



## CASE STUDY

### ENTERPRISE + STEM

## Dr Jacqueline Dohaney

STEM Educator

**Jackie Dohaney is a STEM Education Lecturer. In this case study, Jackie shares her career journey and her thoughts about future opportunities for students in STEM.**

### Finding her career path

Jackie grew up around people who loved science. Her father was an engineer, and her grandfather was an air traffic controller. She also grew up around the outdoors and loved to explore nature.

When Jackie was in high school she didn't really understand the purpose of studying math. But she had a fantastic teacher and as time went on, he helped her to understand that math was an essential part of science and engineering.

Jackie's math teacher had worked in industry and was able to show her how math could be used to solve real world problems.

Today, Jackie shares her passion for teaching science and engineering with students at university and also teaches them about physics and astrobiology.

**“We need to be asking lots of questions and to get curious in order to design new solutions to the world's problems”**

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### **Travel and a love of learning**

Jackie's career has taken her to many places around the world.

She was born in Canada and grew up in Nova Scotia on the East Coast of Canada.

As a teenager, she moved to America and went to high school in Massachusetts. She later returned to Canada to go to college and university.

Jackie loves learning and she has many degrees. Her first degree was in geology, which she completed in Ottawa at Carleton University. After completing her degree in geology, Jackie moved to Australia to work in the mining industry.

Because she loved learning, she went on to study a Masters in Volcanology at the University of British Columbia in Vancouver, Canada.

At that point in her career, she got really excited about the topics of education and teaching and she decided to do a PhD in Geology Education at the University of Canterbury in New Zealand.

After finishing her PhD, she moved to Melbourne to work at Swinburne University, where she's been a researcher and a lecturer for the past four years.

### **What does the future look like?**

Jackie predicts that there is lots of opportunity for students in the gaming industry.

She also thinks that there's a lot of opportunity for children and students to get involved in exploring virtual worlds and to work together in communities to come up with new ideas and innovations.

According to Jackie, we need to be asking lots of questions and to get curious in order to design new solutions to the world's problems. One of the projects Jackie has worked on was about creating authentic geographic environments, geothermal fields and volcanoes within a video game format.

In the game, students are able to interact with each other as if they were in the field (the 'real world') and get the opportunity to do science in real time.

Making the game was a labor of love and it took two years to complete!

For more projects like this to be created, Jackie feels that there needs to be more investment in education.

### **Combining play with work**

When not at work, Jackie loves to play Dungeons and Dragons (D&D).

**Jackie's career has taken her to many places across the world**

**“If there’s something you’re interested in, read about it, watch it on television, and let yourself get really excited about issues that light a little fire in your heart”**

She affectionately calls herself a ‘nerd’ and loves to explore different worlds through game play. She’s a big fan of video games!

Jackie thinks that the world of video games and the world of science are sometimes thought of as different things. But she thinks that there’s a lot that they have in common. For example, in both video games and in work you get to explore worlds, you get to be curious about how things work, you get to work with other people, and you get excited about cool ideas. At its heart, those are the things that Jackie thinks science is all about.

**What’s the best thing about working in science?**

For Jackie, one of the best things about being a scientist and working at a university is that she gets to design what she does during her day and every one of her days is different.

She spends a lot of time working with students, which she loves. Together, they talk through ideas about physics and astrobiology, and she helps them to explore the ways they are thinking about these topics.

Through conversations, Jackie helps her students to understand some of the more challenging concepts that they are studying.

In addition to working with students, Jackie does research. She loves spending time trying to understand how students can learn better at university.

To complete her research she spends a lot of time talking with students and asking them about how they are learning, what they’ve learnt, and the types of challenges that they are having.



**“There is lots of opportunity for students in the gaming industry”**

### **What does a typical day look like for Jackie?**

No day ever looks the same and there's always something new to learn. The life of a scientist at a university is never boring!

Jackie enjoys asking questions and exploring ideas. In her job, she writes and publishes articles about her research. There's a lot of collaborative work in her job. She spends time speaking with her colleagues on the internet. Together, they discuss ideas, and they work together to share those ideas with the world.

At the end of the day, Jackie and her colleagues hope to make progress towards helping student to learn about science and engineering, and to make learning more accessible and exciting for everyone. Jackie believes that everything that we do in science and engineering should meet a public good.

### **Career opportunities**

Jackie tells us that one of the key areas of opportunity for students in science, technology, engineering, and math is to work around climate change.

She says that our society has a huge challenge to face over the next century, and that we're going to need everyone to help us solve the world's problems.

Working in climate change requires students who can think innovatively – outside the box. We are going to need new ways of thinking and new ways of approaching problems,

because the current ways are not always working.

Students will need to bring fresh ideas to the way we think about fixing our systems and making society a better place for all.

Students will need to think creatively and to care about our environment and care about how our society is going to work in this space.

### **Advice for students**

The main piece of advice that Jackie has for future STEM students is to not limit yourself to just one or two options. She says that if there's something you're interested in, read about it, watch it on television, and let yourself get really excited about issues that light a little fire in your heart. You never know where your enthusiasm will take you.

Another piece of advice is to ask people about the things you're interested in. The more people you speak to the more you will learn.

Jackie also encourages us to 'go out and find it'. She remembers that when she was younger, she'd seek out knowledge beyond that of her immediate family and school by visiting places like the planetarium to widen her knowledge.

As Jackie says, 'if it's interesting to you... even a little bit... you should try it out'.

**No day ever looks the same.  
There is always something new to learn!**