



JAMES COOK
UNIVERSITY
AUSTRALIA

Bachelor of Advanced Science



Ready today for tomorrow

jcu.edu.au



Why JCU?

A STUDENT EXPERIENCE LIKE NO OTHER

- Access to world-class teachers
- Develop skills in state-of-the-art facilities
- Achieve exceptional employment outcomes
 - Benefit from small class sizes
 - Connect with professional networks
- Support through scholarships for merit and equity
 - Discover great accommodation options

WORLD-CLASS LECTURERS

Access the best. JCU students excel in small classes, connecting with experts in their fields whose research is well above world standard*.

UNIQUE TEACHING ENVIRONMENTS

Be inspired by JCU's living laboratories. Study and learn in state-of-the-art teaching facilities, World Heritage listed Great Barrier Reef and the Daintree Rainforest, tropical wetlands and dry savannahs.

OUTSTANDING RANKINGS

Study with the best. Independently rated best in the world for Marine and Freshwater Biology and second best in the world for Biodiversity Conservation[^].

SUPPORT FOR YOUR SUCCESS

Explore JCU's range of scholarships, grants and bursaries and discover the right financial assistance to achieve your goals.

*Excellence in Research Awards 2015-2016 ^CWUR 2017



Bachelor of Advanced Science

- ✓ Become a science and research leader. JCU Advanced Science graduates are elite, innovative professionals who are equipped for the future.
- ✓ Pursue excellence in JCU's Bachelor of Advanced Science program. Learn from world-renowned lecturers, meet experts in their field and conduct hands-on research in North Queensland's unique tropical environment.
- ✓ Develop your passion and choose from nine different majors. You will also choose from a set of core advanced skill subjects to develop analytical and modelling skills that are highly sought-after by future employers.
- ✓ Apply your skills and knowledge to real-world research projects and be published in international scientific journals. Go on overseas exchange programs and study natural environments in other parts of the world. Use your degree as a pathway to higher research.

COURSE DETAILS:

Locations:	Cairns, Townsville
Start Dates:	February, July
Duration:	3 years full-time
ATAR:	92 English (Units 3/4,C), Mathematical Methods (Units 3/4,C).
Recommended:	At least one of Biology, Chemistry, Physics or Maths C or Specialist Mathematics.

Please visit the [handbook](#) for a detailed outline of the course structure. Note: Information is for domestic students only

Course structure

You can choose from nine different science majors:

Aquaculture Science and Technology

Benefit from access to the Marine and Aquaculture Research Facility for hands-on discovery of the sustainable practices of aquaculture. Students explore the scientific and practical applications of breeding, rearing and harvesting of plants and animals in all types of water environments. JCU graduates have a deep understanding of the biodiversity of species, the design of aquaculture systems and the basics of nutrition.

Chemistry

With award-winning laboratories at the JCU Science Place and access to industry leaders, students benefit from small class sizes and the personalised approach of lecturers. Accredited by the Royal Australian Chemical Institute (RACI), a JCU Chemistry major provides skills in analytical chemistry, synthetic, organic and inorganic chemistry, and kinetics and mechanisms of chemical reactions.

Data Science

Gain data and analytics skills highly sought-after in every industry – from government departments to internet start-ups and financial institutions. Build your understanding of data science and learn the tools of the trade, including advanced statistical modelling, data mining, machine learning, linear algebra, and data visualisation.

Earth Science

With access to state-of-the-art facilities like JCU Fletcherview Field Station, JCU students gain practical skills studying and assessing the unique, biodiverse region of North Queensland. Build your understanding of the effect of humans on the natural environment and build skills to develop solutions to lessen the impact. Graduates have a thorough understanding of how to develop cost-effective and innovative techniques for environmental management.

Marine Biology

Benefit from access to one of the most diverse and fragile marine ecosystems in the world, the Great Barrier Reef. With opportunities to do hands-on research at world-class JCU Orpheus Island Field Station, you will learn from expert lecturers and benefit from researchers' strong links with industry. Graduates deeply understand humans impact on the marine environment and how the oceans and atmosphere interact. You will be equipped to address critical challenges facing marine and coastal ecosystems.

Mathematics

Develop highly sought after problem-solving, analytical and quantitative reasoning skills. You will gain a thorough understanding of various mathematical techniques, data analysis, and multivariate statistical methods. JCU graduates have the skills to formulate mathematical models and use various techniques to help find solutions.

Molecular and Cell Biology

Gain hands-on experience using cutting-edge equipment and techniques. Develop an in-depth understanding of molecular genetics. Learn how to amplify and edit DNA sequences and conduct laboratory-based and field-based projects. JCU students study the basis of health and disease at a molecular level and analyse the functions of a whole cell. Graduates have the foundations needed to work towards developments of modern medicine and biotechnology.

Physics

Develop the expertise to explore some of the universe's most challenging questions. Accredited by the Australian Institute of Physics, a Physics major at JCU provides you with knowledge and skills across multiple physics disciplines. Students learn the fundamentals of energy, quantum mechanics, relativity, antimatter, weather, and climate. The ability to think critically and be experimental is built by exploring biophysics, molecular electronics, and organic solar cells. You will study the structure of matter, atomic and nuclear physics, quantum physics, oceanography and meteorology, and thermodynamics.

Zoology and Ecology

Study amazing rainforests and diverse species. Go on field trips to Borneo or the Galapagos Islands. Access the JCU Daintree Rainforest Observatory to learn about biosecurity, behavioural ecology, conservation biology and ecological modelling. Perform research in one of the most biodiverse regions in Australia. JCU students learn from world experts, studying the science of the biology of plants and animals and the natural world that they live in.



“Here, the opportunities are endless. It’s absolutely amazing to study and the facilities are incredible. The fieldwork options are amazing as well, with the Great Barrier Reef at our doorstep.”

Casey Bowden

BACHELOR OF ADVANCED SCIENCE | MARINE
BIOLOGY MAJOR, CHEMISTRY MINOR

“It is nice to be part of a smaller university where staff and students actually get to know each other, and where there is opportunity for undergraduates to get involved in research. JCU has smaller class sizes and more opportunities to get to know and interact with your lecturers. In addition, the highlight of our degree is the opportunity for field-based learning. We bring our students into the field, and provide real hands on learning, as well as opportunity for work-integrated learning.”

Associate Professor Eric Roberts

HEAD OF EARTH AND
ENVIRONMENTAL SCIENCE



Career Opportunities

The scientific and environmental challenges of the future are increasingly interdisciplinary and quantitative, and they require scientists who can work comfortably with the cutting-edge methods of scientific analysis and modelling that now pervade all of the sciences. By graduating with a Bachelor of Advanced Science, you'll demonstrate that you have prepared yourself to meet these challenges head-on.

So, regardless of whether your passion is Aquaculture, Chemistry, Data Science, Earth Science, Marine Biology, Mathematics, Molecular and Cell Biology, Physics or Zoology and Ecology, this is your opportunity to get the best preparation to be a leader and innovator in your field.

Moreover, the high transferability of quantitative and computational skills ensures that you'll be responsive to the dynamic, rapidly-changing nature of science. This adaptability is essential for anyone hoping to pursue a lifelong career in the sciences.





JCU Accommodation

Study and live in some of the most interesting places in the world. Cairns and Townsville are on the doorstep of the Great Barrier Reef, magnificent rainforests, the savannah region and Outback Australia.

Living on-campus is a great way to make the most of your time at JCU. JCU Townsville, Bebegu Yumba campus, Douglas, has five different accommodation options housing over 1,200 students. JCU Cairns, Nguma-bada campus, Smithfield, features an accommodation complex for 300 students. Living on-campus is a great place to make new friends and immerse yourself in the JCU culture. All rooms at our on-campus residences are single board, with a single bed, study desk, chair, fan, air-conditioning and Wi-Fi. Each residence is different in regards to style of living, culture and atmosphere. There are options for fully catered or self-catered housing. Find out more at jcu.edu.au/accommodation



Contact us

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