Sultan Qaboos University
Deanship of Research
SQU Undergraduate Student Research Fund Program (USRF)

Name of the program:	SQU Undergraduate Student Research Fund (USRF)
Targeted group:	SQU undergraduate students
Cycle start date:	September
Submission Period:	February to June
Duration:	Maximum of 12 months. Extensions are not allowed.
Max budget/proposal:	1,500 OMR per project

Background:

Sultan Qaboos University (SQU) is committed to supporting applied research and innovation in strategic areas that contribute to Oman's socio-economic development and transformation to a knowledge-based society. An important component of this commitment is identifying innovative research outputs with the potential for transformation into value-added products, processes, and services. By taking the necessary steps to identify, protect and exploit innovative research outcomes and other forms of creativity, the university can play a leading role in knowledge creation and dissemination and the founding of start-ups and SMEs that address the sultanate's development needs as identified in Vision 2040.

While, historically, many of the world's universities viewed their professors, researchers, and postgraduate students as the dominant drivers of knowledge generation and deployment, today many are now paying attention to undergraduate learners as a source of research output and innovative ideas. This is certainly the case at SQU, where the university's undergraduate student body consists of the most academically capable learners in the country who have typically achieved the top 5% of marks in their high school exams. Undergraduates at the university are required to complete a two-semester final year project that provides them with the opportunity to work under faculty supervision to demonstrate their abilities to apply the expertise and skills acquired throughout bachelor-level studies to produce innovative research outcomes that address real-world issues.

While the exact form these projects take varies across SQU's colleges and departments, they nonetheless all share a common concern with encouraging learners

to engage with industry in real-world contexts, apply theoretical knowledge in hands-on settings to produce innovative outcomes, and apply their research, critical thinking and time management skills to industry or community issues. Across the course of the project, students are expected to devise a research project, present their work in the form of reports and presentations, and offer project deliverables on-time. In addition to these outputs, a significant number of projects result in Intellectual Property (IP), including patents, copyrights and trademarks, and even prototypes, products, and services that address industrial and/or socio-economic issues. Throughout the project, students are guided by the expertise and experience of their faculty supervisors, thereby ensuring that undergraduate research projects have the highest chance of producing innovative outputs with real-world applications.

The rigorous demands of undergraduate research projects across the university's colleges, combined with the time commitment and effort students and their faculty supervisors often devote to their successful completion, mean that it is not uncommon for truly original and innovative ideas to emerge. However, except in those instances where students go on to postgraduate studies and continue to develop their innovative ideas and products for commercialisation, in many cases these outputs are not developed in a significant manner following graduation. In fact, a number of promising research outputs receive no further attention following project completion, with associated IP thereby remaining unidentified and the potential value associated products and services can bring to the country irrevocably lost.

It is due to the potential value of undergraduate research projects for the sultanate's development efforts, including in terms of providing a basis for start-ups and SMEs and practical solutions for industry and community issues, that the Undergraduate Student Research Fund (USRF) be here. The grant program seeks to develop interest and capacity in innovation and entrepreneurship among SQU's student body by encouraging undergraduate learners to pursue research projects that directly contribute to the country's strategic development and that transform innovative output to value. In addition to playing a vital role in job creation in high-tech industries, Omanisation, and economic diversification and growth, the program will also allow SQU to enact the following strategies for creativity and innovation outlined in its long-term Strategic Plan 2016-2040:

- Motivate faculty and students to conduct research geared towards transforming knowledge into value

- Adopt appropriate infrastructure and best practices for managing commercialisation

- Promote awareness of creativity and innovation in the SQU community

- Promote creativity and innovation in teaching and learning

By establishing the USRF at SQU, the university's human resources and research and innovation assets can be fully leveraged to drive innovation and

entrepreneurship, not only within the university, but also across the country. This will increase Oman's rank in the global innovation index and will allow a higher proportion of the research and innovative outputs emerging from the university to be transformed into IP and commercialisable products and services, thereby contributing to Oman's competitiveness on the global stage. As a result, the program will have a positive long-term impact on the nation's socio-economic development, sustainable growth, and efficient transformation to a knowledge society.

Scope:

Vision: Supporting applied and innovative undergraduate research at SQU.

Mission: Promote the transformation of SQU undergraduate student research outputs with a high potential for commercialisation into IP, profitable spin-offs and start-ups, and practical solutions for socio-economic issues.

Objectives:

- Identify and support the transformation of SQU undergraduate student research outputs with a high potential for commercialisation into IP, value added products and services, and solutions for socio-economic issues.

- Ensure the innovative research outputs, products, and services of SQU's undergraduate students are successfully brought to the marketplace.

- Deepen and widen the culture of research, innovation, and creativity within SQU and across Oman.

- Enhance the research learning experience of SQU's undergraduates.

- Create opportunities for SQU undergraduate students to experience all facets of the research and innovation processes, from research design and implementation to screening, commercialisation and diffusion.

- Develop the skills and know-how that SQU's undergraduate students and faculty supervisors need to be leaders in innovation and creativity in strategic fields.

- Ensure SQU's undergraduate student IP is effectively identified, protected, and exploited for the betterment of the university and Omani society.

- Encourage SQU undergraduates to pursue higher level studies and future research careers.

- Develop the skills and knowledge that SQU's undergraduate students need to be leaders in research, innovation, and creativity in strategic fields.

- Establish a network of stakeholders invested in furthering research, innovation and creativity in Oman.

Undergraduate Student Research Fund (USRF):

The USRF at SQU operates by selecting undergraduate student research projects with the highest potential to result in IP, innovative outputs, value-added products and services, and solutions for socio-economic issues, and extending various forms of support to them. Once selected by first the College Research Committee and then the Deanship of Research Central Evaluation Committee, awarded projects receive financial support to help guarantee the production of IP, high quality innovative products, prototype, or services, and/or solutions to socio-economic issues. In addition, undergraduate students supported by the program are given the opportunity, under the guidance of their faculty supervisors, to interact with faculty and experts from across the university to discuss their projects, and with industry representatives and other concerned stakeholders whose input may enhance project outcomes.

Eligibility:

- Grants are open for SQU undergraduate students.
- Submission is open for all majors across SQU's colleges.
- The project should be practically manageable within one academic year.
- The research team must have minimum of two students.
- All team members' cumulative GPAs should be above 2.3.
- All team members should have completed at least 60% of the program credit hours.
- Every project should be supervised by an SQU faculty member/researcher or equivalent with a doctoral degree.
- Replacing project team members or supervisors is allowed. New candidates must meet the eligibility criteria for the position.
- Students proposing research that involves medical procedures or human or animal subjects must provide ethical clearance. The project team leader is responsible for providing these approvals during the submission process.

Procedures:

All proposals to the program go through the submission and evaluation process detailed below (See Figure 1).
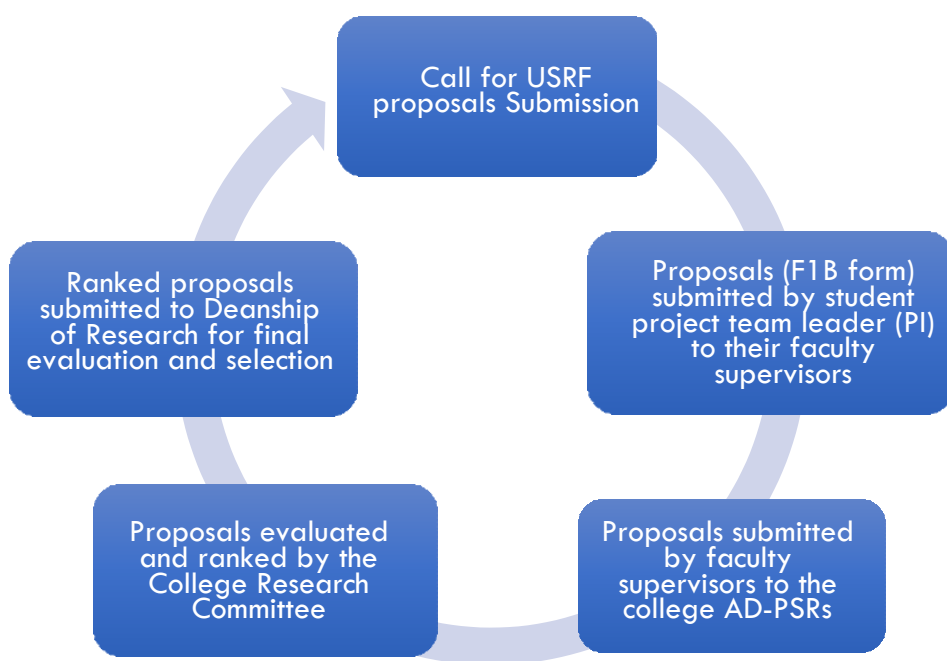
Figure 1: USRF process flowchart

1. At the beginning of each academic year, the Deanship of Research releases a call for USRF proposals.

2. College Deans, Assistant Deans of Postgraduate Studies and Research (AD-PSRs), and Heads of Department ask faculty supervisors to identify undergraduate student research projects they believe to be of outstanding merit and to encourage their students to apply.

3. Interested undergraduate students form student teams, nominate a team leader, and obtain their faculty supervisor's permission and prepare proposals. Proposals are submitted by the project team leader to their faculty supervisors by the program deadline.

4. After checking proposals for completeness and eligibility, the faculty supervisor forwards proposals to the college AD-PSR.

5. The college AD-PSR shares received proposals with the College Research Committee for first-level evaluation and subsequent ranking.

6. Proposals nominated and ranked by the College Research Committee are sent by the AD-PSR to the Deanship of Research.

7. The Deanship of Research receives nominated proposals from each college and keeps a full and accurate record of these. Nominated proposals have

their College Research Committee evaluation scores and rankings forwarded to the Chair of the Deanship of Research Central Evaluation Committee.

8. Deanship of Research Central Evaluation Committee conducts the second-level proposal evaluation, assigns overall scores, and ranks nominated proposals.

9. Proposals receiving the highest overall scores and rankings from the Deanship of Research Central Evaluation Committee are short-listed and provisionally approved by the committee Chair. The number of short-listed proposals is determined by the Chair in consultation with relevant university authorities.

10. The Central Evaluation Committee Chair presents the short-listed proposals to the the Deputy Vice Chancellor of Postgraduates Studies and Research (DVCPSR) for approval. The DVCPSR raises any actual or potential issues with short-listed proposals for further action before approving them.

11. Following the DVCPSR's approval, the Central Evaluation Committee Chair officially informs the Deanship of Research focal point who, in turn, informs the relevant College Deans and AD-PSRs about the proposals that have been awarded grants.

12. AD-PSRs inform successful undergraduate students and their faculty supervisors of results. The relevant AD-PSRs liaise with awarded undergraduate students and their faculty supervisors throughout the course of their undergraduate research projects to help facilitate budget allocation, access to further project support, and the submission of project deliverables to the focal point on-time.

13. The grant period concludes at the end of the academic year in which the undergraduate research project was conducted. Relevant AD-PSRs liaise with the Deanship of Research focal point to ensure undergraduate research projects have been finalised and that the final project report, and any outstanding administrative, financial, or technical matters or deliverables, are submitted before the last day of the academic year.

14. Necessary steps are taken by the undergraduate students, faculty supervisor, AD-PSRs, and the Innovation and Technology Transfer Centre (ITTC), to ensure all IP from undergraduate research projects supported by the grant, either during the period of support or thereafter, is identified, protected, and exploited, and that any further assistance to produce products, services, and prototypes as a basis for start-ups and SMEs and/or to address Oman's socio-economic needs is provided, in-line with university policies, rules and regulations.

Main Responsibilities:

Undergraduate Students and Faculty Supervisors: Undergraduate students wishing to participate in the program are responsible for forming teams of at least two students, nominating a project team leader, obtaining written permission from their

undergraduate research project faculty supervisor, completing the proposal application forms and supplementary documents, and formally submitting these to their faculty supervisor. Upon receipt of student proposals, the faculty supervisor is responsible for ensuring their completeness and eligibility and forwarding all eligible proposals to the college AD-PSR. In cases where the project deals with medical procedures or human or animal participants, the students, along with their faculty supervisor, must ensure that ethical approval has been received by the responsible university and/or national ethics board/committee prior to submission.

Upon being awarded a program grant, students must conduct their research with the guidance of their faculty supervisor in a way that adheres as fully as possible to the timeline outlined in the proposal and that achieves all stated objectives, while also keeping accurate and complete technical and financial records etc. Awarded students are responsible for submitting their progress report and final report to the Deanship of Research focal point on time, and ensuring that any outstanding administrative, financial, or technical matters or deliverable are completed before the end of the academic year in which the program grant was awarded. Awarded students and their faculty supervisors are further responsible for coordinating with the ITTC and relevant AD-PSR to ensure that IP emerging from undergraduate research projects supported by the grant, either during the period of support or thereafter, is identified, protected, and exploited, and that all feasible and necessary actions are taken to produce resultant products, services, and prototypes as a basis for start-ups and SMEs and/or to address Oman's socio-economic needs, in-line with university policies, rules and regulations.

Assistant Deans of Postgraduate Studies and Research (AD-PSR): The main responsibility of AD-PSRs during the initial phase of the program is awareness raising and encouraging participation. AD-PSRs receive proposals from faculty supervisors and circulate these to members of the Deanship of Research Central Evaluation Committee for first-level evaluation. As the awarded undergraduate research projects progress, AD-PSRs are responsible for coordinating with awarded students, faculty supervisors, and the ITTC to ensure appropriate actions have been taken to identify, protect, and exploit IP that the projects have produced, and that necessary support has been extended to produce any products, services, or prototypes that have the potential to form the basis of start-ups and SMEs and/or to address Oman's socio-economic needs.

Deanship of Research Focal Point: The Deanship of Research focal point sends the call for proposals for the USRF to all undergraduate students and to faculty members across all of the university's colleges upon the program's opening. The focal point follows up the circulation of the call with College Deans and AD-PSRs and encourages them to raise awareness and promote participation in the program. The focal point receives nominated proposals from each college's AD-PSR, maintains a record of them, and anonymises them and removes the College Research Committees' scores

and rankings. The focal point then forwards nominated proposals to the Chair of the Deanship of Research Central Evaluation Committee for second-level evaluation. Following second-level evaluation, the focal point liaises with the Chair of the Deanship of Research Central Evaluation Committee in order to keep a record of committee scores and rankings and feedback and to receive the list of approved grant winners after the Chair's receipt of DVCPSR approval. They then inform the relevant College Deans and AD-PSRs about the awarded proposals, ensure that the AD-PSRs inform undergraduate students and faculty supervisors of results, and follow up awarded undergraduate research projects, including by taking necessary steps to facilitate budget allocation, access to project support, and the on-time submission of project deliverables.

Towards the end of each academic year, the Deanship of Research focal point works with the relevant AD-PSRs to ensure all undergraduate research projects supported by the grant have been finalised and that the final project report, and any outstanding administrative, financial, or technical matters or deliverables, are submitted before the last day of the academic year. The focal point also has responsibility for approving awarded research projects progress reports and the final project reports, receiving and processing all requests for budget allocation, in addition to maintaining a record of proposal evaluation scores and rankings and comments for all received proposals in an academic year from both the College Research Committees and the Deanship of Research Central Evaluation Committee.

College Research Committee: Each of SQU's College Research Committees is responsible for the first-level evaluation of proposals submitted by students in their colleges. The Chairs of the College Research Committee are responsible for receiving anonymised proposals from AD-PSRs, forwarding these to committee members, and holding the evaluation meeting in a timely manner. The Chair is also responsible for ensuring all proposals are fairly and accurately evaluated based on the evaluation criteria below or on college-specific evaluation criteria pre-approved by the Deanship of Research, and that committee members approve of the nominated proposals before they are forwarded to the Deanship of Research Central Evaluation Committee. The Chair also maintains records of final evaluation scores and rankings and any associated comments for all college proposals that were not nominated for second-level evaluation and takes the necessary steps to share this information with the focal point.

Deanship of Research Central Evaluation Committee: The Deanship of Research Central Evaluation Committee performs the final, or second-level, evaluation of all nominated proposals received from College Research Committees. The committee is chaired by Dean of Research. The committee consists of 5-7 members, in addition to the Chair, who are invited by mutual agreement of the Chair. In addition to a high-level representative from the Deanship of Research, committee members may include other representatives from the Deanship of Research and the ITTC, faculty members

from across the university's colleges that are not members of College Research Committees and who are not supervising undergraduate research projects that under evaluation, research centre directors and assistant directors, and any other representatives from SQU or industry the Chair deem could make a significant contribution to the committee. If and when necessary, the Deanship of Research Central Evaluation Committee Chair may, seek technical input about any aspect of a given proposal they believe further expertise would help elucidate.

The Deanship of Research Central Evaluation Committee Chair is responsible for receiving anonymised proposals that have been nominated during first-level evaluations from each College Research Committee. The Chair next circulates the received nominated proposals to committee members, and arranges the committee evaluation meeting to assign overall scores and rankings based on the evaluation criteria below. The Committee Chair is also responsible for short-listing proposals with the highest evaluation scores and rankings and forwarding a summary of these to the Deputy Vice Chancellor of Postgraduates Studies and Research (DVCPSR) for approval and/or to ascertain any actual or potential issues. Following the DVCPSR approval, the Deanship of Research of awarded proposals for further action. The Deanship maintains a record of evaluation scores and rankings and any applicable comments for all proposals evaluated by the Deanship of Research Central Evaluation Committee.

Innovation and Technology Transfer Centre: As the university entity responsible for promoting and facilitating a culture of innovation and entrepreneurship and supporting the translation of research into value-added services and products, the ITTC plays an important role in ensuring undergraduate research projects supported by the program result in IP, products, services, and prototypes that can bring value to Oman and/or address social and industrial issues. The ITTC's main role in the program is coordinating with awarded students, faculty supervisors, and AD-PSRs to help identify and protect IP, including invention disclosures, patent applications, copyright applications, and trademarks, and to support the production and/or dissemination of products, services, and prototypes resulting from the projects. The ITTC is also responsible, in coordination with the relevant faculty supervisor, for providing or arranging any training or mentoring that would benefit the delivery of the undergraduate research projects, and, if required, for facilitating industrial linkages.

Evaluation:

College Research Committees and the Deanship of Research Central Evaluation Committee both evaluate anonymised proposals based on the below criteria. In cases where Chairs of College Research Committees believe college-specific evaluation criteria would be more effective for meeting the program's objectives, these may be negotiated with the Deanship of Research and approved by the Deputy Vice-Chancellor for Postgraduate Studies and Research.

Criteria	Score from
1. Overall quality of the proposal	/20
2. The innovation and creativity of the project	/20
3. Potential for IP, innovative and commercial sable products and services, transformation into start-ups/spin-offs, and/or practical solutions for socio-economic issues	/30
4. Clarity of the research plan/methodology	/20
5. Feasibility of the proposed budget	/10

Budget:

The maximum budget for a USRF grant is 1,500 Omani Rials. The budget may only be used for the following categories:

- Miscellaneous

- Data collection and analysis

- Publication

- Capital equipment

- Recurrent items (consumables)

- Local travel.

There are no caps per category within the overall project budget. No budget allowance is allowed for international conferences or overseas travel.

Application Components:

The following information must be submitted in the proposal application:

1. Students' updated transcripts at the time of application.

2. Letter of no objection from the project faculty supervisor confirming their approval of the proposal.

3. Full research proposal (in PDF format) containing the following items:

    - Introduction and problem statement

    - Literature review

    - Methodology

    - Objectives

- Timeline with specific milestones
- Intended outcomes/deliverables (with a focus on IP, products, services, and prototypes, and/or solutions to industry and community issues)
- Project significance and benefits to Oman
- Budget breakdown
- References

Deliverables:

The below deliverables are required to satisfy the program's requirements. Failure to submit the deliverables on-time may result in a written warning to remedy the situation, followed by suspension and/or termination of grant support and, in cases where the Deanship of Research focal point, in consultation with the Central Evaluation Committee Chair, believes a breach of SQU rules and regulations has occurred, potential disciplinary action against the awarded students and/or their faculty supervisor.

1. Progress Report – submitted by the undergraduate student team leader and signed by the faculty supervisor that outlines all undergraduate research project progress against the relevant project timeline/milestones. The progress report is submitted to the Deanship of Research focal point before the end of the first semester of the academic year in which the grant has been awarded.

2. Final Report – submitted by the undergraduate student team leader and signed by the faculty supervisor detailing the completion of the project, including the achievement of project objectives and milestones, any challenges faced, and project outcomes (e.g. IP, products, services, prototypes, etc.), in addition to the contribution of any other SQU faculty and staff and/or industry representatives or outside experts to the project (if applicable). The final report is due to be submitted to the focal point before the last day of the academic year.

3. Awarded undergraduate students may be requested by the focal point to make a presentation about their undergraduate research projects at events organised by their college or department, the Deanship of Research, the ITTC, or at other university-wide events.

Conclusion:

The USRF at SQU is an important initiative for promoting the transformation of the university's undergraduate student research output into IP and innovative products and services that form the foundation of profitable start-ups and SMEs and practical solutions for real-world socio-economic issues. The program offers high-level support

for innovative undergraduate research projects, thereby granting these projects a higher chance of being successfully pursued and for the innovative results emerging from them to be identified, supported, and commercialised, thereby bringing value to the university and the country. The grant program also ensures that innovation is integrated into all aspects of the university and is not just viewed as the sole domain of faculty and postgraduate students, thereby enhancing the university's reputation as a national and regional leader in research and innovation. The establishment of the program is a vital step in helping SQU realise its goals for research and innovation as detailed in its long-term Strategic Plan 2016-2040, and the strategic objectives of Oman Vision 2040.