

CAREERS WITH STEM™

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EARTH+ ENVIRONMENTAL SCIENTISTS

Insights, information
and experiences
from careers in Earth and
Environmental Sciences

SUPPORTED BY

QUT



Spark your career in science.

Rabecka Joseph chose to study a Bachelor of Science Advanced (Honours) at QUT, anticipating that it would lead to better work opportunities as a biological researcher after she graduates.

As a science-loving high school student, Rabecka was particularly drawn to QUT's emphasis on practical learning, real-world applications, student support and passionate STEM staff.

Now settled into her stride at QUT, Rabecka finds practicals to be the most challenging part of her course, and also the most beneficial. Opportunities to work with advanced technologies and future applications are inspiring and rewarding.

To discover more of Rabecka's story and learn about studying science at QUT, visit our website.

qut.edu.au/study-science-advanced

the university
for the real world



DOWN TO EARTH

Do you love exploring the outdoors, nature and cutting-edge tech? Then a career in Earth science or environmental science should be on your radar



PROFESSOR CARMEN GAINA
HEAD OF SCHOOL, EARTH AND
ATMOSPHERIC SCIENCES, QUT

I grew up in a small suburban apartment in a communist country, but I always loved being outdoors and exploring the wider world around me. I also liked maths and physics at school, but while my father encouraged me to pursue a career in engineering, I wasn't excited by the idea of working indoors, surrounded by machinery.

Then I discovered geophysics and everything clicked. Geoscientists use physics and technology to explore the unknown. That could be mapping unexplored parts of our oceans, revolutionising our energy systems in the face of climate change or tackling the challenge of improving access to clean water and air.

Just as the Earth is a holistic system, the Earth and environmental sciences are holistic sciences. They provide insight into how nature works and equip you with tools that can be used in a flexible career: lab and numerical skills; the ability to understand complex systems; knowledge in maths, chemistry, physics, coding, geography and more.

This is a career that will take you to amazing places on Earth — and even beyond.

A high-tech playground

Of course geoscience isn't the only STEM career path for people passionate about exploring, understanding and, ultimately, protecting our Earth. Whether your study and work journey takes you down the path of hydrology, soil science, ecology, oceanography or geochemistry, a fascinating career awaits.

THIS IS A CAREER THAT WILL TAKE YOU TO AMAZING PLACES ON EARTH — AND EVEN BEYOND"

Nature is at the core of these jobs, but cutting-edge technology is critical. Satellite data is already used extensively and observations from drones and automated underwater vehicles will be the norm in the very near future. So if you like software development, numerical modelling or sophisticated visualisation, then Earth science or environmental science is a wonderful playground for these skills.

The mining industry has always been a big employer of Earth science graduates in Australia and, while this trend is still strong, the number of available career paths is growing. Your career could take you into academia like me, to a government agency such as Geoscience Australia, the Australian Space Agency or CSIRO, or you may have an entrepreneurial spirit, applying your transferable skills and qualifications to start your own business! The world is before you.

HEAD OF SCHOOL, EARTH AND
ATMOSPHERIC SCIENCES, QUT

DIRECTOR, CENTRE FOR EARTH
EVOLUTION AND DYNAMICS

SENIOR RESEARCHER +
TEAM LEADER,
UNIVERSITY OF OSLO

PHD, GEOPHYSICS,
UNIVERSITY OF SYDNEY

Check out [CareerswithSTEM.com](https://careerswithstem.com) for more insights, information, inspiration and advice about Earth & environmental scientist careers!

Get paid to save the planet

Put down the lab coat. There's a world full of roles in conservation out there — Lab time optional

Earth and environmental scientists are arguably some of the most important STEM experts in the world right now. With climate change a very real threat to communities, these folks are at the forefront of protecting the natural world.

Studying, developing, implementing and advising on policies and plans for managing and protecting the world's resources is all in a day's work. And the coolest bit? The number of environmental scientists is expected to grow from 28,600 to 30,800 by 2025, which means the opportunities for STEM grads are epic!

So many of you!

In **2020** there were **28,600 environmental scientists employed in Australia.**

And yep – we still need more!

STUDY UP

With Earth and environmental sciences, there are so many different pathways and careers to look into — climate science, marine biology, meteorology, atmospheric science, volcanology and conservation are just a few examples — so thinking ahead and getting clued up in a relevant field is important.

Year 11 and 12 science is a great foundation for any career scientist, but sticking with biology, chemistry, geology and environmental studies electives are particular pluses when it comes to eco careers.

Suss out undergraduate degrees like a straight-up Bachelor of Science with relevant majors like Earth science or environmental science. And if you're still keen to keep learning? Postgraduate degrees are also another way to knuckle down and soak up your specialisation.

TOTALLY NATURAL

Naturally, when it comes to any eco STEM career, every day on the job is different! Depending on which pathway you head down, you could be spending your 9-to-5 patrolling parks, digging up samples, studying the ocean or watching the weather.

Among the many things the average Earth or environmental scientists could be responsible for are:

- implementing advice to ensure an environmentally sustainable future;
- educating others about conservation practices and policies;
- taking biodiversity inventory to inform environmental policy;
- studying current environmental problems;
- working toward sustainability goals.

The list of employment opportunities for recent grads is just as long! You could score a job with a uni, for a local or overseas industry, or with government agencies such as the Bureau of Meteorology, ANSTO or CSIRO.

Significantly above the average wage, an Earth or environmental scientist's weekly salary is around \$1180. But the work they do? Literally priceless! — Cassie Steel

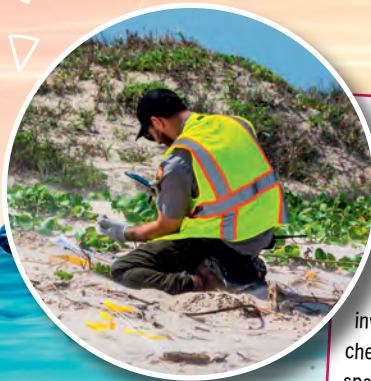
FACT OR FICTION?

DON'T KNOW LOADS ABOUT EARTH OR ENVIRONMENTAL SCIENTISTS?
WE SORT THE REAL FROM THE RUMOUR AND BUST SOME ECO CAREER MYTHS

FACT

You get to work outside!

Yep, jobs in Earth and environmental science often involve field trips, and so does study! If you end up working as a park ranger, part of the gig would involve site maintenance and IRL checks. If you're a geologist, collecting specimens from a beach or a volcano might be a particularly cool workday.



FICTION

There's only one type of environmental scientist!

Er, nope. If you study to be an Earth or environmental scientist, you could end up doing a bunch of other exciting planet-saving gigs. Roles include:

- Air pollution analysts
- Botanists
- Chemists
- Ecologists
- Environmental conservation officers
- Environmental engineers
- Environmental health officers
- Geophysicists
- Land degradation analysts
- Landcare workers
- Life scientists
- Water quality analysts

FICTION

You have to study Earth or environmental science at high school!

Not technically — to kickstart an eco-science pathway, there actually aren't any prerequisites apart from maths. But would taking Earth and/or environmental science as an elective in Year 12 help? Absolutely! So would studying physics and chemistry. So check your preferred high school for all the science choices.

FICTION

At uni, you have to decide what you're specialising in right away

Don't stress if you haven't found your thing yet! No pathway is too winding and you can totally change the trajectory of your career at any stage. If you're still sussing out your options, enrolling in a Bachelor of Science will keep things pretty open.

You can always pick up Earth or environmental science majors later on, while another option is to change degrees altogether or combine two faves into a double.



Yeah the girls!

Although not totally equal (yet), we're stoked to see that women are slowly creeping up in representation in this field — **41% of Earth and environmental scientists in Australia are women!**

GRL
PWR

OCEAN CALLING

GROWING UP NEAR A LUSH MARINE ECOSYSTEM INSPIRED **ELLA SINCLAIR** TO PURSUE THE SCIENCE BEHIND IT ALL



ELLA SINCLAIR
RESEARCH ASSISTANT

Fiji is renowned for its beautiful ocean waters and marine life. It's also where Ella grew up with her family and hydrogeologist dad who, for as long as she can remember, worked to help locate bore water on remote shallow islands. So it's no surprise Ella has had her eye on a future in marine and environmental science from a young age.

"My ultimate job is to work in an industry or academic field that uses marine science research to give back to communities that are heavily impacted by climate change," she says.

With a Bachelor of Science (Biological Sciences) under her belt and her Honours in Earth and Environmental Systems underway at QUT, she's on the right track.

During her time at QUT, Ella has been the recipient of not one, but two scholarships, having been awarded the VRES Scholarship as an undergrad and joining a 30-day cruise around the Great Barrier Reef aboard research vessel *Falkor*. Then, in her final year, Ella nabbed one of only 150 spots as part of the New Colombo Plan Scholarship, where she'll head off to New Caledonia for six months to complete an industry internship.

Ella says the opportunities she's been exposed to through QUT have helped kickstart her career in marine science. Working in the Pacific is a big plus, she says, noting Australia's geographical advantage when it comes to future research projects.

EARTH AND ENVIRONMENTAL SCIENCES ARE VITAL IN OBTAINING A SUSTAINABLE FUTURE"

Ella is passionate about protecting the future and believes the job opportunities are out there for others wanting to bring change. "I believe this career is becoming more in-demand now with climate change being such a large focus around the world," she says.

"Earth and environmental sciences are vital in creating a sustainable future. Industries that have the potential to influence the environment need to have an environmental or Earth scientist on their team to monitor impact and be an advocate for environmental rights," says Ella. — Pippa Duffy

INTERNATIONAL SCHOOL.
SUVA, FIJI

BACHELOR OF SCIENCE
(BIOLOGICAL SCIENCES), QUT

STUDENT INTERN.
SCHMIDT OCEAN INSTITUTE

RESEARCH ASSISTANT, QUT

NEW COLOMBO FELLOW, QUT

A day in the life of a... GEOLOGIST

Kat Gioseffi's love of science goes back to testing the pH levels in her family's pool with an at-home chemistry kit



Kat works as a development geologist for an oil and gas company, mapping and modelling subsurfaces and figuring out what's happening underground. Think: groundwater, hydrocarbons and minerals, along with building stats and modelling on her findings. She also gets the chance to explore new areas like 'clean fuels' and carbon capture storage. But Kat says that while fieldwork is lots of fun and offers valuable hands-on experience, she likes that there's also the chance to work in the city.

After a year of working a 2:2 roster (two weeks on site, two weeks off), Kat now works a 'normal' Monday-to-Friday office schedule. – Pippa Duffy

Here's what a typical day looks like...

6:30am

Wake up and hit the gym before work (not going to lie – the 'snooze' button often wins).

8:00am

Walk to work – if I am being good, I will have prepped a cold brew at home, otherwise I have a local café that I often deviate to.

8:30am

Start work, normally by checking my emails. We usually have a number of daily reports to go over. Then I make a game plan for my day.

9:00 am

We have regular morning team meetings where geologists, geophysicists and reservoir engineers discuss projects. These are a great opportunity to raise any issues we have and gather ideas/comments from a host of minds.

A work project generally lasts three to six months. This involves looking at what wells have already been drilled in the area, identifying how productive they have been and compiling and processing the data that has been collected.

12:00pm

Lunch time! I generally try to get to the gym. It helps break up my day and gives me an energy burst for the afternoon.

WE HAVE REGULAR TEAM MEETINGS WHERE GEOLOGISTS, GEOPHYSICISTS AND RESERVOIR ENGINEERS DISCUSS PROJECTS"



1:00pm

Keep up the project work from the morning. Once a week, I will have a project meeting with the immediate team that is working on the same field as me (but in different disciplines) and we have monthly department-wide seminars where different areas of the business give small updates.

5:00pm

Time to power down my workstation! I might play netball with some fellow grads, go bouldering, catch up with friends, attend an industry event or just head home to chill. I love to cook most nights.

GRADUATE
GEOLOGIST

MASTER OF APPLIED SCIENCE
(EARTH SCIENCE). QUT

STUDENT INTERN. XTRACT
MINING CONSULTANTS

STUDENT INTERN.
SCHLUMBERGER

BACHELOR OF SCIENCE
(EARTH SCIENCE). QUT

Get the job!

Ready to dig deep into an Earth or environmental science career? Start here

FILL YOUR FEED



Double-tap these socials to fill your feed with inspo

@AusEarthEd

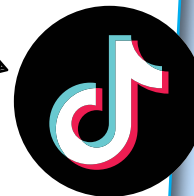
If Earth science is your calling, say hello to hours of mindful scrolling. The account's goal? To improve the quality of Earth sciences and STEM education for all!

@ecoheffa

Keen for bite-sized enviro science careers info? These fun videos will get you clued up — and fast!

@CNZdenek

Follow biologist, toxicologist and lab manager Christina for all things eco science. Her other passion? Snakes! So much reptile candy to retweet.



CV STALK

For ultimate mentor goals, look these people up on LinkedIn:

Chris Turney, Earth scientist: Chris's ultimate career goal? To improve the planet's understanding of how environmental changes are affecting the Earth!

Holly Cooke, geology student: To Holly, rocks aren't just rocks — they keep billion-year-old secrets that help geologists understand the richness and complexity of the natural world.

Professor Alan Collins, tectonic geologist: Alan is interested in how the evolution of the planet has controlled and governed Earth surface systems. Such an epic study and career pathway, too!

CHRIS TURNERY

HOLLY COOKE

PROFESSOR ALAN COLLINS

IN YOUR EAR

Let your airpods do the talking/job-hunting

Sustainababble: Wow, a dedicated environmental science podcast that'll legit make you laugh! Learn — and LOL — about the environment, sustainability and how the heck we can get out of this mess.

Pale Blue Dot: Hosted by QUT's Dr David Flannery and Dr Luke Nothdurft, and featuring a bunch of leading scientists. Expect scientific knowhow on exoplanet killers and fossil turds!

Climate Cash: Over three eps, WWF-Australia's then-conservation director Dr Gilly Llewellyn speaks with business, government and community experts about how climate change impacts are threatening the Pacific. So heavy — but important, too!

DR GILLY LLEWELLYN

Electives checklist

Choosing high school electives? These subjects will set you up for an eco gig in science.

- ✓ Maths ✓ Biology
- ✓ Geology
- ✓ Environmental studies
- ✓ Any science subjects