring space.

The Earth Sciences major enables you to gain practical and theoretical knowledge that is critical to understanding Earth and the environment we live in.

The programme allows students to investigate the complexity and interactions of Earth's systems, and consider the impact of natural processes on society, and vice versa. Knowledge of Earth Science is important for understanding how natural resources form, better stewardship of our environment and natural hazard risk management. Courses in the Earth Sciences programme explore such issues as Earth's origin and evolution; plate tectonics; past life, climate and environments; and the dynamic nature of Earth surface and subsurface processes interacting with the atmosphere, lithosphere, hydrosphere, cryosphere and biosphere. Earth Science also tackles issues of resource identification and use - groundwater, mining, oil and gas exploration, and alternative energy.

A distinctive element of the major is an emphasis on field skills, an excellent way to bring to life concepts discussed in lectures and laboratories to interpret geological and earth surface processes.

3 The average number of years it takes to complete a Bachelor of Science degree

You can choose either a single or double major

Preparation for School Leavers

Students will be selected on the basis of their rank score. There are no required subjects. English-rich subjects are recommended as well as Chemistry, Physics, Geography, Calculus or Statistics.

For course planning and enrolment, go to www.science.auckland.ac.nz/student-centre

For more information on UG study in Earth Sciences, visit www.env.auckland.ac.nz/en/for/future-undergraduates

For course descriptions, go to www.science.auckland.ac.nz/environment-UG

Complementary majors

A double major is strongly recommended as it will enhance your career options by providing a broader base of skills and knowledge.

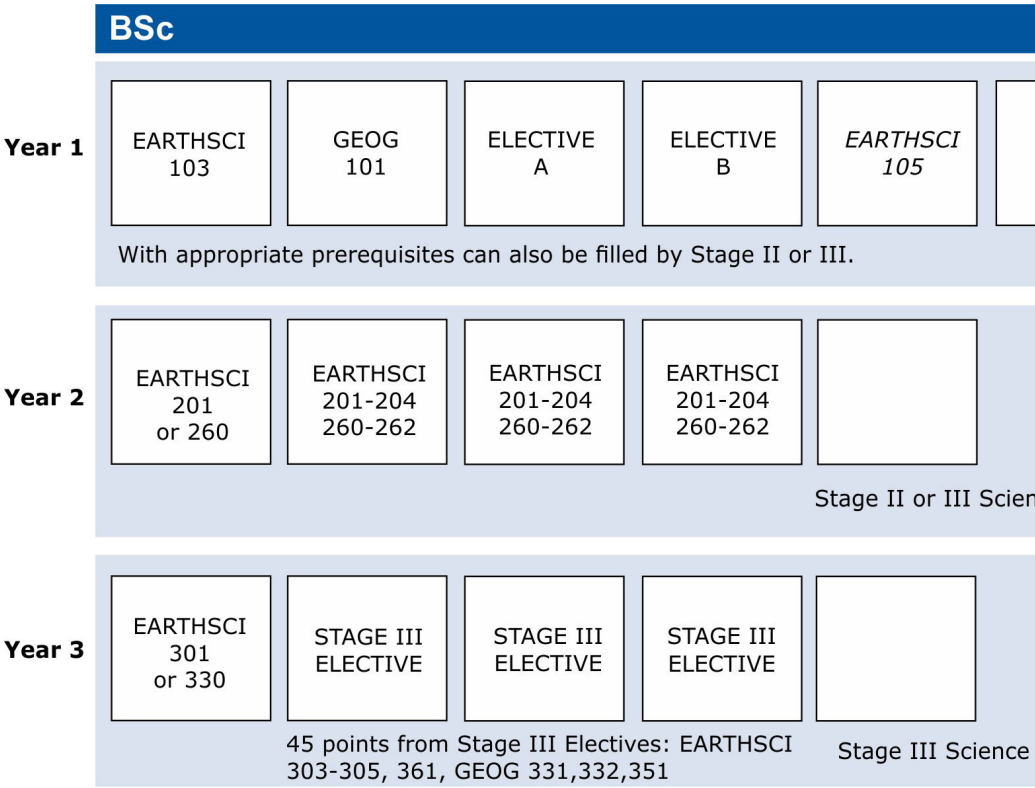
Earth Sciences + **Biological Sciences**

EARTH SCIENCES +

Biological Sciences	Marine Science
Chemistry	Mathematics
Environmental Science	Physics
Geography	Statistics
Geophysics	

www.science.auckland.ac.nz/doublemajors

Planning your major



1. Courses in a minimum of three subjects listed in the BSc Schedule.
2. At least 180 points (12 courses) must be above Stage 1.
3. Up to 30 points (2 courses) may be taken from outside the Faculty.
4. 30 points (2 courses) must be taken from the appropriate General Education Schedules for BSc students.
5. At least 75 points must be at Stage III, of which 60 points must be in the majoring subject.

Below are some recommended electives for pathways in Earth Science:

Geology: EARTHSCI 201, EARTHSCI 202, EARTHSCI 203, EARTHSCI 204, EARTHSCI 210, EARTHSCI 301, EARTHSCI 303, EARTHSCI 304, EARTHSCI 305 or 307, EARTHSCI 306, EARTHSCI 361

Surface Processes: EARTHSCI 105, EARTHSCI 210, EARTHSCI 262, EARTHSCI 263, EARTHSCI 330, GEOG 331, GEOG 351

Climate: EARTHSCI 105, EARTHSCI 261, MARINE 202, EARTHSCI 307, GEOG 332, GEOG 334, GEOG 351, EARTHSCI 360

To view regulations for majors, and course descriptions, see **www.calendar.auckland.ac.nz**

Elective A: 15 points: MATHS 108, 110, 150, 162, STATS 101, 108, EARTHSCI 263

Elective B: 15 points: BIOSCI 101, 102, 104, 106, CHEM 110, 120, GEOG 210, MATHS 108, 110, 150, 162, STATS 101, 108, PHYSICS 120, 130, 150, 160

GEN ED

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Any Stage

GEN ED

Stage II or III Science

Beach survey. Photo by M.Dickson

Undergraduate Earth Sciences courses

Course code	Course title	Semester
Stage I		
EARTHSCI 103	Dynamic Earth	1,2
EARTHSCI 105	Natural Hazards in New Zealand	1
GEOG 101	Earth Surface Processes and Landforms	1,2
Stage II		
EARTHSCI 201	Field Skills and Methods in Earth Sciences	1
EARTHSCI 202	Evolution of Earth and Life	2
EARTHSCI 203	Rock Genesis	1
EARTHSCI 204	Earth Structure	2
EARTHSCI 205	New Zealand: Half a Billion Years on the Edge	1
EARTHSCI 210	Introduction to GIS and Spatial Thinking	2
EARTHSCI 260	Field Studies in Earth Surface Processes	2
EARTHSCI 261	Climate, Hydrology and Biogeography	1
EARTHSCI 262	Geomorphology	2
EARTHSCI 263	Tools and Techniques for the Earth Sciences	2
Stage III		
EARTHSCI 301	Advanced Field Geological Skills and Methods	Summer
EARTHSCI 303	Sedimentary Paleoenvironments	1
EARTHSCI 304	Geochemistry and Petrology	1
EARTHSCI 305	Tectonics and Geodynamics	2
EARTHSCI 306	Applied Earth Sciences	2
EARTHSCI 307	Dynamic Quaternary Environments	1
EARTHSCI 330	Research Methods in Physical Geography	2
EARTHSCI 360	Climate and Ocean Processes	2
EARTHSCI 361	Exploration Geophysics	1
EARTHSCI 372	Engineering Geology	2
GEOG 331	Fluvial Geomorphology	1
GEOG 332	Climate and Environment	1
GEOG 334	Environmental Change	2
GEOG 351	Coastal and Marine Studies	1
Other complementary courses		
SCIGEN 101	Communicating for a Knowledge Society	1,2
SCIGEN 201	Innovating for a Knowledge Society	1
MARINE 202	Principles of Marine Science	1

Careers in Earth Sciences

The employment pathways for Earth Sciences graduates are varied and include:

- Environmental consultancies
- Energy industry (geothermal and petroleum)
- Engineering companies
- Local authorities
- Central government
- Science teaching

Earth scientists with a geology focus are also responsible for monitoring hazards, such as volcanic activity, earthquakes, landslip and subsidence, which affect us and the communities we live in. Furthermore, some graduates use their training in data analysis techniques to move into employment in information technology industries.

Alex Davidson is studying a Bachelor of Science majoring in Earth Sciences

"My major passion is geochemistry, in particular dealing with volcanic and geothermal systems. I've also found the structural and engineering geology aspects really interesting.

"I love that with Earth Sciences you can get outside and put into practice the theory you learn within the course. The field study papers are always a fun experience where you learn how to implement the skills you have learnt through your degree whilst having a great time away with your friends. I've always been passionate about getting outdoors for an adventure so naturally Earth Sciences was the best major for me."

Useful contacts

We encourage you to discuss your undergraduate programme with one of the advisers below:

Earth Sciences Advisers

Dr Barry O'Connor
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+64 9 923 5381
School of Environment
Building 302,
Level 4, Room 429,
23 Symonds Street,
Auckland 1010

Dr Nick Richards
n.richards@auckland.ac.nz
+64 9 923 5286
School of Environment
Building 302,
Level 4, Room 439,
23 Symonds Street,
Auckland 1010

Helpful information

Academic dates	www.auckland.ac.nz/dates
Academic Integrity Course	www.auckland.ac.nz/academic-integrity
Accommodation	www.accommodation.auckland.ac.nz
Buy coursebooks	www.science.auckland.ac.nz/resource-centre
Career Development and Employment Services	www.auckland.ac.nz/careers
Course advice and degree planning in Science	www.science.auckland.ac.nz/student-centre
General education	www.auckland.ac.nz/generaleducation
How to apply	www.apply.auckland.ac.nz
How to enrol	www.auckland.ac.nz/enrolment
International students	www.international.auckland.ac.nz
Māori and Pacific students	www.science.auckland.ac.nz/tuakana
Need help?	www.askauckland.ac.nz
Rainbow Science Network for LGBTI students	www.science.auckland.ac.nz/rainbowscience
Scholarships and awards	www.scholarships.auckland.ac.nz
Support for students	www.science.auckland.ac.nz/support

Applications close on December 8.

Questions about Earth Sciences? email environment@auckland.ac.nz

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