

Undergraduate Research News Australasia

Australasian Council for Undergraduate Research – Issue 15 • May 2019

Editorial



This issue of the newsletter contains advance notice of the next Australasian Conference for Undergraduate Research, being held in early October 2019 in downtown Newcastle, in New South Wales. The centre of Newcastle has undergone considerable revival in recent years, and the conference venue, the university's exciting NewSpace building, is a symbol of that. To match this, the organisers are working with the ACUR Student Committee to put on a full and engaging programme of events, as described on page 2. It will build on ideas from the Second World Congress in Undergraduate Research in Germany in May, profiled on page 3.

This is a time of considerable development for ACUR, and the following pages illustrate a number of initiatives currently underway. Later in the year, ACUR is co-hosting, with the University of Sydney Business School, the first Undergraduate Research Xchange Colloquium for supervisors, academics and university managers. This is outlined on page 6, where the activities of the new ACUR Student Committee are also highlighted. The back page draws attention to the new categories for ACUR membership, which have been introduced to underwrite our growing suite of activities in support of undergraduate research.

The middle pages are given over to undergraduate research in action. There is an intriguing account of an initiative to establish the extent to which scuba diving as an activity leads to diver hearing loss. Macquarie University's ambitious digital humanities project in Ancient History engages undergraduate students and staff in curating an online visual dictionary for all inscribed tombs at Beni Hassan in Egypt. And the ACUR Student Committee as well as Otago and Massey Universities have assembled some fascinating responses to the question of 'what is the thing I like best about research?'

Eric Pawson
University of Canterbury

ACUR 2019 Conference in Newcastle NSW



We are pleased to announce that Abstract and Manuscript Submission for the next Australasian Conference of Undergraduate Research is now open!

ACUR 2019 will be hosted on October 2 and 3 by the University of Newcastle in its NewSpace building (pictured) in the centre of Newcastle. NewSpace has a variety of teaching, meeting and social spaces for talks, workshops, poster displays and other activities. It is serviced by the new light rail line that runs from the Newcastle Interchange, where the Sydney-Newcastle intercity train terminates, to Newcastle beach.

We are inviting undergraduate students from all fields around Australia and New Zealand to share their research and get involved in conference events and activities. Past conferences have ranged across topics as diverse as astrophysics, feminism in Korean pop music, skeletal evidence of torture, the trail mucus of garden snails, brain responses during gaming, urban resilience in the face of the Canterbury earthquakes, environmental legislation, links between urban Aboriginal male identity and health, fear of terrorism, student psychological wellbeing and Gumby Gumby.

The broad theme this year is 'Accelerating Action Through Research', focusing on areas where research can make important contributions to society, including the environment, sustainability, equity, education and healthcare. But students can present research on any area! We will also showcase Indigenous undergraduate researchers.

We are working with the ACUR student community to build a great programme of activities including skills workshops, discussion panels with undergraduate and senior researchers, a conference dinner and other social events. Students will be able to meet people with shared interests and form new research partnerships through student-organised social media and face-to-face events such as 'speed dating' and networking. There will be informal mentoring activities where undergrads can talk about their research in small groups with peers as well as more senior researchers and mentors.

There will be also be introductory Research Skills sessions on such topics as different ways to engage in research in university, workplace or community settings, finding the right project/supervisor, tips for happy, rewarding research experiences and communicating research.

We encourage students to submit early to allow plenty of time to discuss arrangements for attending with supervisors, instructors

and institutions. Students whose abstracts are accepted will be offered talks or can present a poster if they prefer. There will also be opportunities for students to submit a manuscript on their research for feedback and advice. Additional information about submission requirements is provided on the ACUR website at www.acur.org.au.

ACUR 2019 is open to undergraduate and Honours students within 12 months of graduation from Australasian or other higher education or tertiary education institutions to present research conducted during or before their undergraduate studies, including extra-curricular research. Registration costs will be at or below levels of recent ACUR conferences, with early bird registration \$99 and full registration \$120. There will be lots of prizes and awards and we will also be encouraging universities to provide support for their students to attend.

More information will be provided over the next few months on Facebook and the ACUR website so there is plenty of time for students, supervisors and universities to get involved and start planning their submissions and getting to know other ACUR members to make the most of the conference experience.

Liz Milward
University of Newcastle
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Second World Congress on Undergraduate Research

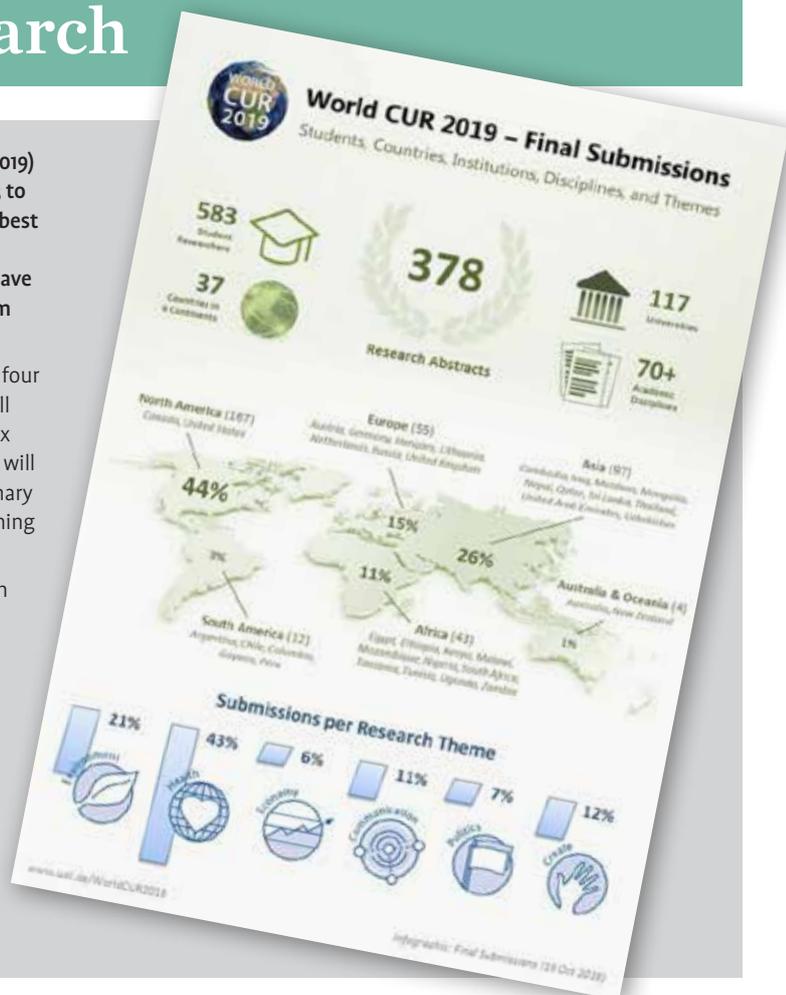
The Second World Congress on Undergraduate Research (World CUR 2019) takes place at Carl Ossietzky University Oldenburg, Germany, from 23 to 25 May 2019. The aim of the Congress is to bring together the world's best undergraduate research and to work on some of the most significant challenges that the global community is facing today. Students will have the opportunity to share their research, discuss global issues and form international research partnerships.

In total 378 abstracts have been submitted from across the world, with four from Australia (which we are hoping to boost in future years!). There will be 583 students attending from 117 universities in 37 countries across six continents, with the distribution illustrated in the graphic. Participants will be invited to publish their research in a special issue of an interdisciplinary open access e-journal for student research and have the chance of winning one of several World CUR Awards.

Two students who presented at the 2018 ACUR conference, Nam Nguyen (previously at La Trobe and now at the University of Washington) and Seak-Lin Ly (from the University of Newcastle) will be attending. The ACUR Chair Professor Angela Brew will also be there, along with Professor Liz Milward from the University of Newcastle, which is hosting the 2019 ACUR Conference.

We're going to meet hundreds of great young researchers from all over the world, hear about all kinds of exciting research across a wide spread of topical areas, iss, trink und sei fröhlich and bring back lots of great new ideas for ACUR 2019. Prost!

Liz Milward
University of Newcastle



Finding your passion



My undergraduate research project was on the *Marasmius sp. fungi*. Of the three years I spent in my undergraduate degree, the two weeks I spent on the project are the ones that I look back on with the greatest fondness.

Firstly, being able to practically apply the theory that we had been taught up to that point was, educationally very beneficial from a learning perspective, but more to the point, a great deal of fun. Second, choosing your own project meant that I was free to explore what I was interested in, and I surprised myself. I had, up to the day I chose my project, not been convinced that pursuing the botanical side of Ecology was really what I wanted but after diving in head first, that is exactly what I found.

My undergraduate research experience therefore prompted me to further my education in the botanical Ecology field. While that was how my experience manifested, with it cementing my

postgraduate ambitions, that is not true in every case. But the insight that I gained into the field of research helped my decision making process. During an undergraduate degree, you are faced with options after options, and sometimes it's hard to know what direction you want to take. So doing a undergraduate research project will help to give you insight into what you like doing or maybe what is not for you. You quite simply just don't know what's out there until you try it, so really, why not do an undergraduate research project? You may just find your passion. I know I did!

Lisa Danuser
University of Otago

Learning in partnership: the Beni Hassan Research Group

We know that doing hands-on research is an excellent way of developing critical thinking, communication skills, attention to detail, and much more – in short, skills which would be handy in any job. The Department of Ancient History at Macquarie University is running a project that does just that.

In 2017, Alex Woods and colleagues Dr Brian Ballsun-Stanton (Data Architect) and Nicolle Leary (Project Manager) established the Beni Hassan Research Group (benihassan.com) and invited Ancient History students to join. We thought this would be a great opportunity for our doctoral and undergraduate students to actively and collaboratively engage with authentic research. As a group, we share one goal: to develop an online visual archive to showcase current research on Beni Hassan, a site in middle Egypt that Macquarie University holds the concession to record and publish.

The research involves high profile industry partners and has been part of a current Australian Research Council Discovery Project (2016-2018) called *'Measuring Meaning in Egyptian Art: A new approach to an intractable problem'*. This involves researchers from Macquarie and the Metropolitan Museum of Art, New York. The BHRG is where staff and students work and learn collaboratively by marrying teaching and research together. We apply a learning in partnership methodology to create an inclusive knowledge-

building community. The participating students build capacity in nine key areas related to a broad spectrum of professional pathways, predominantly digital and technical literacy, communication, and interpersonal skills.

The BHRG aims to curate a visual dictionary at benihassan.com for all inscribed tombs at Beni Hassan in Egypt. It draws on published and unpublished photographs, line art and architectural plans collected by the Macquarie University expedition led by Professor Naguib Kanawati since 2009. Over the two years, the students and academics in the group have created a sophisticated database representing the tomb's metadata and the academic research in a systematic and consistent fashion.

We are currently using the static site generation engine Jekyll with a Github backend to transform the books produced by the Australian Centre for Egyptology into online resources that everyone can use and share. While our research is still in progress, this digital transformation of academic books into a website designed for popular audiences represents an exciting challenge in Digital Humanities. Our students are now familiar with large data transformation processes and the detailed and exacting work needed to make this content accessible to a global audience.

Students were responsible for driving the project and creating the content for the digital exhibition. Each student self-assigned tasks,

which ranged from learning to manipulate photos and line art, writing accessible descriptions of the various features or scene details in the tomb, through to editing descriptions written by both staff and students. As such, the students were responsible for completing the workflow according to specific guidelines, a template and timeline, all formulated by the group.

This dialogic learning environment has had a positive impact on student motivation, engagement and self-identity. Students are able to develop key discipline specific knowledge and skills as well as build essential employability skills through Egyptology, which can be showcased as part of their professional portfolio and CV.

Alexandra Woods and Lilia Mantai
Macquarie University



Some of the undergraduate students from the BHRG at work during a meeting. From left to right: Nicolle Leary, Hannah Vogel, Shannon Collis, Penelope Blake, Kate Keeble, Madeline Jenkins

Diver hearing loss



Being a naturally curious person, I have always had a lot of questions. After many years working in different professions, I finally decided to find a career path and

settle into a university degree. My curiosity was identified, and while the nursing course did not specifically require a research project, I was invited to participate in CQ University's Rising Star program which allowed me to engage with undergraduate research.

Rather than tack on to other current research projects, I decided to use the opportunity to explore questions I had been wondering about for some time. As a long-term scuba instructor, I wanted to know if there were any ill health effects associated with the vocation. I was fortunate to find two fantastic mentors, Terrence Cummins and Dr. Anja Pabel, who are also both engaging

in studies associated with the tourism industry, and also both divers. After identifying that there was a gap in the literature surrounding scuba instructors as a focus of enquiry, I decided to explore the issue of hearing loss amongst scuba instructors.

My initial plan was quite simple: look at the result of instructors' annual hearing tests. After reviewing some articles, I decided to compare them with recreational divers. Then I decided to identify other causes and factors that might contribute.

With the help of my mentors, I was able to fine tune my project, receive ethics approval, and create an online survey to collect the data. Given the novelty of this project, we drew the attention of the media, and an article was printed in the local newspaper. It was becoming far more than I ever thought it would be. I did not have any idea how much work I was going to be undertaking. I was getting local health care services involved, handing out fliers on dive boats, giving talks

at local dive club meetings and promoting my online questionnaire via Facebook.

At this stage, the data collecting is still ongoing, and recruiting of research participants is still underway. The preliminary findings have shown the instructors are being exposed to certain risks, with many showing symptoms of hearing loss, although there is not yet enough data to be conclusive.

Attending the 2018 ACUR conference at La Trobe was a great opportunity for me to share some of my preliminary results and to meet fellow undergraduate researchers. My engagement with this research project has been an enlightening experience. It has drawn out many more questions I wish to investigate, and I believe I will be conducting future studies into this, and other related fields.

Dave Moss
Central Queensland University

What is the thing I like best about research?



'It has been a truly rewarding to obtain practical field skills and understand the difficulties that ensue in fieldwork. These experiences ultimately refine our ability to conduct science and the interactions that occur with nature are unforgettable.'

Sam Purdie
Ecology
University of Otago



'Bat catching in Borneo – The opportunity to do hands-on research, in the field, working with my species of interest, was the highlight of my entire undergraduate degree.'

Tegan Murrell
Ecology
University of Otago



'Undergraduate research helped me understand and apply ideas we learned in our lectures in an interactive and interesting way. Being able to study an organism of my choosing piqued my interest and encouraged me to do more research both in undergrad and postgrad opportunities.'

Katrina Douglas-Withers
Ecology
University of Otago



'The best thing about undergraduate research is that it allows you to get close to genuine research and learn to have control over the research process itself, resulting in great pride and satisfaction in the finished product.'

Eugene Kavale
Environmental Management
University of Otago



'Research is rewarding in that it challenges me every day and gives me goals to constantly strive towards.'

Eden Little
Chemistry
Griffith University



'Participating in research offers a unique platform to make real and meaningful gains in a given field whilst developing skills in critical and lateral thinking.'

Lachlan Deimel
Biology
Australian National University



'My favourite thing about research is the opportunity to be creative with the skills and knowledge I have to help answer difficult questions.'

Michaela Stout
Environmental Science
Massey University



'The best thing about research for me is being at the front lines of science and realising that you are uncovering the secrets workings of the human body that has never been known throughout all of human history.'

Seak-Lin Ly
Biomedical Science
University of Newcastle



'Applying my problem-solving skills to real-world scientific questions. I enjoy finding novel solutions to real problems.'

Jason John Woods
Biomedical Science
University of Newcastle



'My favourite thing about conducting research is that it involves a great deal of problem-solving. Although it can seem overwhelming at times, I thoroughly enjoy the challenge of coming up with creative and clever ways to address problems. It feels great when all your hard work pays off and you find something really exciting!'

Crystal Jasmine Santos
Social Psychology
University of Queensland

'The thing I like best about research is the opportunity to shine light on a hidden problem in society and recommend a solution to resolve that same problem.'

Laura Cripps
Bachelor of Laws (Hons)
La Trobe University

ACUR Student Committee activities

Since formation of the ACUR student committee (ACURSC) at the end of the 2018 ACUR conference, it has been steadily growing and busy carrying out promotional activities to generate support for undergraduate research. As a committee we aim to provide a platform for student opinions and suggestions for workshops, symposiums and conference activities, to lend insight into areas of support for undergraduate research, to generate institutional support for undergraduate research and promote awareness of ACUR amongst students in their institutions.

ACURSC will provide a forum for students to experience what it is like to be in a committee as well as an

opportunity to get involved in the organisation of the next conference. Over the last few months, our committee has been proactive in generating awareness for ACUR and undergraduate research.

I have been promoting ACUR and ACURSC goals to academic attendees from a range of Australian universities at the Biosciences Education Australia Network Conference. Eden Little promoted ACUR at the Kungullanji Summer Symposium which is held at Griffith University. This is a collaboration with the GUMURRII Student Support Unit and the Indigenous Research Unit. Attendees at the two-day meeting included the summer scholars, their supervisors, student mentors of the program and

academic staff, as well as future potential students.

Our social media team, Alicia Kirk, Crystal Jasmine Santos and Emmelyne Jack, has also been proactive with the ACUR Facebook page, generating content to promote ACUR to students and academics.

Current members of ACURSC are Seak-Lin Ly (Chair, University of Newcastle), Harry Carey (Macquarie University), Laura Cripps (La Trobe University), Lachlan Deimel (Australian National University), Gavin Height (La Trobe University), Emmelyne Jack (University of Queensland), Alinda Lee (University of Melbourne), Eden Little (Griffith University), Donna Lock (Griffith University), Liam Manocchio

(University of Queensland), Andrea di Meo (Macquarie University), Tyler Philp (University of Queensland), Crystal Santos (University of Queensland), Samantha de Silva (Australian National University) and Abigail Slater (Australian National University).

Seak-Lin Ly

University of Newcastle

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Undergraduate Research Xchange: a Colloquium for supervisors, academics and university managers

The Colloquium will include student views and perspectives from across Australasia. It is an opportunity for supervisors, academics and university managers to:

- exchange good practice, share ideas and resources;
- extend knowledge of how to strengthen existing provision of undergraduate research;
- exchange practical ideas and advice on supervising undergraduate researchers;
- discuss future possibilities of undergraduate research, eg. in relation to employability and graduate attributes;
- hear about and exchange research ideas and pedagogical frameworks on how to develop undergraduate research;
- strengthen the community of interested practitioners

The Colloquium will be of particular interest to:

- university leaders with responsibility for integrating research and teaching, and for developing employable and future-ready graduates through research experience;
- people responsible for encouraging undergraduate engagement with research, and for developing initiatives such as 'students as partners', 'the Connected Curriculum', and research-based learning;
- academics with responsibility for developing research-based, inquiry-based, curricula;
- academics and others supervising undergraduate research projects;
- people responsible for implementing institutional initiatives to develop and showcase undergraduate research.

Sessions include:

- *Institutional approaches to developing undergraduate research engagement*
- *Learning cafés or roundtables* where delegates share ideas and issues around themes e.g. ethics and undergraduate research; undergraduate research in the humanities; supervising undergraduate research
- *Faculty and departmental strategies for encouraging undergraduate research and inquiry*
- *Elective workshops*, including research skills development; research-based learning curriculum decision-making; undergraduate research for employment
- *What students gain from engaging in undergraduate research*: a panel with students from the ACUR Students' Committee

The Colloquium will take place at the University of Sydney Business School, Camperdown, Sydney on 4 December. There will be no fee for nominated representatives of ACUR member institutions and for staff of the University of Sydney. The fee for individual members and representatives of affiliate member organisations will be \$100, and for non-members \$125.



Report of the Chair

Did you know that many top researchers and Nobel prize winners were once undergraduate researchers? Doing undergraduate research is a way to kick-start research careers.

It is also vitally important if students are to have the skills that they need to operate successfully in virtually any profession that they enter. ACUR members have a passion for undergraduate research because we know that through such experiences students gain invaluable knowledge and attributes that are of importance to their future lives in today's complex and uncertain world.

To date, over 800 students representing more than 40 institutions have been supported by their university to present their research at ACUR events. We know that ACUR student presenters have made new scientific discoveries; contributed to peer reviewed journals; given research presentations in disciplinary conferences (including first years being taken for Honours students!); gained prizes and/or funding for their research; taken leadership roles in developing

opportunities for further research amongst peers; gone on to complete research degrees, to become academics; and to teach their own students in research-based ways.

ACUR Membership has been introduced because ACUR is now a self-funded body that, since 2017, has received no direct university funding or government grants. There are four categories of membership each with their own particular subscription levels, member entitlements and benefits:

- institutional membership (for Australasian universities)
- affiliate membership (for other organisations)
- individual membership
- student membership

More information about membership is included on the back page of this newsletter. To join go to acur.org.au/membership or email: memberships@acur.org.au.

ACUR's mission is to promote and advance the spread of undergraduate research in Australasia. A key way that we do this is through our annual conferences. We are looking forward to the next ACUR

Conference of Undergraduate Research which is to be held at the University of Newcastle, NSW on October 2-3, 2019. The first call for abstracts and papers has gone out. Details are included on page 2 of this newsletter.

An innovation initiated at the 2018 ACUR conference at La Trobe has been the establishment of our Student Committee which is working in a variety of ways to spread ideas and experiences of undergraduate research amongst students, and to ensure that ACUR conference organisation reflects the student voice.

This year we are also introducing an opportunity for academics, supervisors, members of the ACUR Steering Group and institutional managers to exchange ideas and hear about good practice in supporting undergraduate research engagement. To this end, the first UGR Xchange Colloquium will be held at the University of Sydney at the end of the year. Further details are included on the opposite page.

ACUR is administered by a small Executive Group passionate about advancing undergraduate research engagement. I'd particularly like to mention Nicki Lee (La Trobe),

Liz Milward (Newcastle), Seak-Lin Ly (Newcastle), Eric Pawson (Canterbury) and Lilia Mantai (Macquarie) who have each been working hard to make these innovations possible. They are supported by about 80 people, many holding senior university positions, who represent Australian and New Zealand universities and some overseas institutions on the ACUR Steering Group.

We look forward to your future engagement with us as a member of ACUR.



**Angela Brew
Chair, ACUR**

Email:
angela.brew@mq.edu.au

What about hosting a future ACUR conference?

ACUR Conferences are hosted by universities or other higher or tertiary education institutes in Australia, New Zealand or nearby territories. Hosting a conference provides opportunities for undergraduate students in your institution to present their research work at an international conference without leaving the campus! They also get the opportunity to participate in conference organisation, helping them to develop personal and professional skills for employability.

Hosting an ACUR conference is a way to extend knowledge of your institution's undergraduate research effort more widely in the institution. It

gives staff the opportunity to view and discuss the work of students from other institutions and countries. Given that ACUR has a pretty wide reach amongst Australian and New Zealand universities and across the world, it can also raise the national and international profile of your institution's undergraduate research provision and achievements.

Besides, hosting a large group of bright, enthusiastic, knowledgeable undergraduate student researchers on campus is a joy! Those who attend ACUR conferences either as students or as academics have consistently indicated that they find ACUR conferences inspirational.

Want to know more?

You can find more information including the guidelines and criteria for an ACUR Conference on our website at: <http://www.acur.org.au/acur/contributing-to-acur/conference-hosting/>

In the first instance, you should submit an Expression of Interest to the Chair of ACUR (chair@acur.org.au). A signed proposal is then required giving details of administrative support and the facilities available for the conference, a timeline, an indicative budget, and how the ACUR hosting criteria will be met. You can access the template for proposals on the website.

ACUR membership

ACUR membership has been introduced because ACUR is now a self-funded body that, since 2017, has received no university funding, government or other grants. It is currently managed by a small Executive team of volunteers supported by nearly 80 Steering Group members who work within their institutions to develop undergraduate research and research-based learning and/or encourage student attendance at ACUR conferences.

In order to achieve our mission of promoting and advancing undergraduate research in Australasia, four categories of membership have been established:

1. Institutional membership (for Australasian universities)
2. Affiliate membership (for other organisations)
3. Individual membership
4. Student membership

Why join?

Membership of ACUR confers benefits for universities, organisations and individuals interested in undergraduate research and its development. Undergraduate students who present at ACUR conferences automatically become members following their presentation.

A list of benefits of membership and is available on our website. Some examples:

- ACUR raises the national and international profile of an institution's undergraduate research;
 - ACUR provides networking opportunities for teaching staff to develop awareness of how to introduce or extend research-based learning and teaching;
 - ACUR provides opportunities for undergraduate students to gain recognition for their research achievements. It is a way for them to present themselves as researchers; and it encourages them to consider higher degree enrolment.
- ACUR's links with numerous universities in Australia and New Zealand enable access to numerous students engaged in undergraduate research and staff committed to promoting it.
 - ACUR's international linkages put organisations in touch with other organisations working to advance undergraduate research worldwide.

What you get by joining

- All members receive all ACUR communication and access to resources such as publications, guides to enhance practice in undergraduate research etc.
- Free attendance at ACUR colloquia, seminars etc (excluding ACUR student conferences where the delegate fee must be paid).
- Opportunity to contribute to the further development of ACUR, for example, through voting at annual general meetings and through nomination for election to an Executive position.

- Institutional members can select students to participate in Posters in Parliament and other high profile events.

Please join us if you wish to continue to ensure that you receive all details of our growing list of activities, if you may wish to attend our events in the future, gain access to our resources, obtain support for your undergraduate research developments and achievements or if you simply wish to support the work of ACUR. Full details are on our website.

Joining is easy

Simply go to the ACUR website: acur.org.au/membership.

If you have questions please contact us at: memberships@acur.org.au

We look forward to welcoming you.

ACUR Conference 2019

2–3 October 2019 at the University of Newcastle, NSW. The conference theme is 'Accelerating Action Through Research', focusing on areas where research can make important contributions to society, including the environment, sustainability, equity, education and healthcare. A great programme of activities will include skills workshops, discussion panels with undergraduate and senior researchers, a conference dinner and other social events. Early bird registration is \$99, with full registration at \$120.
www.acur.org.au/acur/events-and-conferences/acur-2019/

Undergraduate Research Programs Conference 2019

25–27 June 2019 at The Ohio State University, Columbus, OH. Seeking strategies for success in undergraduate research programs? Then don't miss CUR's 'Building and Enhancing Undergraduate Research and Creative Inquiry Programs' Conference in 2019. Themes include assessment, diversity in research, high impact learning strategies, internationalization, undergraduate research administration and budgeting and undergraduate research collaborations.
www.cur.org/what/events/conferences/urpc/2019/

Contact us

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