Knowledge is the new currency of a thriving economy.

Continuous learning is the capital with which to build a knowledge-based economy.

Making this world of learning enticing, accessible and relevant to industry and society is a priority for the National Research Foundation (NRF).
Introduction

The Human and Infrastructure Capacity Development (HICD) manages a number of student and graduate support programmes. Efforts are made to ensure that Honours, Master’s and Doctoral students and Postdoctoral research fellows extend their learning and research training.

To this end, the Student and Postdoctoral Support programme manages the implementation of strategic projects, bursaries, scholarships and fellowships with the aim of developing and increasing skilled human resources in scarce skills areas, in line with the NRF Vision 2015.

An internship programme, supported by the Department of Science and Technology (DST), in turn provides unemployed graduates with experiential learning and an opportunity to enhance workplace competencies by participating in research and other training opportunities at various host institutions.

The HICD offers a range of bursaries and scholarships and postdoctoral research fellowships.

Student and Postdoctoral Support
- NRF Freestanding Scholarships
- Scarce Skills Development Fund
- DST-NRF Space Science and Technology human capacity development funding programme
- NRF Postdoctoral Research Fellowships
- DST-NRF Innovation Bursary Scheme
- DST-NRF Innovation Postdoctoral Fellowships
- DST-NRF Professional Development Programme
- Extension Bursary Support Programme
- DST-NRF Professional Development Programme
- Collaborative Postgraduate Training Programmes

Skills Development Initiative
- The DST-NRF Internship Programme for unemployed Science, Engineering and Technology (SET) graduates.

How To Access Funding

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STUDENT AND POSTDOCTORAL SUPPORT
DST-NRF Innovation Bursary Scheme

The Innovation scholarships reward excellence for students enrolled for research-based Honours, Master’s and Doctoral degrees in specified scientific fields. The Innovation study fields include astronomy, biotechnology, cellular and molecular biology, chemistry, computer science, earth science, ecology, engineering, mathematical sciences, medical sciences, nanotechnology and physics. Students in the Social Sciences and Humanities are also supported.

The Innovation Honours, Master’s and Doctoral funding instruments are part of the Innovation Bursary Scheme (IBS) funded by the Department of Science and Technology (DST). The National Research Foundation (NRF) manages the scheme through a contractual agreement with the DST.

The IBS aims to broaden the frontiers of knowledge in innovation areas and to build the PhD pipeline for a knowledge-based economy. The DST has made funding available for the IBS in order to provide financial support to qualifying Honours, Master’s and Doctoral students registered at public universities.

The programme supports South African citizens and permanent residents registered on a full-time basis at public higher education institutions (HEIs).

The objectives of the Innovation programme are to:

- contribute towards the increase in the number and quality of South African postgraduate students within Science, Engineering and Technology (SET) fields of study at Master’s and Doctoral levels in South Africa,
- build a pipeline of the next generation of SET scientists and researchers in South Africa.

DST-NRF Innovation Postdoctoral Fellowships

The Innovation Postdoctoral Fellowship began in 2005 as a partnership between the NRF and the DST, with the specific focus of building a strong knowledge-based economy that would see South Africans sharpening their research capabilities at the Postdoctoral level. The innovations that emerge from the research conducted by the fellows in this programme will also boost the country’s standing in the international scientific community.

The Innovation Postdoctoral Fellowship supports fellows conducting research in specific study fields to build and strengthen the Postdoctoral culture. The programme is working towards building a complement of researchers that will redress the demographic imbalance of skills, with a target of 85% black fellows, and 65% female fellows.

The Innovation Postdoctoral Fellowship encourages researchers to conduct their research in South Africa while creating opportunities for them to travel abroad to conferences, workshops and laboratories, by providing a contribution towards the costs of international travel.

An annual Postdoctoral Research Forum gives fellows the opportunity to present their research findings, and to discuss concerns and suggest alternative approaches to maximising the postdoctoral research experience.

Furthermore, any institution that partners with the NRF in postdoctoral research training is compelled to commit to supporting and mentoring the fellow, with the experience and insight offered by mentors being key to the development of the fellow in research and in teaching. Institutions are also required to commit to providing appropriate research facilities, and to investing in the research project for the full duration of the fellowship.

The postdoctoral research training not only gives early career researchers the opportunity to further their research contributions towards solving some of South Africa’s most critical issues, it also equips them with the skills to take their rightful positions as leaders of research and innovation, regardless of their chosen working environment.

The objectives of the Innovation Postdoctoral Fellowship programme are to:

- contribute towards the increase in the number and quality of South African postdoctoral fellows within Science, Engineering and Technology (SET) fields of study in South Africa. This includes social sciences and humanities, and
- build a pipeline of the next generation of SET scientists and researchers in South Africa.
NRF Freestanding Scholarships

The NRF provides financial support to successful candidates in Science, Engineering and Technology and the Social Sciences and Humanities to obtain a research-based Honours, Master’s or Doctoral degree in South Africa or abroad.

The NRF is mandated by an Act of Parliament – the National Research Foundation Act (Act No. 23 of 1998) – to support and promote research by funding human capacity development and providing the necessary research facilities. This support facilitates the creation of knowledge, innovation and development in all fields of science and technology, including indigenous knowledge.

The Freestanding programme supports full-time students at South African public higher education institutions, Science Councils and national research facilities. A small number of scholarships are also made available to South African students who wish to pursue their doctoral studies on a full-time basis at recognised universities abroad.

The objectives of the NRF Freestanding Scholarships programme are to:

1. Contribute towards the increase in the number and quality of South African postgraduate students at Honours, Master’s and Doctoral levels in South Africa, and
2. Enable South African Doctoral students to pursue research study opportunities at international universities.

The percentage of supported students will be 80% from the Science, Engineering and Technology (SET) disciplines and 20% from Social Sciences and Humanities (SSH).

NRF Postdoctoral Research Fellowships

The NRF Postdoctoral Research Fellowships aim to support Postdoctoral fellows in SET and SSH, and encourage them to spread their sphere of influence and learning by committing to projects at institutions other than those from where they graduated.

The NRF Postdoctoral Research Fellowships are open to all areas of science and technology, social sciences and humanities. Young, talented Postdoctoral fellows of all nationalities are welcome to apply. Postdoctoral research fellows are given complete independence and freedom to pursue their own research directions. Like all other NRF freestanding fellowships, fellows are free to choose the host organisation that will give them the best research training environment in terms of access to relevant equipment and facilities.

The fellowships are available to South African and non-South African citizens for full-time research at institutions in South Africa. Outstanding foreign candidates are also considered for full-time research in South Africa.

Exceptional Doctoral graduates who received their Doctoral degrees in the last five years and who wish to undertake Postdoctoral research training are encouraged to apply.

Fellowships are awarded on a competitive basis, taking the applicants’ academic achievements and potential as researchers into account. Fellowships should preferably be tenable at institutions other than the one where the doctoral degree was obtained. Applicants who wish to undertake postdoctoral training with their PhD supervisor or at the institution where the PhD was obtained must submit a special motivation.

Extension Bursary Support Programme

The Extension Bursary Support Programme is intended to increase graduation and throughput rates for Master’s and Doctoral students by providing additional funding for up to 12 months.

To accelerate the throughput of Master’s and Doctoral graduates, a one-year extension bursary is offered to existing NRF-supported Master’s and Doctoral bursary holders. Priority is given to academically deserving but financially needy students, and those who are in the process of finalising their dissertation or thesis for examination and/or submitting a manuscript to an accredited journal.

The objectives of the Extension Bursary Support Programme are to:

1. Accelerate the graduation throughput rates of full-time Master’s and doctoral students who are NRF bursars, and
2. Increase research outputs from Master’s and Doctoral students at public higher education institutions.
Scarce Skills Development Fund

The Scarce Skills Development Fund (SSDF) addresses the severe shortage of various critical skills in South Africa, and supports Honours, Master’s, Doctoral students and Postdoctoral fellows through various strategic projects.

The Skills Development Act (No. 97 of 1998) provides a framework for addressing the severe shortage of skills in South Africa, and aims to make the learning system more responsive to the skills requirements of industry. In this Act, the Departments of Labour (DoL), Education (DoE) and the DST were mandated to ensure training in scarce skills at higher education and training institutions, especially in the fields of SET. The National Skills Fund (NSF) contributes towards the SSDF for targeted students. In 2010, the NSF migrated to the newly proclaimed Department of Higher Education and Training (DHET).

The objectives are to:

- increase the number and quality of South African postgraduate students in specified scarce skills areas, and
- work towards increased race and gender representation in the SET workforce.

Academic ability and the area of study are considered when choosing students.

Research Career Advancement Fellowship

The subject of career pathing for emerging researchers, and in particular postdoctoral researchers, has been receiving a great degree of attention because of reduced academic employment opportunities. In South Africa, the situation is exacerbated by the dearth of research positions for emerging researchers and the limited number of academics who can serve as mentors.

The Department of Science and Technology (DST) has made available funding for Research Career Advancement Fellowships to strengthen research capacity and scientific research leadership in Science, Engineering and Technology. This will be done by creating positions for senior postdoctoral Fellows who have shown interest in furthering careers in research and academia and have demonstrated the potential and ability for research leadership.

The objectives of the Research Career Advancement Fellowship are to:

- provide a career path for postdoctoral researchers to pursue a career in research;
- create the opportunity for these emerging researchers to be mentored and groomed for research leadership and academic positions;
- create the opportunity for senior postdoctoral researchers to strengthen their research track record in their chosen research area and to establish themselves as independent researchers;
- create the opportunity for these emerging researchers to gain experience in postgraduate training;
- help transform the demographic composition of established researchers in South Africa, with respect to race, gender and persons with disabilities; and
- develop a cohort of potential candidates for the South African Research Chairs.

Principle for awarding the Fellowships:

- the Fellowship may be held in partnership with a public research institution such as a science council, a national research facility or an academic health complex;
- applications where hosts institutions can provide intentions to absorb such candidates into their workforce after completion of the Fellowship will be an advantage;
- Fellows must undertake research that is in line with national and university research priorities;
- applicants must bear in mind that preference will be given to those Fellows who have obtained postdoctoral research experience outside the university where the doctoral degree was granted; and
- a strong motivation, endorsed by the host institution, must be provided by those Fellows who would like to remain within the same institution and/department where the current postdoctoral research is currently undertaken.

To be eligible, applicants must:

- be South African citizens or in possession of South African permanent residency;
- have obtained a research doctorate;
- have a minimum of two years of postdoctoral research experience;
- have demonstrated research outputs emanating from their doctoral and postdoctoral research activities. These include articles published in peer-reviewed journals;
- must apply for the Research Career Advancement Fellowship within eight (8) years of obtaining a research doctorate; and
- must commit to dedicating at least 80% of their time conducting research, supervising and/or mentoring postgraduate students.
The DST-NRF Professional Development Programme aims to accelerate the development of scientists and research professionals in key research areas at Science Councils and the national research facilities. The programme supports South African citizens and permanent residents studying or conducting research on a full-time basis, to gain and obtain research exposure and experience in various fields, aligned to selected host research programmes and projects.

The Research Professional Development Programme (PDP) was first initiated by the DST in 2006 and, in 2008, the full management of the programme was transferred to the NRF through a contractual agreement between the two parties. The DST has made additional financial investment into the programme to support recently qualified Doctoral candidates and Postdoctoral research fellows. This is intended to allow fellows to obtain and expand on their research experience and skills through research work done at host research institutions, such as Science Councils, national facilities and other public research institutions.

Senior researchers from the Science Councils, national facilities and recognised research institutions can apply to the funding programme to host Doctoral or Postdoctoral research fellows within their institutions. Research projects must be aligned with national priorities in any academic discipline within the priority research areas for South Africa. This includes all fields of Science and Technology, Engineering and Mathematical Sciences, including the Social Sciences and Humanities.

The PDP programme intends to:
- contribute towards the increase in the number and quality of South African researchers in South Africa;
- leverage innovation and research within host institutions that is linked to skills development;
- expose Master’s and Doctoral graduates to research environments that will enhance their employability within the National System of Innovation (NSI); and
- attract and retain young scientists and professionals of the highest calibre, in order to complement senior researchers’ influence on the current science and technology research system.

Studies on postgraduate studies in South Africa have shown that more and more doctoral students are remaining in the system, and fewer graduates are produced, relative to the number of new enrolments. Consequently, supervisors of Master’s and Doctoral students face an increasing burden as the average number of students to supervise continues to increase.

In 2005, it was estimated that the "average" supervisor would have to supervise seven Master’s and Doctoral students. In the social sciences, a single supervisor was estimated to have nearly 12 students (CHET, 2007). This has direct implications for the completion rates of Doctoral degrees in South Africa.

On average, Doctoral students take 4.5 years to complete their studies. However, mature students between the ages of 40-59 can take up to six years to complete Doctoral studies. These students are faced with work pressures, financial obligations and have limited access to scholarship/sabbatical opportunities. In 2005, it was estimated that the "average" supervisor would have to supervise seven Master’s and Doctoral students. In the social sciences, a single supervisor was estimated to have nearly 12 students (CHET, 2007). This has direct implications for the completion rates of Doctoral degrees in South Africa.

The study support programme for part-time students is intended to increase graduation and throughput rates of Doctoral students. Currently, the NRF provides funding for full-time students to complete their degrees within a minimum period of two and three years for Master's and Doctoral students respectively. This is the first time that the Department of Science and Technology (DST) has committed dedicated funding to support committed periods for part-time Doctoral students to complete their studies.

The objectives of the support programme are to:
- provide an opportunity for completing Doctoral students to submit their dissertations for examination;
- ease the burden of supervision for South African supervisors by helping part-time students complete their studies;
- help transform the demographic composition of the knowledge workforce in South Africa, with respect to race, gender and persons with disabilities; and
- develop potential candidates for effective industry-academia partnerships that will be composed of mentors and role models for the next generation of researchers.

Priority will be given to those students finalising their thesis for examination and/or preparing to submit a manuscript to an accredited journal. Students who are academically deserving but financially needy will be given priority.

In selecting applicants for consideration for funding, the following criteria will apply:
- applicants must either be South African citizens or in possession of South African permanent residency;
- an applicant may not concurrently hold the study support with another NRF scholarship or any other scholarship from a South African government source; and
- an applicant must be currently registered for a doctoral degree and in the final year of research activities.
Collaborative Postgraduate Training Programmes

The postgraduate training programmes should ideally be inter-university partnerships and/or public-private partnerships with government, industry and universities; all working toward a common objective to produce and sustain a growing stream of well-rounded postgraduates to address national needs.

The programme links to the National Human Resource Strategy, the Ten-Year Innovation Plan of the Department of Science and Technology (DST) and, to the strategic objective of the National Research Foundation (NRF) which seeks to promote and support research through human resource development.

Support will be provided in the following manner:

- **Individual Capacity:** seventy percent (70%) of funding will go towards financing the training of individuals. This will be used to build intellectual capital by creating an environment that supports learning and individual growth opportunities by providing bursaries, fellowships and facilitating study visits, in-country and abroad, for postgraduates and postdoctoral research fellows.

- **Institutional Capacity:** thirty percent (30%) of the funding will go towards resourcing institutions. This will be determined by the existing institutional capacity and the resources that are presently needed to pursue a successful research and postgraduate training programme.

The programme funding decisions will be guided by the following principles:

- **Equity and redress:** targets for supporting individuals from designated groups are encouraged;

- **Institutional capacity development:** historically disadvantaged universities are encouraged to use this funding to improve institutional infrastructure, such as computer hardware and software, to enhance postgraduate training programmes and to attract students in the chosen fields;

- **Developmental:** even though the programme has a developmental focus, only quality proposals that are scientifically sound in terms of research and training, will be considered for funding;

- **Achievability:** the research and training programmes must be realistic, that is, achievable, in terms of the objectives, the resources required and the projected completion times; and

- **Partnerships:** to ensure the alignment of human capital development with the needs of the country, proposals that involve inter-university partnerships and/or public-private partnership or collaboration will be considered more favourably.
DST-NRF Internship Programme

The DST-NRF Internship Programme aims to attract and retain skilled human capital within the National system of Innovation through mentoring to develop skills and competencies among the next generation of academics and researchers in South Africa.

This internship programme enables young unemployed graduates and postgraduates in the Science, Engineering and Technology (SET) fields to enhance their skills and competencies.

Introduced in 2005, the internship programme serves as an enabling platform that gives students the opportunity to enhance their competencies. Interns are hosted at various public and private sector institutions in the SET field.

In January 2009, the first annual research day was hosted for interns who had completed a year of internship, providing a platform for them to showcase the skills gained during the internship programme. Through this forum, interns are also exposed to a number of potential employers and researchers from various institutions.

The DST-NRF Internship Programme is an evolving programme as relationships with new partners are forged. New internships in research management, in partnership with the South African Research Information Management System (SARIMA), have been introduced.

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