PHYS311
Professional Physics

INFORMATION FOR HOST SUPERVISORS

At Macquarie, all undergraduate students undertake a Professional and Community Engagement (PACE) unit as part of their degree. All students majoring in Physics are required to complete PHYS311, which incorporates a minimum activity time of 100-hours to be undertaken with an external organisation. The activity enables students to contribute their knowledge, ideas and a fresh perspective to a real-world problem or issue that supports the partner organisation’s mission and objectives.

WHAT IS A PACE ACTIVITY?
A PACE activity (herein, activity) is a practical experience students complete as part of the PACE unit. It provides them with:

• Insight into what to pursue after graduation.
• An opportunity to apply their skills and knowledge in an authentic context.
• Experience in “learning on the job.”

BASIC FACTS FOR HOST SUPERVISORS

• Students do their activity for a minimum time period of 100-hours, typically between 9th August and 18th October.
• Most of their work should be conducted on-site.
• Students are allocated in pairs.
• Students are not required to be paid for the activity.
• Students are supported by an academic mentor who will meet with the student and host supervisor during the activity.

ROLES AND RESPONSIBILITIES FOR HOSTS
The Host Supervisor is responsible for:

• Completing an Activity Statement which is an agreement between the partner organisation and the University about the general terms and conditions of the activity, including the risk level of the activity and the risk mitigations in place.
• Supervising the activity and being available to meet regularly with the students.
• Ensuring students receive an induction and comply with relevant work and health safety policies.
• Provide a brief report on each student’s performance.

HOW DOES IT WORK?

Step 1: The Host Supervisor submits a “project” to the unit co-ordinators which is reviewed for its suitability to meet the learning outcomes of the unit and for the appropriate level of work and health safety management.

Step 2: Once the project/activity is identified, the Faculty of Science and Engineering PACE Team will electronically distribute an Activity Statement to the Host Supervisor to complete.

Step 3: Students provide the unit convenor with a brief biography about themselves including information about their particular disciplinary interests and learning priorities, and the unit convenor allocates them an approved activity based on their interests and capabilities.

Step 4: An academic staff mentor will be assigned to the activity. The mentor will seek input from the host to provide a report on the student, post-activity.

WHAT OUR STUDENTS CAN DO
Our students are typically in the final semester of their undergraduate degree, so have a good knowledge of physics across a range of areas. Some will have specialist expertise, e.g. in quantum physics, photonics, astronomy, and some will be completing double majors, e.g. in Education or Engineering.

Our students have a range of skills that we hope will be applicable to your organisation. They have all received extensive training in laboratory work, collecting and analysing data, and problem solving. Some will have particular interests in areas such as: theoretical or numerical modelling, working with big data, developing IT resources or software tools, electrical work, mechanical design and assembly, developing and delivering educational resources, science communication, and science policy.

A MUTUALLY-BENEFICIAL RELATIONSHIP
Our goal is to develop a mutually-beneficial relationship with our placement hosts.

• Students will benefit from enhanced employability.
• Benefits to placement hosts include connection to the
Physics academics at MQ, opportunity to screen potential future employees, means of conducting small projects, and supervision experience for staff.

**EXAMPLES OF PACE ACTIVITIES**

**Finisar:** Students worked on a project that involved aligning micro-optics for wavelength agile networks, to achieve and maintain excellent optical performance under extreme conditions.

**CSIRO:** Students worked on the Terahertz Time–domain Spectroscopy project to identify chemical residues in agricultural projects.

**Data 61:** Students applied programming and analytical skills to predictively model occupancy of a Majura carpark.

**Cuberider:** A small startup company where students developed resources for teachers whose school students designed experiments that were conducted at the International Space station.

Students have also done a range of other interesting projects with organisations including Resmed, BCS Engineering, National Measurement Labs, MOS Technologies, and BioTech Frontiers.

To find out more about this exciting project click on the VIDEO link, or paste the URL below into your browser. ([https://www.youtube.com/watch?v=Jf43GrnBi84](https://www.youtube.com/watch?v=Jf43GrnBi84))

**WHAT HOST SUPERVISORS SAY**

“Overall, I was incredibly impressed with what they accomplished. I thought their work was exemplary and I hope future PACE students I work with show even some level of their enthusiasm, teamwork, and ability. The work they did exceeded my expectations, from researching and writing thorough content, to design, they did a substantial amount of work within a very limited timeframe.” (AAO)

“Both students acted in a professional manner throughout the project. They helped carry out observations with the Parkes telescopes, took part in pulsar-group meetings and were always keen and enthusiastic.” (CSIRO)

**WHAT STUDENTS SAY**

“I gained experience exercising skills relating to physics that I had never applied in practical situations outside of university. The magnitude of the objective to be accomplished meant that my experimentation and writing ability was challenged and improved. I also include teamwork, critical thinking and workplace etiquette in the list of learning outcomes from this project.” Alexander Burchett, PHYS311 student.

“I have learnt how to solder different components of electronic circuits together, design blueprints for and construct experimental apparatus, and most importantly collaborate within a group to achieve a common goal.” Adnan Vahanvaty, PHYS311 student.

**SESSION TIMELINE FOR PHYS311**

This unit is timetabled for Fridays throughout Semester 2.

**Week 1:** Students attend two workshops: Unit Orientation, work health and safety, integrity and ethics; My Physics Degree themes, knowledge and skills.

**Weeks 2-10 (9th August to 18th October.):** Students undertake 100-hours of activity with an external organisation. The distribution of hours is nominally a 1-week bloc in mid-semester break, plus 10 Fridays. Alternatives can be negotiated between students and host.

**Week 11:** Students attend a workshop: Job Interviews and Presentation Skills.

**Week 12:** Students give a presentation on their project.

**Week 13:** Students submit a final project report and finalise other assessment tasks.

**WOULD YOU LIKE MORE INFORMATION ABOUT PACE IN SCIENCE AND ENGINEERING?**


For further information on the roles and responsibilities for stakeholders please view our Governance and Guidelines, document available upon request at pace.science@mq.edu.au.

For more information contact Assoc. Prof. Dominic Berry at dominic.berry@mq.edu.au. Faculty of Science and Engineering PACE contact details are below.