

Next Generation Quantum Graduates Program Grant Application Guidelines 2023

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1. Program Overview

The Next Generation Quantum Graduates Program (NGQGP) is an Australian Government supported program set to fund nationally competitive scholarships to attract and train the next generation of quantum technology specialists¹. The scholarships will be funded for study at Australian Qualifications Framework (AQF) Level 10 (Doctoral). Students will participate in collaborative projects between industry and university, including placements with partners to build career-ready skills.

The NGQGP can leverage existing university resources, activities and networks to assemble cohorts of selected, high potential students to work directly on research projects brought forward by industry partners.

The NGQGP will provide up to 20 PhD Scholarships and allowances from 2024-2029 to <u>domestic students</u> enrolled at an Australian University. Universities are expected to form consortiums with industry participants, develop research proposals that are informed by real world challenges with quantum technology, and bid in funding for the students.

2. Objectives

The objectives of the NGQGP grant are to:

- develop a steady talent pipeline for the growth of Australia's quantum Industry
- retain quantum domestic talent in Australia by providing industry placements to PhD graduates with quantum industry partners in Australia
- foster career-ready experiences and build connections between quantum graduates and industry partners through collaborative research projects and/or work placement opportunities within industry
- develop cross-cutting skills, capabilities and connections through professional development and training opportunities in complementary areas, such as business, management, entrepreneurship, ethics or human-centred design.

3. Focus Areas

Proposals for student cohorts should be informed by a real-world challenge, designed to advance quantum technologies in Australia. In alignment with the <u>National Quantum Strategy</u>, the NGQGP has identified the following focus areas in quantum technology, and expect that challenges will be aligned with one or more of these:

- 1. Quantum devices and scalable quantum computer architectures
- 2. Quantum Information Science and Quantum Computing
- 3. Quantum Sensing
- 4. Quantum Communication
- 5. Quantum Biotechnology
- 6. Quantum Materials

¹ <u>\$4.6 million in grants to boost quantum education and collaboration | Department of Industry, Science and Resources</u>

4. Student Cohorts

Investigators can apply for a small number of individual student projects (1-3), these students would then join the broader Next Generation Graduates Program (including other students undertaking Quantum research) to ensure the cohort experience.

Investigators applying for a large number of student projects are expected to build a consortia, building a cohort by identifying a grand challenge that has the potential for many student projects, where each student contributes to solving the challenge (including from multidisciplinary perspectives) and where the sum of the student projects is greater than the parts.

When enrolling through a cohort, the students are expected to collaborate with each other and to utilise peer-to-peer learning, expanding on their different backgrounds and experience to provide a richer research environment.

Students will be co-supervised by a host university supervisor, industry supervisor/s and an optional CSIRO supervisor, and will spend time working directly with industry partners.

The NGQGP also seeks to bolster diversity by prioritising the inclusion of women, Indigenous Australians and students from rural, regional and remote communities.

5. Compulsory Student Coursework

Students will engage with a national cohort of peers from diverse disciplines. This cohort-driven learning approach fosters critical thinking, develops cross-cutting skills, and encourages collaborative solutions.

The coursework component of the NGQGP is a subset of the broader Next Generations Graduates Program (NGGP) coursework and designed to introduce future graduates to the key concepts that will be useful during their study. The coursework aims to cover a breadth of concepts and domains by developing knowledge and practical skills.

The NGQGP coursework is structured around the following units of study:

Core Units are undertaken by all NGGP students, they are delivered in six week blocks bi-annually

- Data Centric Engineering (Core)
- Ethics, Innovation and User-Centred Design (Core)

All NGQGP Students will also undertake an additional Quantum Technologies unit that is equivalent to two units. This unit is delivered in six week blocks bi-annually.

Students must register and complete the coursework component of the NGQGP within the **first 12 months** of receipt of a scholarship. Further information about coursework will be available via <u>Next Generation</u> <u>Graduates Scholarship Program - CSIRO</u>.

6. Grant amount and grant period

The NGQGP will provide up to 20 PhD Scholarships and allowances from 2024-2029. The scholarships are available to Domestic Students as per the <u>Australian Government's Higher Education Support Act</u> <u>2003</u>. Funding during the program will be subject to ongoing review based on student recruitment rates and progression. Below is a summary of the Scholarship and allowances.

Summary of NGQGP PhD Scholarship

Research Duration	3.5 years
Industry Partner/s placement	6 months
Stipend rate (p.a.) ²	\$41,650.00
Training allowance(p.a.)	\$5,000.00 ³
Travel allowance (total)	\$5,000.00
Publication allowance (total)	\$840.00

Participation Support Funding may be made available to support students with some of the costs of caring, accessibility and mobility needs to access the NGQGP activities, events and exchanges, or to support students who have Indigenous cultural responsibilities. Funding will be subject to review of individual circumstances and annual limits.

7. Grant Applications – Eligibility Criteria

Bids to NGQGP are to be made in the form of an eligible consortium. To be eligible, a consortium's application must include:

- at least on Australian Degree-conferring organisation offering degrees at AQF Level 10 (i.e. Australian universities)
- at least one partner organisation, external to the university, with dedicated resources to supervise student placements,
- a number of partners which is commensurate with the number of stipends requested i.e. those bidding for a larger number of stipends would be expected to include more than one university.

International partner organisations will be considered on a case-by-case basis.

8. Application Process

Investigators will apply for a pre-determined number of PhD scholarships; and students are expected to be enrolled at the successful universities from 2024 onwards.

Students and specific projects do not need to be identified at the time of application.

Investigators/Supervisors to consider the following when developing their application:

- Problem trying to solve considering the focus areas– Australia's Quantum future
- Proposed partners (domestic/international⁴ industry, academia, government) Nonbinding letter of support to host student placements will be required for application (No industry cash contribution is required)

² 2% Indexation will be applied to stipends for PhD students, each Financial Year.

³ PhD Training allowance is \$5,000 per year for three years only.

⁴ International industry partners would require Universities to undertake due diligence on the proposed partner with consideration to all relevant Australian legislation.

- Proposed number of Students/projects
- Diversity and inclusion plan
- Plan for recruitment of domestic students (as per 'Higher Education Support Act')
- Supervisors' capacity– university and industry
- A consortium of investigators/universities bidding in for a larger number of stipends would be expected to include more than one university and are encouraged to be geographically dispersed.

Diversity and Inclusion

Applicants should consider:

- how the participants intend to recruit students from a diverse range of demographic backgrounds (for example, women, mature age students, people with a disability, Indigenous Australians, people from regional, rural, and remote Australia)
- diversity, inclusion and belonging within the application proposal; including a diverse mix of Investigators/Supervisors

Applications provide the following information regarding their approach to diversity and inclusion across the consortium program and within student cohorts.

- High level statistics of the diversity of students (at all post-graduate levels) that proposed investigators have supervised.
- > Proposed program plan to recruit a diverse cohort of students.
- Proposed diversity mix of Investigators/Supervisors (including designated people from partner organisations) within the program structure

9. Assessment Criteria

Applications should rank highly against all four of the following assessment criteria:

a) Capacity to deliver an industry-inspired student training program to enhance Australia's Quantum future

30%

Demonstrate:

- a clear plan for student cohorts to be informed by real-world challenges, with students collaborating and complementing each other, in a structured and strategic way
 - Reference can be made to current student cohorts at all levels and how the additional Next Generation Quantum Graduate Program students will fit in to existing student programs
- experience in participation in a cohort-based, multi-disciplinary or industry focused student training program
- evidence that the project framework is genuinely integrated, cross-disciplinary, innovative and original.

b) Innovation, outcomes and benefit of the proposed Quantum program/projects

Describe:

- the impact of the proposed program including:
 - how the program will address the problem it is trying to solve and how it will contribute to Australia's Quantum future
 - the contribution to the partner organisation's strategic goals:
 - how the proposed program fulfills partner organisational needs such as enhancing innovation potential, creating unique market opportunities, strengthening organisational competitiveness or growth
- the novelty of the proposed program including contributions to the intended fields.

c) Chief Investigator(s) and Investigator(s) / capability and capacity to deliver the program

20%

Describe the:

- demonstrated quality of the proposed team including:
 - evidence of experience in and capacity to provide effective supervision, support and mentoring for graduate research candidates
 - evidence of experience in managing distributed and/or collaborative industrial and end user focussed research
- time and capacity of the team (including the partner organisation/s) to undertake and manage the proposed research.

d) Feasibility and commitment to the consortium program

20%

Describe the:

- appropriateness of the design of the program to ensure the projects can be completed within the proposed budget and timeframe (including identified risks and mitigation strategies);
- proposed student recruitment strategy including demonstrated ability to attract high calibre domestic students ;

We encourage applications to consider opportunities and pathways for connection to Aboriginal and/or Torres Strait Islander people and communities in their proposals.

If a project involves research pertaining to Aboriginal and/or Torres Strait Islander communities describe:

- the strategies for enabling collaboration with Aboriginal and/or Torres Strait Islander communities (for example, dialogue/collaboration with an Indigenous cultural mentor, co
- development of research programs with Indigenous communities and/or Indigenous-led research);
- any existing or developing, supportive and high-quality relationships with Aboriginal and/or Torres Strait Islander communities; and
- any personal affiliations with local Aboriginal and/or Torres Strait Islander communities that can facilitate the proposed research.

10. Assessment Process

Assessment of proposals will be conducted by a panel, including experts from the international and domestic Quantum Community and the Department of Industry, Science and Resources, with decisions made according to the criteria above.

Funding is contingent on recruitment of students into the awarded programs.

11. Post award reporting

Successful programs will be required to report to the NGQGP team within Data61.

- Milestones will be provided in a stage-gate fashion and Next Generation Graduates funding will be associated with each Milestone.
- Milestone reports will be 6 monthly.
- Students receiving a NGQGP Scholarship are expected to endeavour to remain in or seek work in Australia following completion of their Next Generation Scholarship; and
- Students receiving a NGQGP Scholarship must commit to maintain contact with CSIRO for up to two
 (2) years after graduating from the study program, for the purpose of reporting and evaluation of
 outcomes relating to the program; universities will facilitate this.

Content of each report

Each report is required to contain:

- confirmation that the program is still supported and on track to deliver the overall program objectives
- details related to student projects, enrolments, placements and other milestones
- an outline of 'other activities' (e.g. BD, IP) that are tracking in parallel (to provide confidence that the translation element relevant of activities is progressing)
- financial declaration confirmation that intended funds have been expended as per the Funding Agreement
- other information as required by the Australian Government.

12. Application Dates

Applications will close on **9 October 2023 at 6pm (AEST)** for proposals intending to recruit students for intakes starting from 2024.

All applications will be subject to review under appropriate legislative compliance requirements.

13. How to Apply

All applications must be submitted electronically through the <u>application submission portal</u> as follows.

a) Program Summary

Complete the form provided in the submission portal.

- Proposed Program Title
- Program Summary (200 words maximum, for external communications and promotional purposes)
- Objectives (one sentence per objective, 300 words maximum in total)
- Benefit and Impact Statement (300 words maximum)
- Participant Summary

b) Program Description

Complete the form provided in the submission portal.

- Introduction, Background and Aims (500 words maximum)
- Assessment Criteria (1000 words maximum)
 - a. Delivery of a cohort-based, multi-disciplinary, industry-focused program
 - b. Innovation, outcomes and benefit
 - c. CI(s) and Investigator(s)/capability
 - d. Feasibility and commitment
- Attachment of one-page PDF tables or figures Attachment of one-page PDF tables or figures (maximum of one)

c) Investigators Summary

Complete the table provided in the submission portal, including

- name, current position, organisation, key grants (if applicable), key publications (if applicable), link to bio, contact details (email)
- list maximum of 20 Investigators including Chief Investigators (CIs).
- d) Diversity and Inclusion
- Definition of Diversity & Inclusion (D&I) Principles:
 - Diversity means differing views, backgrounds and experiences which contribute to innovative problem solving.
 - An inclusive leadership style means creating an open and fair culture where all participants feel respected, safe and empowered to contribute. Together with an inclusive leadership style, diversity of thought can contribute to innovative problem solving.
 - Consider your university's SAGE action plan, Reconciliation Action Plan and other diversity, inclusion, belonging and equity initiatives and how the research project may contribute.
- Applicants should consider:
 - inclusion of a diverse mix of Chief Investigators, Investigators and Partners who will be involved in supervision of the students. Applicants are encouraged to include Early Career Researcher participation, to ensure diversity in the leadership and the projects.
 - a multi-disciplinary program of work, including how the proposed program may enable students from a diverse range of degree programs and skillsets to participate
 - how the participants intend to recruit students from a diverse range of demographic backgrounds (for example, women, mature age students, people with a disability, Indigenous Australians, people from regional, rural and remote Australia and those with diverse cultural, professional and academic backgrounds)

 \circ $\;$ diversity, inclusion and belonging within the broader consortium program

Applications must answer the following questions regarding their approach to diversity and inclusion across the consortium, complete the form provided in the submission portal.

- Provide high level statistics of the diversity of students (at all post-graduate levels) your proposed investigators have supervised. (300 words)
- How does the program plan to recruit a diverse cohort of students? (300 words)
- How is the proposed program structured to include a diverse mix of Investigators/Supervisors (including designated people from partner organisations)? (200 words)

e) Budget

Complete the table provided in the submission portal

- Proposed PhD student numbers.
- Enrolling university (or list of partner universities)

f) Supporting Material

Mandatory attachments:

- Letter of support from universities signed by relevant delegate
- Non-binding letter of support from proposed industry partner/s indicating willingness to participate in student placement activities

Further information

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Visit CSIRO.au/nextgen-quantum for more information including the frequently asked questions.