***National Graduate Academy Knowledgeshare Grant***

**Programme Framework Document**

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# 1. STRATEGIC CONTEXT

The National Graduate Academy for Mathematical and Statistical Sciences (NGA) is a consortium of South African universities whose mission is to help produce the next generation of scholars in the mathematical and statistical sciences who exhibit the breadth and depth of knowledge of contemporary developments in their field. The platform will assist post-graduate students and early career academics in acquiring advanced skills that will enable them to contribute to the advancement of new knowledge and to make meaningful contributions in academia, public and private sectors and non-governmental organisations. It is important to guard against the academic and intellectual isolation of South African mathematical and statistical sciences and it is within this context that the Knowledgeshare programme is rooted.

Simply stated, the Knowledgeshare programme of the NGA aims to facilitate the “sharing of knowledge” in the mathematical and statistical sciences across the South African university system utilizing expertise within the country and from abroad. There are pockets of research excellence at South African universities which could be deployed for the benefit of graduate students across the university system. Academics in many smaller universities are working in isolation from their local peers and in some instances research in mathematics and statistics at South African universities lags behind global contemporary and new areas of research. The intention of the funding programme is to facilitate the pooling of local expertise, securing international expertise where appropriate, and sharing resources across the whole university system thereby creating opportunities especially for post-graduate students and early career academics to be exposed to emerging trends, and keep abreast of new directions in mathematical and statistical sciences research.

# 2. TYPES OF SUPPORT

The Knowledgeshare instrument will support five main activities namely a Mentorship Programme, Graduate Workshops and Research Schools, Shared Lecture Series, Co-supervision of PhD students, and Short-term Inter-institutional Research Visits. The rationale and overview of each category for funding is given below.

## 2.1 Mentorship Programme

Departments of Mathematics or Statistics in smaller universities face a shortage of senior academics who can provide academic leadership and provide mentorship to the next generation of academic mathematicians and statisticians. Many departments employ people who have not yet established a research or lecturing career. These academics may lack the skills to develop postgraduate courses, to develop research projects and to supervise research students. Many of them already find themselves in positions of academic leadership without the requisite experience and expertise to exercise the necessary academic leadership. Others carry heavy lecturing loads that leave minimal time for the development of their own research and teaching careers.

The funding will be used by universities to identify and appoint senior mentors to work with the younger academics in mathematics and statistics departments. Mentors (distinguished scholars of research) are selected on the basis of impeccable mentorship credentials and commitment to the development of the next generation of academics in the mathematical and statistical sciences. Mentors should be prepared to approach their mentorship responsibilities in a selfless manner since the aim will not be to benefit the career of the mentor, but to directly benefit the careers of the mentees, and indirectly strengthen their host departments.

Mentors will either spend a continuous time period in the host department, or pay regular visits to the department, depending on the circumstance of the mentor and the specific needs of the host department and mentee.

**Requirements for a mentor:** A mentor can be an established researcher, an international acclaimed academic or an acclaimed SA retired academic, who can share their experience of successfully publishing in recognised research journals, writing grant proposals, applying for NRF-rating, defining and proposing niche and novel research areas, and supervising Masters and PhD students. The mentor should not be permanently employed by the host University.

The mentor should assist with capacity development and the activities may include items from the list below:

* Supervise or co-supervise Masters and PhD students which may include young academics already on permanent employment.
* Guidance with grant writing.
* Increasing the production of peer reviewed accredited publications.
* Preparing and presenting conference papers.
* Design of master and or doctoral research projects, which could include research projects spanning across institutions.
* Provide expert advice and guidance to conceptualise and design complex research projects.
* Assist newly established researchers to build and nurture their research careers, leading to NRF ratings.
* Scientific writing assistance at all postgraduate levels.
* Organise short workshops to mentor young/inexperienced supervisors.
* Provide overall guidance and advice on balancing the research, teaching and administrative demands of an academic career.

**Requirements for a mentee:** A mentee is a young academic, typically a permanent staff member who is either still working towards a PhD or obtained a PhD in the last 5 years and who is appointed as senior lecturer, lecturer or junior lecturer in the Mathematical, Statistical, and Data Sciences.

Measurable outcomes for the mentees will include:

* NRF rating (new or improved).
* Increased publication output in peer-reviewed publications.
* Successful grant funding applications.
* Ad hominem promotion.
* Increased offering of Masters and PhD research projects.
* Enhanced supervision skills resulting in graduation of students.
* Postgraduate course presentation skills and ideally presentation skills of a course at various institutions for multiple benefits.
* Adoption of academic responsibilities that reflect an increased standing amongst their peers.

It is expected of the mentor to visit the host university based on an agreed plan as managed by the relevant head of department of the host university. Mentors can also be retired academics who still have a presence in a Department. The host university shall make all logistical arrangements of the mentor.

## 2.2 Graduate Workshops and Research Schools

The primary objective of the Graduate Research Schools Programme is to bring together post-graduate students and/or early career academics and expose them to advanced topics in various areas of contemporary research in the Mathematics, Statistics and Data Science. It is envisaged that there will be at least two types of activity that will be organised within this programme.

The first category would provide a survey and overview of a particular area of research activity, highlighting seminal developments, and identifying contemporary research questions and directions. Such a programme could range in duration from at least a week to a semester programme consisting of a series of workshops.

The second category would be a platform for organising events around rapidly developing areas of research activity, cutting edge topics of contemporary interest and potential impact. These “*Hot Topics Workshops*” could be a series of seminars spread over at least three days.

The objectives of the Graduate Workshops and Research Schools are to:

1. Bring together prospective research students from South African universities with potential supervisors and leading experts both locally and internationally.
2. Provide researchers with a platform for organising events around rapidly developing areas of research activity, cutting edge topics of contemporary interest and potential impact;
3. Provide first level PhD and Masters students with an opportunity to be exposed to important developments in their chosen area of research which would assist them in developing PhD research proposals;
4. Bring together early career mathematics or statistics researchers (within five years post their PhD qualification) and create opportunities to establish new connections, collaborate and develop medium-term research programmes under the guidance of and with advice from senior researchers and experts.
5. Provide opportunities for established researchers to branch into new directions and increase the impact of their research. Participants will be able to delve more deeply into research, learn about open problems, and meet potential collaborators.
6. Create a platform for those interested in broadening their mathematical and statistical perspectives to learn techniques and fundamental results that are crucial in following research developments in a particular area.

## 2.3. Shared Lectures Series or Postgraduate Courses

The Shared-Lectures Series programme is a platform for South African universities to pool expertise and share resources for the purposes of training postgraduate students in mathematics, statistics and data science. This will be in the form of shared postgraduate courses offered to a group of postgraduate students (Masters and/or pre-PhD) registered at different institutions. There will mainly be at least three different categories of courses.

1. Courses that are accredited by the CHE and HEQC for Masters degree by coursework and research report.
2. Where there is an identified need and sufficient numbers of students have expressed an interest in a topic that is not necessarily offered at any of the South African universities, an expert either locally or from outside South Africa can be approached to develop and offer such a course.
3. Courses that are specially designed by South African supervisors (for especially pre-PhD students) to provide the masters students preparing to enrol for doctoral studies with the breadth and depth of knowledge in their area of chosen research, and provide adequate preparation for students to undertake and pursue PhD-level research.

In certain instances postgraduate students may be interested in certain topics where there is no expertise within their universities. Some institutions may have expertise to offer advanced topics but these would not be offered either because there is no interest in the topic within the institution or there would be very low enrolments to make it worthwhile. The desired outcome of the programme are to meet the “**breadth-and-depth**” imperative: breadth of knowledge of classical results, techniques and methodologies and depth of knowledge about contemporary developments at the frontiers of research.

A small Organising Committee will be established and may consist of up to four people. The main responsibilities of the Organising Committee is to identify and prepare all the relevant course material and also present the lectures. The course material will preferably also include a list of the important publications relevant to the topics (literature review). In order for the participants to benefit fully from the contact sessions, it is recommended that the Organising Committee stipulates beforehand the background knowledge that will be assumed and to provide advice on how the prospective participants can familiarise themselves with this. The Committee will identify the core topics that will be covered. This could include, for example, central ideas and seminal developments in the area, some of the established (and advanced) techniques and methodologies as well as contemporary and cutting-edge developments. If the course is credit-bearing and some students might need recognition of such towards their Masters degree, the Organising Committee will endeavour to include all the core topics in existing accredited courses and home universities would be responsible for covering the additional topics that they would require in order for the student to gain credit. The Organising Committee will also decide on assessment (formal or informal) (for example assignments, solved-problems portfolio, formal examinations, class presentations, etc).

## 2.4. Co-supervision of PhD students

Funding in this category is intended to open opportunities for postgraduate students registered at an NGA partner institution in South Africa to have a (co-)supervisor from another institution, either in South Africa or abroad. This co-supervision would be of value when the student’s research topic is in a current area of research where the home university supervisor’s expertise is complemented by that of an external expert. In particular in the context of the three previous funding categories it may be that a mentor, a workshop or research school presenter or lecturer on a shared lecture series develops a research relationship with the supervisor and/or PhD candidate. It may be beneficial for this research relationship to contribute to the completion of a higher quality PhD than would be possible without the co-supervision. It is important to note that the funding is not for the student to be registered at another institution but explicitly to obtain the assistance of an external co-supervisor and thus build expertise at the NGA partner institution.

The (co)-supervisor is expected to be formally appointed as such by the home institution and relevant administration is to be overseen by the PhD candidate’s local supervisor and Head of Department. The home institution undertakes to provide appropriate facilities for both the PhD candidate and the (co)-supervisor on any institutional visits.

## 2.5. Short-term Inter-institutional Research Visits

Recognising the value of dedicated periods of focused research away from one’s home institution, well-motivated applications by NGA beneficiaries for such visits will be considered for funding. In line with the Knowledgeshare theme such visits will be to spend time with another researcher or research group that will allow the applicant to be exposed to a research environment beyond what their home institution affords. This may be linked to one of the other categories of funding, such as to spend time with a (co)-supervisor or to extend a visit after participating a workshop or research school.

# 3. ELIGIBILTY CRITERIA

Applicants who are interested in applying for the Knowledgeshare grant should meet the following eligibility criteria:

* A full-time employee at an NGA partner institution in South Africa.
* Enjoy the support of the NGA node leader at their institution, and the head of the relevant department at their institution (Mathematics, Statistics or Data Science).
* If the beneficiary of the application is not a full-time employee, for instance in appointing a co-supervisor or for a PhD student to make a short-term visit, the application must still be completed by a full-time employee. This will typically a supervisor or head of department.

# CALL AND SUBMISSION OF PROPOSALS

The Call for proposals will be open throughout the year. This call information and documents will be available on the NGA website and updated from time to time. Please make sure that you have the latest version.

*Proposals may be submitted any time during the year, these will be reviewed as and when they are received. The NGA will communicate the outcome of the funding decision within one month of receiving a complete application. To allow for the relevant administrative procedures to be completed, applicants are encouraged to apply at least three months before the funding will be required.*

#  ADJUDICATION, SELECTION AND APPROVAL OF PROPOSALS

The submitted proposals will be adjudicated by the relevant Academic Committee of the NGA. (There are standing committees for Mathematics, Statistics and Data Science.) If necessary they may enlist the opinion of additional subject experts before making a recommendation for endorsement by the NGA Strategy and Steering Committee. This is to ensure consistency among the different Academic Committees, and adherence to the strategic direction of the NGA and that of the funders.

# 6. FUNDING PRINCIPLES

A detailed budget must be prepared by the applicant, and endorsed by the relevant Head of Department and NGA Node Leader of the applicant’s institution.

The funding that can be applied for is within the categories of support as outlined in Section 2 above.

The number of applications that will be supported overall will depend on the availability of resources and the financial requirements of successful applications. (If successful applications have high financial requirements, fewer applications will be supported. For this reason, applicants are encouraged not to submit excessive budgets.)

## 6.1 Funding Category and Levels

The following funding categories and limits should be used to develop the budget section of the Knowledgeshare grant application.

| **Funding Category** | **Maximum amount fundable under Knowledgeshare** | **Budget Items** |
| --- | --- | --- |
| Workshops/Events | Limit of R250 000 | * Flights
* Accommodation
* Venue hire and logistics
* Refreshments
* Ground transport
* Honoraria (academic content provision)
 |
| Mentorship |  R20 000 per mentee per annum  | Honorarium |
| Visits to institution | R100 000 for international visit of at least one month. R50 000 for consultation with local supervisor where primary supervisor is at another institution R2 000 per day  | * Flights
* Accommodation
* Ground transport

Honorarium/Subsistence |
| PhD (co-)supervision Support for external supervision | R50 000 | Honorarium (once-off, on completion of degree) |

# 7. MANAGEMENT OF GRANTS

If an application is successful the grant awarded will be transferred to the applicant’s institution from where individual budget items will be paid. The applicant’s institution undertakes to maintain a record of all spending. A full financial report on monies spent must be submitted to the NGA as per Section 8 below. Any unspent funds or funds not accounted for will need to be returned to the NGA.

# 8. MONITORING AND REPORTING

With the view to continuously monitor and report on project performance, all grant holders are required to submit a progress report by December of the year in which the funds were spent. In the case of once-off events applicants are encouraged to submit a report within one month of the event’s completion. Reporting should reflect on the objectives and motivation(s) given in the application.

In the case of mentorship, the report must be submitted twice a year and should address the following:

* Current standing of mentorship;
* Research achievements/outputs with respect to all research;
* Research highlights with respect to the items under the funding;
* Challenges and constraints with respect to the mentorship (address and focus on the working collaborations within the partnership, including mentees);
* Benefits of this share knowledge grant (to mentees);
* Financial reporting according to the budget;
* Data management and use
* Science engagement

In the case of lecture series or postgraduate courses, the progress report should address the following

* Current standing and future prospects for the lecture series or course(s);
* Highlights with respect to the items as motivated in the funding application;
* Challenges and constraints (academic and administrative constraints; working collaborations within the whole team, including young staff, students and lecturers);
* Transfer of knowledge with respect to post-graduate courses (who benefited, how has their participation prepared them for further study);
* Any research achievements/output;
* Benefits of the Knowledgeshare grant (to Department);
* Financial reporting according to the budget;
* Human resources benefited, including race and gender breakdown.

# 9. ENQUIRIES

Should you require further clarification regarding the Knowledgeshare grant, please contact:

**Ms Retha Meiring (Administrator, NGA MaSS)**

**E mail:** retha.meiring@up.ac.za