

PhD Scholarship Opportunities

Scholarship: Australian Government Research Training Program (RTP) rate + Group of Eight (Go8) top-up: about AUD \$35,000 (tax-free)*

Start Date: As soon as practical

EOI Deadline: 14th July 2024 or until filled

Duration: Up to 3.5 years, subject to satisfactory progress

Eligibility: Open to both domestic and international students

*Note: The stipend amount is approximate and may be subject to change. Please check for the most current rates. Domestic students may be eligible for an additional top-up.



The Geenergy and Geostorage (GEGS) Research Group at UNSW's School of Minerals & Energy Resources Engineering is seeking a highly motivated PhD candidate to join our world-class team investigating CO₂ geostorage in deep saline aquifers. This projects, part of an Australian Research Council Discovery Project Grant and a collaboration between UNSW and ANU, focuses on developing advanced methods to understand and model CO₂ storage processes.

The successful candidates will work under the supervision of Prof. Christoph Arns on one of three distinct yet interconnected PhD projects:

- *Geomechanical and Geochemical Processes in CO₂ Geostorage*
Focus: Advanced characterization of microscopic mechanisms affecting CO₂ storage efficiency
Key areas: Micro-CT imaging, sample deformation dynamics, dissolution and deposition, pore-scale changes
- *Dynamic Wettability Characterization for CO₂ Geostorage*
Focus: Complex interplay between fluid-rock interactions, surface morphology, and wettability evolution
Key areas: NMR and micro-CT techniques, time-dependent and mineral-specific wettability changes
- *Computational Modelling for CO₂ Geostorage*
Focus: Multi-scale modelling techniques bridging pore-scale phenomena and core-scale behaviour
Key areas: CFD simulations, Lattice Boltzmann Methods, pore network models, upscaling methodologies

We are seeking exceptional candidates with the potential for excellence in research. The ideal applicant will have:

- A strong academic record from a top-tier university
For undergraduate applicants: Outstanding grades in relevant fields (geosciences, engineering, physics, chemistry, computational sciences, or applied mathematics); participation or achievements in relevant domestic or international competitions will be a significant advantage
For Master's degree holders: A solid academic performance and ideally some research output (e.g., conference presentations, publications) in relevant fields
- Demonstrated passion for geomechanics, rock physics, or related areas
- Excellent analytical and problem-solving skills
- Strong communication abilities and teamwork potential

While we welcome applications from candidates at different career stages, please note that this is a highly competitive opportunity. Before applying, we encourage you to critically assess your qualifications against these criteria:

1. Is your academic performance in the top 10% of your cohort?
2. Do you have relevant research or industry experience that sets you apart?
3. Can you demonstrate a clear alignment between your skills/interests and this project?

We strongly recommend that only candidates who can confidently answer "yes" to at least two of these questions submit an application. To express your interest, please submit your CV, academic transcripts, and a brief statement of research interests to c.arns@unsw.edu.au. We encourage applications from candidates with diverse academic backgrounds who are excited about tackling complex geoscience challenges with environmental implications.