COUNCIL ON HIGHER EDUCATION

National review of doctoral degrees offered by higher education institutions in South Africa

STELLENBOSCH UNIVERSITY INSTITUTIONAL SELF-EVALUATION REPORT

January 2020

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Introduction

Stellenbosch University (SU) conducted a self-evaluation of its existing institutional quality assurance arrangements for studies leading to the award of its Doctoral Degrees. The *Qualification Standard for Doctoral Degrees* approved by the Council on Higher Education (CHE) November 2018 served as the reference point that guided the evaluation process.

The SU institutional self-evaluation considered policies, protocols, regulations and procedures that relate to doctoral education at the University as well as their implementation. The findings, conclusions and claims of the institution are discussed in the self-evaluation report (SER) and are supported by evidence in the form of references to institutional documents, information gathered during working group exercises and clarification sought from key stakeholders and institutional fora by the Review Coordinator.

The institutional self-evaluation report is presented as a narrative of the institutional context and conditions under which doctoral qualifications are offered and awarded at SU, based on an institutional analysis of the doctoral qualifications offered in all fields and disciplines. Throughout, some specific examples of policies, regulations and procedures have been included by way of illustration. The self-evaluation covered areas in which SU regards its doctoral qualifications as meeting the Standard, areas in which improvement is needed as well as actions that are already underway in order to address deficiencies. There are also future plans for improvement that are aimed at quality enhancement.

The self-evaluation process has been a valuable exercise for SU. It has provided the institution with a great opportunity to reflect on its pinnacle award and the necessary quality assurance measures that ought to be in place to secure the reputation of its offering.

Preparation of the Self-Evaluation Report

Please describe the process involved in the preparation of the self-evaluation report, including details of any meetings and workshops that accompanied the drafting, the range of participatory involvement (formal entities, ad hoc groups, etc.), and the process of formal institutional approval.

Formal entities

Two groups were established at Stellenbosch University (SU): A **National Review Institutional Reference Group** (hereafter the 'Reference Group') with representation from all Faculties, typically at Vice-Dean – Research level and a **Self-Evaluation Report (SER) Working Group** (hereafter, the 'Working Group').

Table 1: National Review Institutional Reference Group members

Prof	Jacques	Du Plessis	Chair: Higher Degrees Research Committee, Faculty of Law
Mrs	Silke	De Lange	Lecturer: Mercantile Law, Faculty of Law
Prof	Catherine	Du Toit	Vice Dean Research: Faculty of Arts and Social Sciences
Prof	Len	Hansen	Chair: Higher Degrees Research Committee, Faculty of Theology
Prof	Christa	Van der Walt	Vice Dean Research: Faculty of Education
Prof	Ian	Van der Waag	Professor: Military History, Faculty of Military Science
Prof	Leon	Dicks	Professor: Microbiology, Faculty of Science
Prof	Kennedy	Dzama	Vice Dean Research: Faculty of Agrisciences
Prof	Karen	Esler	Professor: Conservation Ecology, Faculty of Agrisciences
Prof	Nico	Gey van Pittius	Vice Dean Research: Faculty of Medicine and Health Sciences
Prof	Petrie	Meyer	Vice Dean Research: Faculty of Engineering
Prof	Christo	Boshoff	Vice Dean Research: Faculty of Economic and Management Sciences
Mr	Andre	Muller	Deputy Director: Academic Planning and Quality Assurance

Table 2: Self-Evaluation Report (SER) Working Group members

Dr	Jaco	Franken	Manager, Graduate School, Faculty of Economic and Management Sciences
Dr	Cindylee	Steenekamp	Senior Lecturer: Political Science and Chair: Higher Degrees Research Committee, Faculty of Arts and Social Sciences
Mrs	Marianne	Bester	Advisor: Programme Review and Renewal, Academic Planning and Quality Assurance
Ms	Alison	Bucholz	Head: Postgraduate Skills Development Programme, Postgraduate Office
Dr	Jyothi	Chabilall	Head: Doctoral Office, Faculty of Medicine and Health Sciences
Mr	Ashmind	Daniels	Deputy Registrar: Stellenbosch Campus
Mrs	Cindi	De Doncker	Senior Advisor and Coordinator: Postgraduate Enrolments, Postgraduate Office
Ms	Dorothy	Stevens	Director: Postgraduate Office, Division for Research Development and National Review Coordinator

Additional staff members were invited to certain meetings on an *ad hoc* basis, subject to the section being addressed. The Working Group was tasked with writing the SER according to the template provided by the CHE. Responsibility for preparing different sections of the SER was divided amongst the Working Group members. The Working Group started with Section 5. In this regard, the Reference Group and Faculty Administrators received a set of questions that addressed the different sub-sections of section 5. Because the group was too large, two meetings were held (3 and 4 September 2019) where the Working Group met with Group B and then Group A. At each of these meetings the information for section 5 was gathered[1].

[1] Ms Cindi De Doncker and Ms Alison Bucholz are gratefully acknowledged for their assistance in capturing and collating the information.

Nine of SU's faculties participated in the meetings whilst Military Science made a written submission.

A second meeting of the Reference Group members, selected Supervisors and the Working Group took place on 16 October 2019 where the topic of the Graduate Attributes (section 4) was debated. In addition to the Reference Group, additional active supervisors joined the discussion. They ranged from a recently retired A-rated scientist to a novice supervisor who had only recently completed his own PhD.

The Review Coordinator was the editor of the SER and author of some parts of the report. Where specific contributions were made, these have been acknowledged in the report. A wide range of institutional partners contributed in a variety of ways to the SER but the Division for Information Governance [2] played a particularly important role in assisting with the institutional data required for the Appendices of the report.

The Working Group managed the SER process online using Microsoft Teams.[3] The Reference Group was the voice of the SER and the National Review process in the faculties and regular updates were made at different institutional fora. For a list of meetings and activities, please see Table 3.

Gathering doctoral students and alumni in order to invite their inputs into the SER proved somewhat challenging. The Working Group planned to conduct focus group discussions with current doctoral students and recently graduated alumni. Invitations were sent out but the response rate was poor. In one instance 15 randomly selected doctoral students were invited to three separate focus group discussions (following the principle that groups of 3 – 5 people are an ideal size). Out of 15 people, one person responded, only to decline the invitation. The rest did not respond at all. After this poor response rate and given that time was running out, we decided to change our strategy and contacted individual doctoral students who had previously participated in training opportunities offered by the Postgraduate Office. This proved to be much more successful. We managed to hold one focus group discussion and

[2] Mr Leon Eygelaar, Ms Loumarie Kistner, Ms Carla Croon and Ms Rene Robbertze deserve special mention.

[3] Assistance from Ms Hilda Kruger, Mr Bernard Heesen, Ms Rabe Mutondwa and Mr Chad van Wyk

have further groups lined up. The input from the first focus group is included throughout the report where relevant to the topic and as a summary in Appendix F1.

A pre-final version of the SER was submitted to the SU Quality Committee on 15 November 2019 for review at its meeting on 28 November 2019. A further version of the SER was submitted to the SU Research Committee for consideration at its meeting of 5 February 2020. After incorporation of input from the Research Committee and feedback from doctoral student focus group discussions, the SER was submitted to the Quality Committee for final approval at its meeting of 11 March 2020 and for recommendation to the SU Senate of 20 March 2020.

The Quality Committee made some final editorial suggestions to contextualise the report for the reader. It also requested clear communication from the Review Coordinator to Deans and Vice-Deans regarding action items and a clear timeline for the site visit. The SER was commended as a balanced and comprehensive overview of SU's doctoral qualification offering. The SER was approved by the Quality Committee and its submission to the CHE was recommended to the University Senate which met on 20 March 2020.

Table 3: Self-Evaluation Report Working Group Schedule

18 Jul	Research Support Forum: update to colleagues
23 Jul	CHE Western Cape Regional Training Workshop
31 Jul	Institutional Permission requested: communication with staff and students
1 Aug	Information Governance: Prof Ian Cloete and Ms Rene Robbertze
2 Aug	Institutional Permission granted: communication with staff and students
13 Aug	SU Self-Evaluation Report Working Group Meeting: Planning and allocation of responsibilities amongst Working Group members
15 Aug	Information Governance: Mr Leon Eygelaar and Ms Loumarie Kistner
15 Aug	Information Technology: Mr Bernard Heesen, Ms Hilda Kruger and Ms Rabe Mutondwa – Microsoft Teams
30 Aug	Library Information Service: request for information – SU doctoral dissertation titles - 10 years
3 Sept	National Review Reference Group members, Faculty Administrators: Science, AgriSciences, FMHS, Engineering and FEMS and SU Self-Evaluation Report Working Group Meeting: Context and Conditions (1)
4 Sept	National Review Reference Group A, Faculty Administrators: Law, FASS, Theology, Education and Military Science and SU Self-Evaluation Report Working Group Meeting: Context and Conditions (II)
12 Sept	SU Self-Evaluation Report Working Group Meeting: Doctoral attributes team
16 Sept	Quality Committee: Information, guidance and feedback
18 Sept	SU Self-Evaluation Report Working Group Meeting: Doctoral attributes team and Prof Jan Botha
25 Sept	Recruitment of nominees for Chairpersons of Doctoral Review Panels on behalf of the CHE
1 Oct	Research Support Forum: update to colleagues
2 Oct	Research Support Forum: request for information – IT and LIS
8 Oct	SU Self-Evaluation Report Working Group Meeting: Doctoral attributes team
11 Oct	Faculty Boards' Agendas: FASS, MilSci – for information
14 Oct	Faculty Boards' Agendas: Agri, Science, Eng – For information
15 Oct	Faculty Boards' Agendas: Law, FMHS – for information
16 Oct	National Review Reference Group members, selected Supervisors and the SU Self-Evaluation Report Working Group - Graduate Attributes Meeting
17 Oct	Faculty Board Agenda: Education – for information
18 Oct	Faculty Boards' Agendas: FEMS, Theology – for information
23 Oct	Research Committee
28 Oct	Reference Group – Section 7 and 8
30 Oct	Faculty Boards: MilSci, Law, FASS, Agri
31 Oct	Faculty Boards: Science, Theol, FMHS
1 Nov	Faculty Boards: Eng, FEMS, Education
8 Nov	Reference Group - feedback and input for Section 7 and 8
15 Nov	Quality Committee: Draft Institutional SER – for input
28 Nov	Quality Committee: Dr Therina Theron on behalf of Ms Dorothy Stevens
20 Jan	Research Committee: Draft Institutional SER – for input
5 Feb	Research Committee
18 Feb	Doctoral Student Focus Group
19 Feb	Quality Committee: Final Draft Institutional SER – for approval
11 Mar	Quality Committee
20 Mar	Senate
31 Mar	Submission of Institutional SER to CHE

1. The Preamble and Rationale of the Qualification Standard for Doctoral Degrees[4]

With reference to the Preamble and Rationale in the Qualification Standard for Doctoral Degrees, briefly (a) describe the history and scope of your institution's offering of doctoral qualifications, (b) explain how your doctoral qualifications address the values and ethos expressed in the Preamble of the Doctoral Qualification Standard, and (c) describe and evaluate the alignment between the doctoral qualifications offered by your institution and your institution's context, mission, goals and strategic plan.

The history and scope of Stellenbosch University's offering of doctoral qualifications is set against the background of how the institution's research potential – the human resources (students and supervisors), infrastructure and available capacity – has evolved over time. This perspective is taken because research potential goes hand-in-hand with the institution's ability to attract, enrol, supervise and graduate doctoral students. Examples are provided of institutional responses to the national policy imperatives that have sought to steer doctoral education in South Africa. Attention is then given to recent developments in the democratic era that have influenced the institution's strategic direction in terms of postgraduate education.

Stellenbosch University has grown into a leading research-intensive university on the African continent. Starting out on 2 April 1918 with four faculties: Arts, Science, Education and Agriculture; 503 students and 40 lecturing staff, the institution today is home to 10 faculties, a vibrant and cosmopolitan community of more than 30 000 students and 3 000 staff members, spread over five campuses.

SU recently celebrated its centenary year – 1918 to 2018 and to mark the occasion, Botha (2017) prepared an overview of "academic work" at the institution. With the term "academic work" the teaching and learning dimensions as well as the research dimension of the activities

[4] Prepared by Ms Dorothy Stevens and Dr Jyothi Chabilall on behalf of the Working Group

of the University are acknowledged (Botha, 2017). It is particularly with reference to the evolution of the research dimension at Stellenbosch University that this institutional overview is illuminating. Botha (2017) illustrates that from the outset, Stellenbosch University positioned itself as a comprehensive university on the national stage with a research mandate allocating high priority to postgraduate studies.

There is an obvious symbiosis between a university's academic work and the national and global context within which it is embedded. This relationship is well illustrated in Botha's (2017) discussion of Stellenbosch University during the Apartheid era. Its close ties to the ruling regime and the privilege that the institution enjoyed as a result saw Stellenbosch University growing its student numbers, adding faculties to its organizational structure and diversifying its academic offering (Botha, 2017). Unfortunately, but inevitably, the inward-looking nature of an institution like Stellenbosch University at the time also served to isolate it from the massive changes that were taking place in higher education elsewhere (Botha, 2017). Nonetheless, the institution still sought to grow its research capacity, which saw the establishment of a number of research institutes at the University during the 1980s. Despite these and other initiatives, like the Stellenbosch 2000 fund that sought to develop Stellenbosch University as a leading centre for postgraduate education and research, the institution did not achieve the research recognition and prestige that one might have expected.

Baumert (cited in Botha, 2017) refers to the realization by Stellenbosch University that its *"self-perception as an institution of academic excellence"* was misguided, following its dismal performance in a comparative study of research productivity conducted in the early 1980s. Following the further poor performance of the University's researchers in the 1985 Foundation for Research Development's ratings, Stellenbosch University's leadership decided to take action (Botha, 2017).

Stellenbosch University actively sought to build its research profile, capacity and reputation since the late 1990s. Through a range of strategic initiatives, Stellenbosch University began to place a greater emphasis on research profile in its appointments' processes; introduced incentive schemes to promote and reward research, expanded the pool of postdoctoral researchers and encouraged international collaboration and partnerships (Botha, 2017). These actions were complemented by the targeted recruitment of established, productive

researchers or research groups as well as emerging talents that would be necessary to build a critical mass of high-performing researchers who could advance the institution's research profile. There was also a realisation that concentrating professional administrative support for research in the Division for Research Development (DRD) and centralising procurement and management of large research equipment in a Central Analytical Facility (CAF) would be instrumental in supporting research efficiently and effectively into the future.

The above actions enhanced Stellenbosch University's research potential, which in part, allowed it to increase its doctoral enrolments. Doctoral research at Stellenbosch University takes place in and across 10 faculties. The first doctoral degree from Stellenbosch University was awarded in 1923 to Dr PN Lategan (PhD – Science). The title of his thesis was '*Low temperature carbonisation of South African coals'*. The latest new doctoral qualification to be added to the institution's PQM was the PhD in Military Science. Stellenbosch University currently has 197 doctoral programmes in its Programme and Qualification Mix (PQM).

The policy drivers of growth, transformation, efficiency and quality that came to underpin the narrative on doctoral education and training in South Africa (Mouton, 2016) and that are elaborated in the Preamble of the Doctoral Qualification Standard elicited several responses at Stellenbosch University that have influenced doctoral education.

Several significant policy documents and reports emerged from various governmental and Higher Education agencies is South Africa around the same time period that coincided with Russel Botman becoming Rector of Stellenbosch University (2007 – 2014). He launched a long-term strategic plan called the HOPE project in 2010. The idea behind the HOPE project was for the University to apply its proven expertise in a purposeful manner and on a large scale, to the benefit of society. The University selected five themes from the International Millennium Development Goals on which to focus its mission and vision, and to create synergy between higher education and development and economic growth in a more comprehensive way. Faculties were invited to develop research proposals that would direct their expertise into achieving the above-mentioned goals.

The HOPE project is a good example of an institutional response to the demand for broadening access to Higher Education and increased policy emphasis on high-level skills development (Groenewald & Steenekamp, 2016). The HOPE project provided seed-funding

for a number of projects which focused on postgraduate and especially doctoral education, one of which was the Graduate School in the Faculty of Arts and Social Sciences (FASS).

Both the NRF's 2008 report and the ASSAf report of 2010 highlighted the role of fully funded, full-time studies as critical criteria in order to reach the growth targets set by the government in the period 2007 – 2012. These criteria formed the basis of a proposal from the Faculty of Arts and Social Sciences (FASS) to set up a Graduate School (Groenewald & Steenekamp, 2016). The proposal did not only have a growth agenda but also focussed on transformation, efficiency and quality. It sought to grow a new generation of African academics and professionals in partnership with other African institutions but simultaneously, adopt a new approach to doctoral education (Groenewald & Steenekamp, 2016). Applying the principles of full-time study, physical presence on campus and a full scholarship that covered all a student's costs, the faculty's proposal was funded and in its first year, the FASS Graduate School managed to attract excellent applications from all over Africa, thereby also enhancing the quality of its candidates. In addition, applying the concept of Graduate Enrolment Management, which involves managing each doctoral candidate and his/her supervisory team, supporting them administratively and providing ongoing, stage-appropriate, programmatic support, the Faculty developed a hugely successful model (Groenewald & Steenekamp, 2016).

The African Doctoral Academy (ADA) was originally part of the strategy that gave rise to the FASS Graduate School and the associated network of African institutions with whom Stellenbosch University formed a multilateral partner network. The original aim was for the ADA to focus on the humanities and social sciences and become the leading site for advanced research skills training and development on the African continent by providing support in research, scholarship, supervision and management. However, at a point in its history, the ADA took on a more institutional focus. Today, it is located centrally in Stellenbosch University International and continues to offer bi-annual Summer and Winter Schools in research methodology and academic development to doctoral candidates from all over Africa.

By 2012, some of the first students began to graduate from the FASS Graduate School. Comparing the Faculty's total doctoral output for 2004 – 2011 (pre-Graduate School) with the output for 2012 – 2015, shows a marked increase of 121% in doctoral graduations (Groenewald & Steenekamp, 2016). The time-to-degree was also improved, averaging three

years as opposed to the Faculty norm of 5 years. In 2018, the FASS Graduate School delivered its 114th PhD graduate since its inception in 2010. Most of its graduates now work as researchers and academics at higher education institutions across Africa.

Following the model of the FASS Graduate School, a second Graduate School in the Faculty of Economic and Management Sciences (GEMS) was established in 2014. The Faculty is also reaping the rewards of this structure through increased doctoral output.

Collectively, the graduate schools represent examples of innovation in how students are recruited, the funding model they pursue and the close management of the cohorts. Both have contributed positively to doctoral outputs and quality at the institution. The only challenge that the schools present is that they are resource intensive and expensive to afford making them reliant on external funding sources.

A further example of an innovation that relates to doctoral education at Stellenbosch University is the institution's decision to develop a policy on joint degrees. Stellenbosch University decided to invest energy into this possibility for two reasons. Joint degrees would make it possible for Stellenbosch University academics to formally supervise doctoral candidates at Stellenbosch University jointly with senior academics who had emigrated (and others) at foreign universities. This would give recognition for the local academic input into joint projects while retaining postgraduate student enrolments at Stellenbosch University in the process. The second reason was due to an opportunity that arose through an industrial partner who made their funding for doctoral candidates in a strategically important field conditional upon Stellenbosch University enrolling the candidates jointly with a foreign university. The latter imperative prompted the policy development (Stevens, 2013).

A small-scale study conducted in 2015 investigated the challenges and benefits of joint degrees for the institution. The notion that joint degrees might represent a source of additional supervisory capacity and thereby allow for an increase in the number of PhD students was tested. While it was found that there were and are many benefits for all role-players involved in joint degrees, students were found to have experienced a broad range of challenges (Fourie-Malherbe, Botha & Stevens, 2016). Setting up joint degrees is labour-intensive, administratively challenging and often costly and should thus be approached with caution (Fourie-Malherbe et al, 2016). Joint degrees do however remain an attractive option

because they serve to grant candidates the international exposure they desire (and need) but they keep the candidate connected to the institution and the country where 'brain retention' is desirable (Stevens, 2013). Contrary to expectation though, they do not represent an automatic increase in supervisory capacity. To date, Stellenbosch University has 19 joint PhD degree agreements and has awarded 35 joint PhDs.

The institution has been in the fortunate position that it has seen an increase in supervisory capacity through the allocation of several research chairs to the institution via the South African Research Chairs Initiative (SARChI) as well through partnerships and extraordinary appointments. However, because the dominant supervisory model remains the one-on-one approach and because the growth in doctoral student numbers has been considerable, supervision capacity remains under pressure.

Stellenbosch University has also responded to the improved subsidy formula, which prioritised doctoral graduations. This filtered through to institutional practice in that the supervision of doctoral candidates and their timely completion is incentivised and rewarded through the staff performance management system at the University. The institution also rewards students' timely completion through an Incentive Fund.

Considering the need to grow enrolments, diversify the candidate pool and prioritise scarce skills areas, **Stellenbosch University's doctoral qualifications address the values and ethos expressed in the Preamble of the Doctoral Qualification Standard** in several ways. Over the cycle that the Review is concerned with, 2014–2018, the University has shown steady growth in doctoral enrolments, as shown in Figure 1.

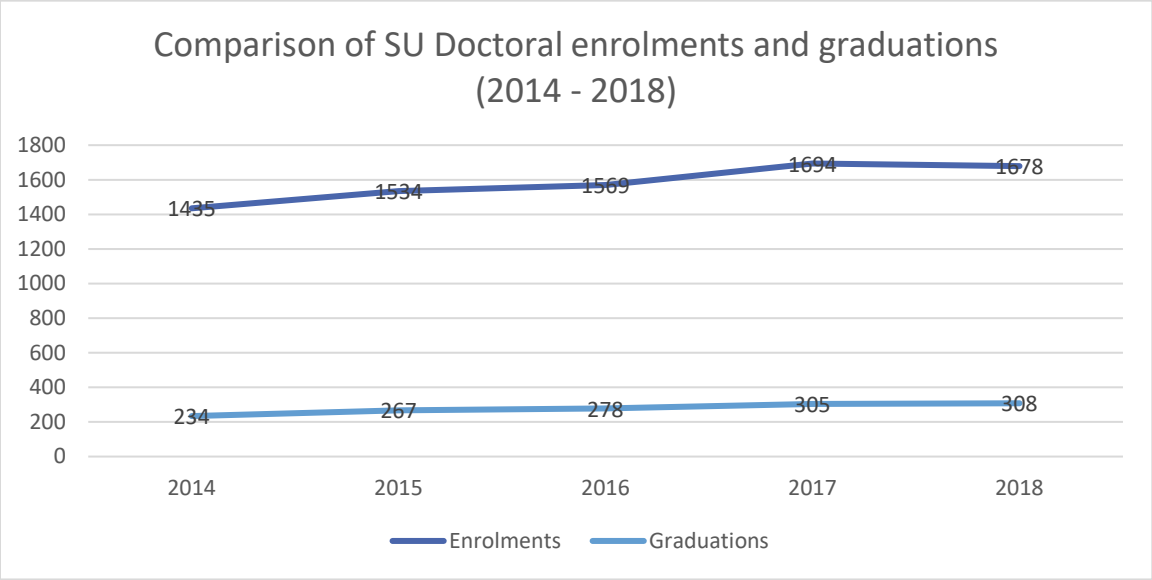


Figure 1: Comparison of SU Doctoral enrolments and graduations (2014 – 2018)

Despite SU graduating high numbers of doctorates when compared to national figures, the large gap between enrolments and graduations is cause for concern. In a small scale analysis of doctoral throughput prepared for the SU Self-Evaluation Report by the Division for Information Governance [5], doctoral throughput across the faculties (excluding Military Science due to its small numbers) at SU is reflected in Figure 2.

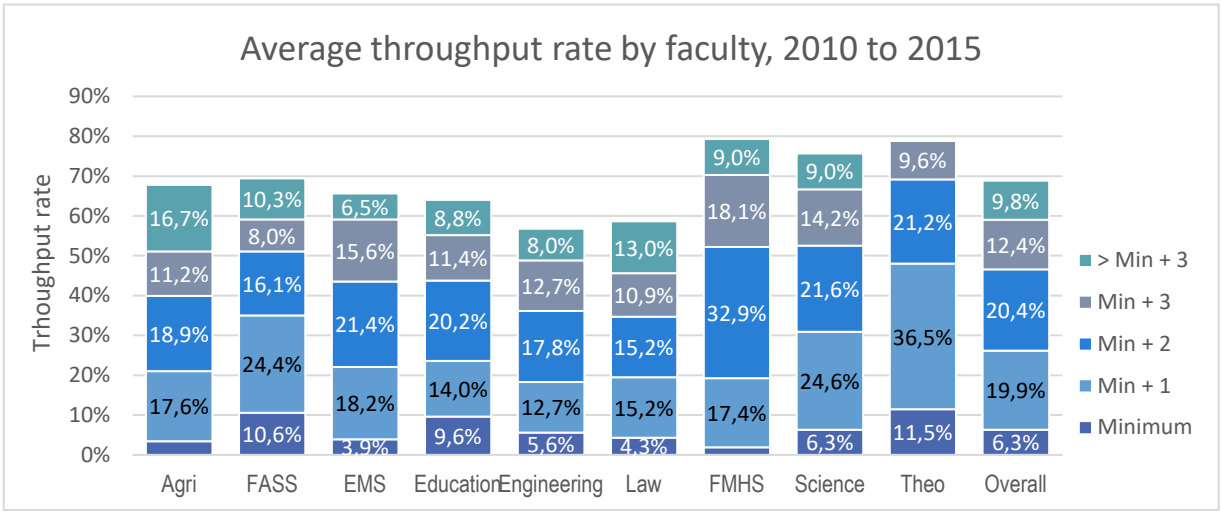


Figure 2: Average SU Doctoral throughput rates by faculty (2010 – 2015)

[5] Loumarie Kistner and Leon Eygelaar

The information is:

- based on doctoral cohorts 2010 to 2014;
- cohort 2014 could have graduated in up to minimum + 3 years;
- graduations of 2018 and earlier were taken into account;
- based on doctoral degrees that have a duration of two years
- minimum = students graduated in a minimum duration of two years

It should be noted that some students are still enrolled. Therefore, the graduations in greater than 3 years + minimum could still increase.

The trends that can be observed from this information are:

- On average, only 6.3% of doctoral students complete their studies in minimum duration of 2 years.
- The faculties of Arts and Social Sciences and Theology have the highest throughput rates in minimum time (±11%).
- The Faculty of Theology has the highest cumulative throughput rates in minimum +1 year, as well as minimum + 2, and minimum + 3 years.
- The faculties of Science and Medicine and Health Sciences also have high throughput rates.
- On average, 26% of doctoral students graduated in 3 years or less (up to min+1), and 46% in 4 years or less (up to min+2)

Despite the internal pressure for throughput rates to improve, some faculties appear to be more lenient than others in allowing PhD students to continue well beyond the minimum duration, as reflected in the "current enrolled" percentages in Table 1. The dropout percentages in Table 1 indicate that on average, one out of 5 PhD students who enrol at SU drop out. The Faculty of Engineering has the highest attrition with close to one third of the 2010 to 2014 doctoral cohort having discontinued their studies.

Table 4: % Re-enrolment and % dropout by Faculty (2010 – 2014)

Stellenbosch University Doctoral cohorts 2010 to 2014										
	Agri	**FASS**	**FEMS**	**Educ**	**Eng**	**Law**	**FMHS**	**Science**	**Theo**	**Overall**
Cohort size	**233**	**311**	**154**	**114**	**214**	**46**	**157**	**272**	**96**	**1 597**
CurrEnrol	12.9%	12.2%	14.3%	11.4%	10.8%	17.4%	11.6%	8.6%	1.9%	11.4%
Dropout	19,3%	18,3%	20,1%	24,6%	32,4%	23,9%	9%	15,7%	19,3%	20,2%

There are undoubtedly many reasons for attrition, including funding pressures, time challenges, competing demands, personal difficulties or poor relationships with supervisors. A significant challenge for some faculties is the phenomenon of students doing their PhD on a part-time basis (for example, the Faculty of Education) even though they are enrolled for a full-time programme. From an institutional perspective, it is better for a student to complete in the minimum time or as close as possible. However, a balance must be found between the institutional expectation and the individual realities of doctoral studies. During the Institutional Self-Evaluation there was concern expressed by some experienced supervisors, that less experienced colleagues feel pressure to pursue the rewards associated with supervising and graduating doctoral students (in the minimum time). The Review has thus sparked important conversations and encouraged reflection on institutional practices. In this sense, the institution is heeding the call for the observation of strong quality assurance measures in order to uphold the standard of its doctoral qualifications.

The challenge referred to in the Preamble of increased diversity of doctoral candidates in terms of background and preparedness is part of the experience of academic supervisors at Stellenbosch University. This phenomenon which is multi-faceted (older students, language challenges, academic writing challenges, part-time students, etc.) has prompted several institutional responses. Although Stellenbosch University has always prioritized postgraduate study, the institutional support structures have not been aligned with this prioritization, tending rather to focus heavily on undergraduate matters. The establishment of a dedicated Postgraduate Office in 2010 signified a concrete prioritisation and resource allocation to postgraduate matters. Providing opportunities for growth to all postgraduate students, including guidance, support and services from SU to enable their success is central to the service provision offered by the Postgraduate Office: application advice, funding, enrolment support and skills development opportunities throughout the research journey. Underpinning

the Postgraduate Office's activities are its focus on systems and policy development in support of the postgraduate endeavour.

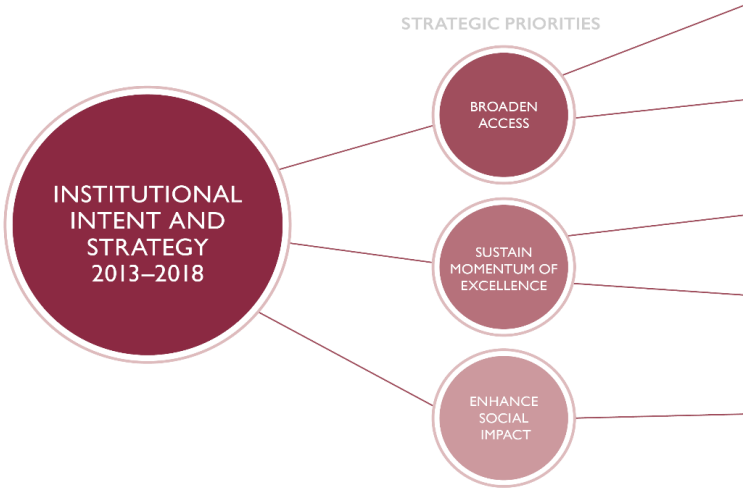
A Pre-Doctoral Short Course introduced by the Faculty of Medicine and Health Sciences in 2012 is a programme that was crafted to assist early-stage doctoral academics in the Faculty to expedite completion of their studies. The 2-week Pre-Doctoral Short Course has recently been extended to all doctoral students or prospective students in the Faculty. In an attempt to make the development of critical writing, theoretical and methodological skills more explicit. The overall aim of this short course is to prepare students for doctoral studies and to speed up the process of writing. The course caters for even those whose first language may not be English – and aims to inspire doctoral students to articulate their research ideas without fear or lack of self-confidence. The short course prioritizes topics on doctorateness, research methods and statistical design of doctoral studies, project management and scientific writing skills. Students can gain from the guidance provided by expert facilitators and accept the realities and challenges of doctoral studies. The context of the Short Course allows students to appreciate that while doctoral studies are challenging, institutional resources and expert support are available to them.

The Postgraduate Skills Development programme in the Postgraduate Office has worked actively since 2010 to integrate relevant learning courses, capacity-building workshops, seminars and postgraduate group interactions in order to help postgraduate students take charge of their research journey in a supported manner[6]. The current offering can be viewed here.

Following on from the HOPE project, *Institutional Intent and Strategy* guided Stellenbosch University from 2013 – 2018. The mission associated with this period was as follows:

[6] In the Doctoral Student Focus Group discussion, the value of this offering was emphasised but it was also mentioned that many students are finding this support by accident.

We strive to achieve our vision for Stellenbosch University through sustained transformation and, on our journey of discovery through academia in the service of our stakeholders, we have resolved to:



- create an academic community in which social justice and equal opportunities will lead to systemic sustainability;
- investigate and innovatively implement appropriate and sustainable approaches to the development of Africa;
- align our research with a wide-ranging spectrum of challenges facing the world, Africa, our country and the local community;
- maintain student-centred and future-orientated learning and teaching that establish a passion for lifelong learning;
- invest in the innovative scholarship and creative ability of all our people;
- leverage the inherent power of diversity; and
- establish and extend synergistic networks in which our University is a dynamic partner.

It is clear from the above that the institution continued to prioritize building its relationships in Africa. The institutional picture of enrolments by population group and origin for the 2010 to 2014 doctoral cohort is reflected in Table 5. It shows that 399 candidates from the SADC and the rest of the African continent were enrolled, more than triple the international representation than from the rest of the world. This confirms the popularity of Stellenbosch University as a destination for international students from the African continent in general.

Table 5 Population group and origin of SU Doctoral cohort 2010 to 2014

Stellenbosch University Doctoral cohorts 2010 to 2014					
Population group	**South Africa**	**SADC**	**Rest of Africa**	**Rest of World**	**Grand Total**
Black African	115	200	170	7	492
Coloured	156	4	5	12	177
Indian	25	4	3	16	48
White	775	9	4	92	880
Grand Total	**1071**	**217**	**182**	**127**	**1597**

In as far as diversity of the SU doctoral student body is concerned, it is notable that for the period 2014 – 2018, the faculties of Science, FMHS, Law and Education enrolled proportionately more SA citizens from the designated groups than international students from the SADC and the Rest of Africa. The opposite is true for Agrisciences, FEMS, FASS, Engineering and Theology, with the latter two faculties enrolling significantly higher numbers of international students from the SADC and the rest of the African continent than SA citizens from the designated groups. The Faculty of Theology is the only faculty where the total number of non-SA citizens enrolled is higher than the total SA citizens enrolled.

Institutional funding for doctoral research has also prioritized transformation in this era. Stellenbosch University directly supported on average 226 doctoral students annually during 2013 – 2018 with bursaries, scholarships and grants as administered by the Division for Research Development's Postgraduate Office (PGO). A total investment of R26 million over this period was distributed as follows:

- 51% of awards were made to female recipients
- 33% of awards were made to BCIA recipients

The distribution of funding (per faculty) indicates that a higher number of awards were made to the faculties of Science (30%), AgriScience (18%), Arts and Social Sciences (15%) and Engineering (12%) (Appendix F2)

The trend in funding allocations to doctoral students illustrates a fluctuation in allocation over this reporting period. Increased funding support was the norm from 2013 to 2015, followed by a decrease in 2016 while a sharp decrease was noted during 2018. The conclusion of a particular incentive scheme (Postgraduate Merit Bursary) might have played a role in this

sharp decline but the decision to discontinue it was taken in order to free up support for students with severe financial need.

In 2018, Stellenbosch University accepted a new institutional roadmap. Vision 2040 and Strategic Framework 2019–2024 was developed considering South Africa's National Development Plan, the African Union's Agenda 2063 and the United Nations' Sustainable Development Goals.

Stellenbosch University's Rector Wim De Villiers has highlighted several trends that are influencing higher education and comments on some important principles that remain relevant to higher education. Of relevance to doctoral education and research is the key role that universities have to play in the knowledge economy. According to De Villiers (2017), it will be important for researchers to move beyond the narrow confines of specialised, disciplinary knowledge in order to explain and solve complex problem. Therefore, collaborating across different sets of boundaries: between and across disciplines, across institutional and national borders, and between universities and other sites of knowledge generation will become more important.

Vision 2040

Stellenbosch University will be Africa's leading research-intensive university, globally recognised as excellent, inclusive and innovative, where we advance knowledge in service of society

De Villiers (2017) also reminds us of the importance of creativity and innovation. These are essential elements in doctoral research and education. Coming up with new ideas and turning these into innovative solutions resonates with the ethos of the Graduate Attributes in the Qualification Standard for Doctoral degrees.

Funding for doctoral education and research is one of the biggest challenges facing higher education institutions in South Africa. In general, Stellenbosch University is experiencing a marked decline in postgraduate funding from the state. Finding new avenues of revenue will become essential if the institution hopes to maintain its recent levels of doctoral outputs. Without adequate funding the "new-knowledge-producing subsector of higher education" (Cloete, 2016:2) is at risk.

In order to attain Vision 2040, the institutional has selected six core strategic themes:

Figure 3: Core Strategic Themes – SU Vision 2040 and Strategic Framework 2019–2024

In the discussion of how Stellenbosch University's doctoral qualifications address the values and ethos expressed in the Preamble of the Doctoral Qualification Standard, examples were given of how the institution has responded. In **evaluating the alignment between the doctoral qualifications offered by Stellenbosch University and the institution's context, mission, goals and strategic plan**, alignment takes place on several levels. The essential characteristic of postgraduate study is that it must take place in a networked and collaborative fashion. The Postgraduate Office is contributing to this strategic theme by expanding access to online capacity development learning opportunities, which especially acknowledges 'on-demand' learning needs of all postgraduate students, including doctoral students. Through these and other initiatives like the Department of Higher Education and Training (DHET) capacity development programmes, national and international funding programmes, collaborative degree programmes and other partnerships that benefit doctoral students, the Postgraduate Office is ***supporting the institution's vision to become Africa's leading research-intensive university.***

In terms of Research for Impact, one of the strategic themes that will position the institution to attain its Vision 2040, Stellenbosch University wishes to pursue excellence, remain at the forefront of its chosen focus areas; gain standing based on its research outputs, and be enterprising, innovative and self-renewing. This requires a careful balance between, on the one hand, continuity and consistency and, on the other, transformation and rejuvenation of the academic researcher cohort which includes doctoral students. At the same time, Stellenbosch University research strives to be socially relevant. Ultimately, our research efforts are not only aimed at academic success but also at making a significant impact in the world. Research for impact at Stellenbosch University implies optimising the scientific, economic, social, scholarly and cultural impact of our research.

Certain research themes have emerged from an institutional consultative process that engaged the Stellenbosch University research community.

Figure 4: Research for Impact: Research Themes

The focus within the themes is on interdisciplinary research that benefits society on a national, continental and global scale. Doctoral research takes place within these broad themes and is therefore aligned with institutional priorities. At the same time, the institution

remains committed to strengthening basic and disciplinary research excellence, as it forms the basis for applied and translational research. Much of doctoral research aligns on this level.

Staff excellence is helping to position Stellenbosch University as a national asset with global standing. In 2018, SU had 459 NRF-rated researchers (up from 342 in 2014). These included 14 with an A-rating, which means their peers recognise them as leading international scholars in their respective fields. Research chairs at Stellenbosch University have also more than doubled – from 23 in 2013 to 47 in 2018 which strengthens capacity to supervise as discussed elsewhere.

In summary, Stellenbosch University is committed to a journey of becoming a transformed, inclusive institution and fit-for-purpose university. The University should meet the needs of Africa's growing population. The institutional focus will be on the competencies and skills we need to impart to students to equip them for the future. Stellenbosch University will produce knowledge of Africa, in Africa and for Africa, while ensuring that our work has a global reach (SU Vision, 2018).

2. The Purpose of the Doctoral Qualification [7]

Describe and evaluate how your doctoral qualifications address the purpose of the Doctoral Qualification as stated in the Qualification Standard for Doctoral Degrees.

The primary purpose of doctoral education is the development of original, responsible, and ethical thinkers, and the generation of new and original ideas and knowledge. The central importance of originality is the resounding message emanating from a group of experts who met at an international conference in 2019 to discuss 'Forces and Forms in Doctoral Education Worldwide'.

Our view is that originality of research is at the heart of doctoral education and

[7] Prepared by Dr Cindylee Steenekamp on behalf of the Working Group

> ***should remain there.*** *Developing* ***'creative critical autonomous and responsible intellectual risk takers'*** *is the unique feature of doctoral education and is of great value both to the doctoral graduate and to society at large. This implies that doctoral education must be driven by research challenges as well as societal needs together with the inspiration of the candidates, and not primarily by political considerations.* [Hannover Recommendations, 2019]

Scholars and researchers are responsible for the organisation and maintenance of knowledge as well as the development and production of (inter-, multi-, trans-) disciplinary knowledge (Steenekamp, 2020).

Doctoral candidature is widely recognised as a period of apprenticeship through which successive scholars are developed to become the next stewards of knowledge (Boud & Lee, 2009). As such, most doctoral systems are based on an apprenticeship model of doctoral education, entailing a "learning-by-doing-approach" in which the doctoral candidate, under the guidance and supervision of a more experienced scholar, conducts and reports on a research project. The research output is then evaluated by other (inter-, multi-, trans-) disciplinary peers based on the level of scholarship reflected in it and on its contribution to the field of knowledge.

Within the South African context, Herman and Frick (2019: 2) identify three additional goals of the doctorate: first, the provision of a future supply of academic staff, given that a productive cohort of academics is aging, coupled with the relatively low and slow 'production' rate (by international standards) of doctorates nationally; second, the development of high level skills for the knowledge economy; and third, a mechanism for upward individual socio-economic mobility, which is important in a country where wealth is distributed disproportionately.

The Higher Education Sub-Qualification Framework (HESQF) makes provision for two variants of doctoral degrees: a traditional doctorate (General), and a professional doctorate. While the latter variant is possible, it remains uncommon in South Africa and is not currently offered at Stellenbosch University. The traditional doctorate (General) provides,

> …training for an academic career and requires a candidate to undertake research at the most advanced academic levels culminating in the submission, assessment and acceptance of a thesis. However, candidates may also present peer-reviewed academic articles and papers, and, in certain fields, creative work such as artefacts, compositions, public performances and public exhibitions in partial fulfilment of the research requirements. Coursework may be required as preparation or value addition to the research, but does not contribute to the credit value of the qualification. The defining characteristic of this qualification is that the candidate is required to demonstrate high level research capability and to make a significant and original academic contribution at the frontiers of a discipline or field. The work must be of a quality to satisfy peer review and merit publication. (CHE, 2013:40).

Stellenbosch University currently (2018) offers [197] doctoral programmes across the five broad fields of study (SET, Health Sciences, Business and Commerce, Education, and Humanities and Social Sciences) and within ten faculties. In terms of current enrolments, more than three quarters (76.5%) of doctoral candidates are registered in the Science, Engineering and Technology fields of study (49.9%) and Humanities and Social Sciences (26.6%). In the five year period from 2014 to 2018, enrolments in these two broad fields of study increased by around 15%, while enrolments in the Health Sciences increased by a remarkable 77.5%. More than two thirds (68.2%) of current enrolments are South African citizens. However, Stellenbosch University is increasingly being recognised as a destination for doctoral candidates from the continent to pursue their studies. The number of enrolled doctoral candidates from within the Southern African Development Community (SADC), but excluding South Africans, increased from 158 in 2014 to 238 in 2018, while enrolled candidates from other African countries increased from 147 to 195 during the same time; this represents an increase in enrolments of 50.6% and 31.3% for these two groups respectively. It is also significant to note that the gender gap in doctoral enrolments narrowed from 14.1% in 2014 to 4.8% in 2018, while the enrolment of female doctoral candidates increased by 29.5%. The gender breakdown of current doctoral enrolments includes 52.4% males and 47.6% females. In terms of population group, half (51.0%) of the current doctoral enrolments are white candidates, while 35.6% are black candidates. However, there was an increase of 48.4% of black enrolments between 2014 and 2018,

compared to only 3.6% of white enrolments. Overall, the increase in doctoral enrolments primarily in the SET, Humanities and Social Sciences, and Health Sciences fields coupled with the significant increase of black and female doctoral candidates over the past five years are indicative of the University's efforts to facilitate the development of high level and scare skills for the knowledge economy as well as upward socio-economic mobility, [especially amongst the most vulnerable groups of society], in South Africa.

The enrolment data only addresses some aspects of the purpose of a doctorate. Since the primary purpose of the doctorate is to produce both new knowledge (a scholarly product or research outputs) and a skilled person (an inter-, multi-, trans-, or disciplinary scholar), the kinds of knowledge (outcomes) and the kinds of person to be produced and how (graduate attributes) are equally important when evaluating the purpose of a doctoral degree. The Higher Education Sub-Qualification Framework (HESQF) identifies two categories of graduate attributes that must be achieved and evidenced in order for the doctoral qualification to be awarded (CHE, 2018: 13-14).

The first category – Knowledge attributes – relates to the original contribution of a doctoral study; the extent to which this contribution is integrated within existing literature and academic debate; the extent to which the graduate is able to demonstrate expert and highly specialised knowledge within a specific area of research; the ability of the graduate to identify the interconnectedness of their work with other fields of study and practice; and ethical awareness. In order to achieve these knowledge attributes, doctoral candidates participate in various formative processes throughout the research process that facilitate the development of an original research contribution. The research process commences with the development of a research proposal under the guidance and supervision of at least one experienced scholar through the mentor-apprentice model of supervision. The approval of a research proposal by a committee of academic peers signifies that the doctoral candidate has successfully synthesized existing knowledge within their field of study, articulated a research problem through in-depth and specialised current knowledge of a specific area of research that will result in a novel and original contribution to the field or discipline, demonstrated how the proposed study will relate to cognate fields, and identified and addressed any ethical considerations relating to the proposed study. Throughout the research process, doctoral candidates critically engage with their

supervisors about all aspects of their research, while scholarly workshops and training opportunities are facilitated at departmental, faculty and institutional level to expose candidates to methodological, philosophical, and ethical trends, practices, and developments within their fields. Finally, the examination process is the culmination of the research process. The assessment criterion for doctoral studies across all ten faculties at Stellenbosch University stipulate that the candidate must have successfully demonstrated each of the five knowledge attributes in order for the degree to be awarded.

The second category – Skills attributes – relates to the selection and application of the most appropriate research approaches and methods to answer or solve the research problem, the extent to which the graduate is able to work independently, substantiate and defend their findings and conclusions, reflect on the various stages of the research process critically, and demonstrate critical and analytical thinking in a clear, coherent and logical manner. Much like the acquisition of the knowledge attributes, the development of the four skills attributes commences during the proposal development phase. Doctoral proposals may only be approved once a candidate has formulated a concise, intelligible research problem, and provided a sound academic motivation for the approach(es) and methods selected in order to address the proposed research problem. This formulation, conceptualisation and selection from the inception of the research process is driven largely through the mentor-apprentice model of supervision with inputs from a committee of academic peers and the ethics committee. The requisite skills required for the execution of the research approach, design and methodology are often acquired through attending skills development and training workshops or short courses before commencing the data collection and analysis phases. Throughout the research process, candidates are also required to critically engage with and reflect on their research topic through the submission of revised chapters or papers. The mastery of these skills attributes are assessed by the supervisors throughout the research process and before the final evaluation by a panel of examiners upon completion of the study. The assessment criterion for doctoral studies across all ten faculties at Stellenbosch University stipulate that the candidate must have successfully demonstrated a competence for problem-solving and logical exposition of the argument through autonomous scientific rigour and reflection culminating in a scholarly product (dissertation and oral examination) or research outputs (peer-reviewed

publications and conference proceedings) reflective of advanced communicative proficiency.

The purpose of a doctoral degree is also reflected in the kinds of knowledge (outcome) being produced. Gibbons *et al*. (1994) make the distinction between Mode-I and Mode II-knowledge and argue that the primacy of the specialised, disciplinary basis for knowledge claims (Mode I), is being challenged by the increasing importance and prevalence of Mode II knowledge in the knowledge economy. While Mode I-knowledge advances the epistemological canons of the discipline, Mode II-knowledge is based on its usefulness and ability to solve a particular contemporary problem (Green & Usher, 2003). In the production of Mode II-knowledge, there is no distinction between discovery and application; it happens at the same time and in the same place (Green & Usher, 2003) and typically involves various sectors of society – universities, industry, business, not-for-profits and governments – both in the framing of the problem and the discovery of its solution (Nerad, 2010). While there are advantages and critiques of both kinds of knowledge, the value proposition of Stellenbosch University is not to favour one or the other kind of knowledge but rather to support knowledge creation (mostly through basic research or Mode-I knowledge production), the interpretation and dissemination of knowledge (through teaching and communication) and research training (ensuring the preservation and renewal of the knowledge system) while also restructuring the relationship between the university and society through policies and funding systems that encourage commercial and applied research. This is evidenced through our research outputs (dissertations of and peer-reviewed publications by doctoral candidates) as well as patents stemming from doctoral research. In addition, Stellenbosch University embarked on the diversification of the doctorate to permit candidates to complete their PhD by publication from 2012 and/or submit creative work, public performances or public exhibitions in partial fulfilment of the research requirement of a doctoral degree.

Through our evaluation, it is evident that the doctoral qualifications offered by Stellenbosch University address the purpose of studies towards doctoral degrees as stated in the *Qualification Standard for Doctoral Degrees.*

3. NQF Level and Credits

Stellenbosch University does not allocate or recognise credits other that the undifferentiated allocation of 360 credits for the doctoral dissertation.

SU uses the term 'dissertation' when referring to the document that is produced by a doctoral student rather than thesis, which is the term for referring to the product of research for Master's studies. A doctoral dissertation is the report on research done by the doctoral candidate under supervision on one central and coherent research problem.

4. The Graduate Attributes[8]

Describe and evaluate how your institution prepares candidates to attain the graduate attributes[1] (knowledge and skills) set out in the Qualification Standard for Doctoral Degrees.

The Qualification Standard for Doctoral Degrees states that the degree of doctor

> *… may be awarded when the qualification standard has been met or exceeded. The purpose and level of the qualification will have been achieved when the following attributes are evident. The attributes are assessed within the context of the Purpose of the qualification* (2018: 13).

Table 6: Doctoral Graduate Attributes

Knowledge	**Broad, well-informed, and current knowledge of field[9] or discipline** The graduate has acquired well-informed relevant knowledge in the selected field or discipline. Through an original contribution achieved through independent study, the graduate integrates new with existing knowledge, thereby advancing the frontiers of knowledge. In addition to being well-

[8] Prepared by Dr Jaco Franken, Ms Alison Bucholz and Ms Dorothy Stevens on behalf of the Working Group

[9] 'Field' includes inter-, multi- or trans-disciplinary topics.

	informed about and well-versed in the literature[10] in a chosen field, the graduate is able to make a contribution to the relevant evolving debates in the field. **Expert, specialised, and in-depth current knowledge of specific area of research** The graduate demonstrates expert, specialised, and in-depth current knowledge of a specific area of research, which will be evident in the thesis or equivalent.[11] **Insight into the interconnectedness of one's topic of research with other cognate fields** The graduate demonstrates awareness of how the specific area of research relates, or is relatable, to other fields of study and practice which will be evident in the doctoral work. **Ethical awareness in research and professional conduct** The graduate demonstrates awareness of, and compliance with, the principles of ethics in research and, where relevant, professional protocols, which will be evident in the in-depth discussion in the thesis or equivalent. **An original contribution to the field of study** The graduate shows evidence of original and innovative thinking in research and, where applicable, creative practice and/or performance, which makes a special and novel contribution to the field of study.
Skills	**Evaluation, selection and application of appropriate research approaches, methodologies, and processes in the pursuit of a research objective** The graduate demonstrates knowledge of, and the ability to create and introduce, where appropriate, and to evaluate, select and apply relevant research designs, approaches, methodologies, instruments, and procedures, appropriate for the doctoral work undertaken. **Reflection and autonomy** The graduate demonstrates ability to conceptualise and reflect critically, work independently, and arrive at defensible conclusions and solutions, based on appropriately-substantiated and defensible premises and analysis.

[10] Where relevant, 'literature' may include artefacts, visual or aural records, patents, musical scores, or records of creative performance.

[11] The graduate is expected, thus, to go beyond merely synthesizing relevant knowledge in the field or discipline.

	Communication skills, including relevant information and digital literacy skills The graduate demonstrates an advanced level of communicative competence, through capacity for extended, sustained and rigorous academic writing, including relevant digital literacy skills appropriate for doctoral research, and ability to relate individual research with reference to, and critical analysis of, associated research produced by scholars in the relevant intellectual and knowledge domain(s). The graduate is able, as appropriate to the field of research, to communicate research findings effectively to expert and non-expert audiences alike, to defend them in the context of intellectual contestation, and to disseminate them in appropriate forms. **Critical and analytical thinking for problem-solving** The graduate demonstrates ability to conduct research-related critical and analytical thinking, which shows an intellectual competence for problem-solving in diverse contexts, both familiar and unfamiliar.

4.1. Process to gather information and evidence on the achievement of the graduate attributes

Information regarding institutional, faculty and individual arrangements to ensure the achievement of the graduate attributes was collected using three complimentary approaches. This process was developed to ensure that the relevant institutional and faculty-based structures are captured. It also aimed to provide the sensitivity to describe deviations from the norm and to formatively identify good innovative practices.

To start with, the Working Group members responsible for the Graduate Attributes section of the SER, developed a matrix to collect information from the Institutional Reference Group, representing all ten faculties. The matrix evaluated the achievement of each attribute throughout the doctoral lifecycle across various dimensions. This included the i) teaching and learning processes by which an attribute is conferred; ii) the assessment of the achievement of the attribute and iii) the evidence that can be provided regarding the achievement of each attribute. In addition, to support the formative aspiration of this exercise, three questions were included to identify possible areas of improvement, contextualise these and then suggest steps to address the identified areas of improvement.

Subsequent to the completion of the matrix by the Reference Group, a meeting was scheduled to facilitate a focus group discussion with the Reference Group. The discussion

was guided by the following four questions to provide a deeper reflection on the achievement of the skills and knowledge attributes within the different academic environments.

i) As Faculties and as individual supervisors, how do we support doctoral students to develop the required knowledge and skills attributes?

ii) What challenges are there to students achieving the knowledge and skills attributes?

iii) What do we need to do as an institution to improve the chances of students achieving the knowledge and skills attributes?

iv) What do we do well in terms of developing the knowledge and skills attributes?

Finally, since the instructions to PhD examiners were identified as key documents in the process of testing the attainment of the doctoral attributes, these documents were collected from the faculties and analysed for evidence of supporting the assessment of the attributes. These various sources provided the foundation for the discussion that follows below. The source documents (faculty matrices and faculties' current instructions to PhD examiners) are included in Appendix F3.

4.2. Knowledge Attributes

4.2.1 Broad, well-informed and current knowledge of the field or discipline

Under this attribute, the standard refers to the development of an original contribution and framing this within the current academic debate and literature within a field of study. Learning and evidence of achieving this attribute is clearly demonstrated in the case of all ten faculties as captured in the attribute's matrix. Furthermore, the development of this attribute is integral to the nature of a doctorate and its development is fostered throughout the PhD pipeline at various levels, from institutional level to the level of the student-supervisor.

PhD candidates participate in various formative processes throughout their PhD journeys that facilitate the development of an original research contribution. This starts with the development of a research proposal that is evaluated by academic peers and in many instances leads to a proposal defence. Subsequently candidates in all faculties participate in academic presentations of their work and engage in critical discussion with supervisors for

the duration of their research. These experiences are augmented by participation in local or international conferences and in the publication in peer reviewed journals, which is encouraged in most environments. These opportunities allow candidates to continuously test the relevance and contribution of their work against their academic peers. In addition, scholarly workshops and training events are facilitated at faculty and institutional level to expose candidates to methodological and philosophical trends and developments within their fields. Lastly, as the final assessment, the examination of PhD dissertations requires an original contribution to the candidate's field of study and the framing thereof within the broader context of the literature. Achieving such a contribution is only possible in instances where a candidate has developed a thorough grasp of the current academic discussions within his/her field to allow the expansion of the existing frontiers of knowledge.

These criteria are clearly stated in the instructions to examiners provided by all ten faculties, which requires evaluation of an original contribution and familiarity with the current, relevant literature. It can therefore be concluded with a certain degree of confidence that graduates of the institution achieve the broad, well-informed and current knowledge criterion that is described in the Standard.

4.2.2 Expert, specialised, and in-depth current knowledge of specific areas of research

Building on the first attribute, the development of expert, and in-depth current knowledge is developed and assessed throughout the lifecycle of a PhD candidate at Stellenbosch University. This includes a requirement for in-depth knowledge from the development of a research proposal to the final examination of the candidate. Since this attribute is closely related to the first attribute, it is not surprising that the evidence of achieving this attribute overlaps with the evidence for first attribute within the attribute's matrices of the different faculties.

While the assessment of this attribute is integral to the evaluation of the proposal and to the final examination, it is also part of the formative relationship with a supervisor, where the mentor-apprentice model of supervision is still widely utilised. Expert knowledge is also fostered in various environments that are increasingly making use of cohort-based research groups to enhance the learning experience of candidates. Finally, the instructions to examiners all require evidence of the development of this attribute, which includes

examination criteria such as making an original contribution, having a sound understanding of the current literature and displaying independent and critical thinking.

4.2.3 Insight into the interconnectedness of one's topic of research with other cognate fields

Insight into the interconnectedness of a candidate's research topic is developed from the start of the doctoral research process, which requires candidates to deliver a research proposal that includes an in-depth literature review. In addition, insight into the current trends within the literature related to a topic is required to craft a research topic that is relevant and that can make a substantial and original contribution.

Several environments have additional measures that enhance the understanding and learning around the significance of a research topic within its broader disciplinary context. This includes seminars in the context of either the faculty, the department or within research groups. Such exposure is further augmented by the opportunity to present research findings at local or international conferences, which is actively encouraged in most environments.

Finally, the examination of a doctoral dissertation requires an evaluation of a candidate's insight to the interconnectedness of his/her research within the disciplinary context. All faculties include an instruction to examiners that directly assesses this attribute and is phrased in various ways. This includes, for example, the assessment of a candidate's knowledge of the literature, conceptualising of the research field and placing the research in context within existing knowledge in the field of study. In short, it can be concluded that the attainment of this specific attribute is part of the preparation of doctoral candidates throughout the research process. In addition, achievement of the attribute is measured as a specific outcome during the examination process.

4.2.4 Ethical awareness in research and professional conduct

Professional conduct and ethical awareness are learnt throughout the PhD. From the attribute's matrices, it is evident that learning takes place at various levels. This includes departmental induction programmes, faculty-level research workshops and workshops presented at an institutional level by the SU Division for Research Development. Importantly, feedback from the faculties underscored the importance of mentoring and induction into the world of professional research by the doctoral supervisor. Candidates have access to

academic writing integrity workshops that cover issues of scientific misconduct such as plagiarism, which are presented regularly on campus. All electronic submissions are scrutinised for similarity against international literature databases using the Turnitin software package. Finally, Stellenbosch University also has a well-developed policy on responsible research conduct in place to guide research processes at the institution.

Evidence of ethical awareness is seen throughout the PhD lifecycle and is evaluated from the proposal development stages to the final examination. The institution has a well-managed ethics screening process at departmental and institutional level. All projects that involve human participants, animals, environmental and bio-safety concerns and any other ethical concerns require ethics clearance. All faculties require dissertations to be submitted to Turnitin or include a plagiarism check report before the final examination. Ethical awareness and professional conduct are therefore developed in the learning experiences of doctoral candidates and assessed as an attribute in doctoral graduates of Stellenbosch University.

4.2.5. An original contribution to the field of study

The development of an original contribution is the culmination of the research process and a consequence of the achievement of the other attributes included in the Qualification Standard for Doctoral Degrees. This attribute is developed throughout the candidate's tenure as a PhD student through processes such as, writing and defending a research proposal, presenting and/or publishing research results to receiving input from academic peers and having frequent interaction with the doctoral supervisor.

In short, making an original contribution is the hallmark that distinguishes a doctoral degree from all other advanced degrees. It is, therefore, not surprising that this requirement is included as an assessment criterion across all the faculties at Stellenbosch University. Candidates therefore must meet this criterion in order to be awarded a PhD at the institution.

The following section addresses the development of the graduate skills attributes. It is apparent that, although the Knowledge and Skills attributes are discussed separately in this report, there are clear overlaps in how their development is supported as they naturally develop concurrently and are inherently interwoven.

4.3. Skills Attributes

Along with the five Knowledge attributes, the development of the four Skills attributes form an integral part in shaping and growing doctoral candidates' scholarship.

4.3.1 Evaluation, selection and application of appropriate research approaches, methodologies, and processes in the pursuit of a research objective

Deciding on the most relevant research design and methodology is crucial for sound research and congruent outcomes. Stellenbosch University PhD candidates typically learn about 'best fit' of research design from the inception of the research process during the formulation of a research proposal; through supervisor interaction and discussion; through reading extensively; through attending research methodology courses and by conducting feasibility assessments of the methodology.

The application of the research approaches, methodologies and processes are learnt through the 'doing of the research', for instance, in the process of data collection and data analysis, as reported in the faculty matrices.

Typically, the mastering of this skill is assessed across the ten faculties as early as the proposal defence stage; whilst engaging in critical discussion with the supervisors; when delivering formal and informal research presentations; and most predominantly, during the PhD examination and the oral defence stages.

Evidence of the acquisition of this attribute is found in the feedback from the proposal evaluation panel; in the feedback provided by the ethics clearance committee (where applicable); in the examiners' reports and in research published by the candidates in peer-reviewed literature.

4.3.2 Reflection and autonomy

The development of this crucial attribute begins with the conception of the research topic that leads to the formulation of the research proposal. This attribute is developed further when interpreting research results and conveying the results in either written or oral presentations; through publishing in peer-reviewed literature; when writing a dissertation and during the oral defence. Through all of these, the candidate is challenged to reflect

critically and to work independently. The process of 'becoming a scholar' is described by a number of the faculties as being one of gradually becoming more independent – the handover of autonomy occurs progressively as the candidates are encouraged and mentored to reflect critically about their research and the research process.

Typically, assessment of this attribute takes place at Stellenbosch University during the proposal defence; when delivering formal and informal research presentations; during critical discussion with supervisors and peers; during the PhD examination and during the oral defence.

Evidence of achieving this attribute is reflected in feedback from the proposal evaluation panel; in biannual supervisor/candidate reports (practised by many of the SU faculties as indicated in the matrices); in the examiners' reports and research published in peer-reviewed literature.

4.3.3 Communication skills, including relevant information and digital literacy skills

Learning to communicate well takes practise whether conveying one's research findings in written or oral format. Rewriting drafts of chapters after feedback from a supervisor and the very circular nature of the writing process (pre-writing, drafting, revising, editing and publishing) incrementally develops the candidate's communication skills over time. Candidates typically sharpen their communication skills at SU by attending workshops that focus on developing their academic writing skills, developing their PowerPoint skills for defence or conference presentations, writing for publication, to name a few.

Learning how to use new software packages relevant to the research method also forms an important part of this attribute. SU PhD candidates have the opportunity to gain digital literacy skills through attending training on, for example, PowerPoint for conference presentations, MS Word for thesis formatting, MS Excel for data management, and Improving Your Literature Search Strategy. Closely related to digital literacy skills are information literacy which are evidenced by the manner in which the candidate is able to unearth the critical readings and data that are relevant to their research.

With regard to being able to communicate to non-expert audiences, the importance of PhD candidates developing these skills to communicate their research findings to scholars from

other disciplines, industry and the lay person has become emphasised over recent years. The newly adopted *White Paper on Science, Technology and Innovation* (March 2019) confirms the South African government's commitment to science communication. Stellenbosch University's Centre for Research on Evaluation, Science and Technology (Crest) houses one of the two science communication chairs in South Africa and is therefore well positioned to provide expert training and support in the development of this element of this attribute. Consequently, Stellenbosch University PhD candidates have been afforded opportunities to attend science communication training and events for a number of years now.

Typically, assessment of the candidate's communication skills is done during the proposal defence; when delivering formal and informal research presentations; during critical discussion with supervisors; in the PhD examination and during the oral defence. Currently, evidence of achieving this aspects of this attribute at Stellenbosch University is reflected in the feedback from the proposal evaluation panel; the examiners' reports and research published in peer-reviewed literature.

The element of developing PhD candidates' skills of communicating one's science to non-expert audiences is not formally assessed or expected/required across the ten faculties at this stage. How to provide evidence of achieving the skill of being able to communicate one's research to non-expert audiences will need to be considered.

4.3.4 Critical and analytical thinking for problem solving

This attribute entails that, "the graduate demonstrates the ability to conduct research-related critical and analytical thinking, which shows an intellectual competence for problem solving in diverse contexts, both familiar and unfamiliar" and is key to conceptualising and manifesting a product of profound research.

The teaching and learning processes of this skills attribute are not as readily pinpointed as some of the other skills attributes. It entails extensive reading, writing, discussion and reflection on the research undertaken. Some SU departments provide opportunities of induction into scholarly writing and seminars on interpreting research findings and writing up research results. Mostly, this skill is acquired experientially as the candidate grapples with the research, adapts to challenges, changes approach when required, finds solutions and constructs new insights and ideas.

Whether a candidate has mastered this central attribute is assessed throughout the doctoral journey from the proposal defence, to delivering formal and informal research presentations, to critical discussion with supervisors and other scholars, the PhD examination and finally, the oral defence.

All faculties' instructions to examiners require assessment of whether the candidate has displayed evidence of critical analyses of data and critical assessment of results. Evidence of this attribute is thus confirmed in the examiners' reports, as well as through the feedback from the proposal evaluation panel and where research is accepted for publication in peer-reviewed literature.

4.4. Reflection on the achievement of the Graduate Attributes at SU

The institutional processes followed to gather information and evidence on the achievement of the attributes and the analysis of the Instructions to Examiners for all faculties allowed SU to arrive at the conclusion that if examiners' recommend a dissertation should pass and the examination panel hearing the oral defence concludes that the degree may be awarded, that the doctoral candidate has attained the knowledge and skills attributes set forth in the Qualification Standard by graduation.

Although SU therefore feels that its practises are at threshold in this regard, because the graduate attributes in their current format are new to the system, several opportunities for improvement were identified as part of the attributes' matrices' development and emerged during the focus group discussions. SU would like to address these as a *quality enhancement* exercise.

i) A central cautionary sentiment that was expressed is that if our supervisors themselves do not possess the graduate attributes then they are not equipped to convey and develop the attributes in their students. It was thus felt that the graduate attributes, as formulated in the Qualification Standard should in future be made more explicit at different points, not only to supervisors, but also to doctoral students. The issue of supervisor development came up as an important feedback loop, i.e. for supervisors to develop the graduate attributes they must also possess and understand them and therefore we should be attending to supervisor development too.

ii) The biggest challenge to doctoral candidates achieving the graduate attributes is the growing number of poorly prepared doctoral candidates entering the system. The frustration was expressed that it is often difficult to know what candidates are capable of until you work with them and at this point, most faculties felt that they were already committed and could not easily exit from making a poor selection. It was mentioned that some international institutions have mechanisms in place for 'half-time review' (institution in Sweden) and a 'go/no go' decision (institution in Belgium). Adopting this type of approach would, however, require a substantial change in philosophy – not only at SU but also in the national context. At SU, there also seems to be a strong institutional sentiment of doing our best to make things work. Conversely, there is also a sense that experienced supervisors know where to draw the line with a weaker student and thereafter, it is left to the examination process to decide the outcome. The potential risk however lies with inexperienced supervisors in these circumstances. Another challenge relates to funding to give all doctoral students the opportunity to attend or participate in international conferences.

iii) It was acknowledged that the institution must consider strengthening its efforts beyond the current arrangements of requiring co-supervision for first-time supervisors of doctoral students to an institutional requirement for formal supervision training for all novice supervisors. Any institutional ambiguities that may undermine sound supervisory practice should also be removed. The institution and its researchers must also continuously explore and develop innovative means to attract international funding and partnerships to further enhance exposure of our doctoral students and expand the opportunities available to them to strengthen the development of the graduate attributes.

iv) It was also acknowledged that we have good supervisors at SU. The institution is in the fortunate position that it has grown a critical mass of senior and experienced academics in several academic environments to provide momentum to its vision of becoming Africa's leading research-intensive university. Through the collective strength, the culture of scholarship is uplifted. The institution is also in the fortunate position that it possesses excellent support facilities and initiatives through its Library,

Central Analytical Facilities, IT Division and Division for Research Development that underpin the development of many of the graduate attributes.

To close the discussion on the Graduate Attributes at SU, reference is made to the summary assessment of each Faculty's Instructions to Examiners against the Graduate Attributes (Appendix F3). From the analysis, it can be confirmed that examiners of SU dissertations are being requested to comment on all the knowledge and skills attributes but there are two attributes which deserve closer attention and commentary.

- Ethical awareness in research and professional conduct

  The graduate demonstrates awareness of, and compliance with, the principles of ethics in research and, where relevant, professional protocols, which will be evident in the in-depth discussion in the thesis or equivalent.

The attainment of this attribute is somewhat derived from actions and decisions that the candidate and his/her supervisor take during the doctoral study. It is also implied on the basis of the declarations made in the dissertation regarding own work, the acknowledgement of inputs from others as well as the evidence in the written work that sources have been dealt with correctly. Acquiring ethics clearance is another clear point of evidence that the research has engaged with ethical considerations. The concern at SU however is that not all projects require ethics clearance and that although there is a policy on responsible research conduct, ethical awareness in research and professional conduct can be more explicitly dealt with at the institution. This is therefore, an area for improvement that is beyond threshold and thus aspirational.

- Communication skills, including relevant information and digital literacy skills

  The graduate demonstrates an advanced level of communicative competence, through capacity for extended, sustained and rigorous academic writing, including relevant digital literacy skills appropriate for doctoral research, and ability to relate individual research with reference to, and critical analysis of, associated research produced by scholars in the relevant intellectual and knowledge domain(s). The graduate is able, as appropriate to the field of research, to communicate research findings effectively to expert and non-expert audiences alike, to defend them in the context of intellectual contestation, and to disseminate them in appropriate forms.

Whilst evidence of communication skills, including relevant information and digital literacy skills and research dissemination skills to expert audiences are visible in all the iterations of

the submissions that candidates are required to make and ultimately in the final dissertation and the oral defence, the non-expert audiences are not as explicitly dealt with. SU would like to propose adoption of the practice which exists elsewhere of requiring a 'Lay Summary' as part of all future doctoral dissertations submitted for examination at SU. The details of how this should be handled will have to be discussed with all the faculties but it would round-off the graduate attributes in SU's practices.

5. Contexts and Conditions for Supervision and Assessment of a Doctoral Qualification[12]

5.1 Institutional conditions

Describe and evaluate how your institution meets the conditions for offering Doctoral qualifications as stated in the Standard.

The process followed to gather information about and evidence of the prevailing institutional conditions for supervision and assessment of doctoral qualifications at SU was described earlier. All faculties participated in the exercise of sharing their faculty-level guidelines, procedures and insights. There is a tendency at SU to have minimum requirements, criteria and prescribed procedures, especially in terms of approval processes that must be followed, and faculties then develop their own guidelines and procedures that respect these but also sometimes expand or strengthen the minimum expected. The General Yearbook (Calendar Part 1, 2019) is the primary source of policies, rules and regulations but several other institutional policies and procedures as well as faculty-specific examples of different documents were consulted and referenced in the information gathering process and inform the narrative that follows.

[12] Prepared by Ms Dorothy Stevens on behalf of the Working Group

5.1.1 Conditions of recruitment, selection and enrolment of students in the Doctoral programme, including, where applicable, procedures for the recognition of prior learning that provides evidence of current research competence[13].

Conditions of recruitment, selection and enrolment of students in doctoral programmes across different faculties at SU are broadly similar in some respects but with some differences and some unique practices in place. Marketing of the institution's doctoral programme offering takes place continuously via institutional platforms (websites) and interested candidates are invited to apply to the University. Targeted recruitment of doctoral students takes place through individual supervisors who may have projects available for which they are seeking suitable candidates, at Departmental level where there may be some coordination or at a Faculty level (e.g. through a Graduate School), when thematic proposals are invited from prospective students who then compete for a limited number of PhD scholarships.

In most cases, availability of funding drives the recruitment activity. It is thus also the impression of some academics that because funding to support doctoral candidates is limited in some environments, faculties are passive recipients of applications and are not necessarily able to attract the best applicants in this way. Other modes of recruitment are when individual supervisors try to recruit promising students wherever they might meet them (e.g. at conferences or if they have examined a student's master's thesis), or they may encourage those they have supervised at the Master's level to continue with doctoral studies. The Faculty of Military Science at SU only began offering its doctoral programme recently. The first enrolments for the PhD (Mil) took place in 2015. Presently, it is only advertised within the Department of Defence (DoD) and draws its applicants from this environment.

In discussion with all the faculty representatives, it emerged as critical in most cases for a doctoral candidate to make contact with a prospective supervisor *during* the application

[13] CHE policy prohibits the award of a qualification based wholly on RPL. The requirement that assessment must be 'appropriate to the particular modules' implies that RPL can be applied only in the case of coursework modules, if that applies, but not to research output. In a case of a Professional Degree where coursework is included, the HEQSF limits the credit allocation to 40 per cent of the total credits, meaning that, for a Doctoral qualification, RPL for coursework credit recognition is limited to 40 per cent of the credits.

phase in order to explore possible topics, projects and opportunities rather than just submitting an anonymous application. Selection practices were found to vary between faculties and between departments, even in the same faculty. Although there is a standard set of documents that a doctoral applicant must submit to the University in order to be considered as a candidate for admission to PhD, there are differences amongst faculties as to the range of additional documents that a candidate may be expected to provide after the initial contact and the activities that they are required to perform. Wanting to know more about a candidate and testing their range of knowledge, interests and abilities is generally a function of increasing interest in the applicant.

The selection decision is typically a two-step process with an initial screening phases followed by a formal approval phase. An individual supervisor (or a Head of Department who would then refer it to a potential supervisor) mostly does the initial screening but in some cases, it is handled by a committee at Departmental level. The formal approval phase is usually after the applicant has had to produce something tangible on which they can be considered beyond a CV. In one faculty, an Admissions Committee is used to evaluate and consider a PhD student research proposal that has been guided by a prospective supervisor. Similar structures exist in many of the other Faculties as is elaborated elsewhere in this report. In the FEMS, the Admissions Committee usually weighs up the following issues:

1. Would the proposal lead to a successful PhD study?
2. Is the candidate capable of completing the study successfully?
3. Is the supervisor-elect well suited to supervise the proposed study or is it perhaps necessary to appoint one or more co-supervisors?
4. Are there sufficient resources and is adequate funding available to support the project?

Whilst in practice, the selection decision is made in the Faculties, the administrative path of recommendation for admission to PhD is through each faculty's Faculty Board and thereafter, ratification of the decision by the University Senate formalises the admission. *The subject of the dissertation, the supervisor and, where necessary, co-supervisor(s) of a Doctoral candidate are approved by the relevant faculty board and is communicated by means of the Communications Report to the Executive Committee (Senate) and Senate"* (Calendar Part 1, 2019: 196)

The exact point at which an applicant becomes an enrolled student and the type of enrolment (as a preparatory student, PhD without proposal, PhD with proposal) differs amongst faculties. These different types of enrolment suit different circumstances and reflect different strategies by faculties to navigate the selection process. In some faculties, students who are eligible for admission to PhD but where there may be reasons that they cannot immediate enrol as full-fledged PhD students, may enrol as so-called 'preparatory PhD students'. This status is then used as a time during which the student may be developing their proposal, completing certain supplementary work (attending courses) or enhancing language skills in order to become better prepared for the rigours of full PhD enrolment. Sometimes this status is simply used to bridge the student between the formal enrolment deadlines. 'PhD without proposal' is an enrolment status, which means that the student's admission has been formally approved through the faculty structures and confirmed by the Senate. The student is counted as a full-fledged PhD student (for HEMIS reporting purposes), is eligible to have scholarship funding (e.g. from the NRF) released to him/her and is working on his/her PhD proposal. There is always a deadline, normally within the same academic year by which the proposal must be finalised and successfully defended thereby confirming the student's 'PhD with proposal' admission.

Admission to PhD via Recognition of Prior Learning (RPL) is possible across all the faculties. SU has a Regulation for the Recognition of Prior Learning (RPL) and Credit Accumulation and Transfer (CAT). For admission to doctoral programmes, the normal PhD admission requirements may be waived based on prior learning (but not CAT), subject to the approval of the relevant faculty board. The approval must be recorded in the faculty board's communications to Senate. Candidates seeking admission via RPL must follow the prescribed procedures. An example is the RPL and CAT Procedures for the Faculty of Engineering which is recently updated following revision of the institutional policy. Some faculties are still in the process of updating their guideline documents.

In general, the procedure to be followed entails submitting a request to the relevant faculty for one's application to be handled as a RPL case, supplying the substantiating supporting documentation, awaiting a committee to assess the application and receiving feedback from the relevant Faculty official. As an example of the criteria and substantiation required, the FASS requires evidence that the candidate must have established him/herself within the

specific discipline, must indicate on his/her *curriculum vitae* that he/she has appropriate knowledge and experience and must supply a full research proposal. Based on this information, the application will be considered and if the request is deemed eligible, it will go through the usual formal approval channels.

5.1.2 Policies for adequate supervision (the supervisor or supervisory team comprising experienced supervisor(s) with appropriate Doctoral qualification(s)[14], supervision and research record(s)). This must include coherence between the research expertise of the supervisor(s) and the research topic supervised.

There are no institutional *policies* for defining and ensuring 'adequate supervision' but there are nonetheless faculty-level rules and guidelines in place and practices that contribute towards ensuring that those who supervise are equipped to offer adequate supervision. The consensus is that only those holding a PhD can supervise a PhD. It is also common practice across all of the faculties that peers assess the adequacy of a nominated supervisor to supervise a particular study.

In considering a student for admission to PhD and determining whether the nominated supervisor is sufficiently equipped to supervise the study, additional supervision expertise and or experience may be deemed necessary.

In the FASS, when a supervisor who does not hold a PhD but has a Master's degree and specific expertise to supervise a PhD study, the supervisor with the Master's degree may be appointed as a co-supervisor and another supervisor, with a PhD-degree, will also be appointed. Such cases are the exception rather than the norm and are based on clear, justifiable criteria. For example, in the performing arts there are potential candidates whom would be eligible to supervise a PhD study based on their exceptional creative output, even though they do not hold a PhD.

[14] Exceptions must be based on clear and justifiable criteria.

5.1.3 Policies for the appointment of supervisors, and the adequacy of supervision workloads.

The SU policy relating to the appointment of supervisors emphasises the employment affiliation of the supervisor: "*The supervisor need not be a member of the University's staff. If he is not, there shall however be appointed a co-supervisor who is a member of the University's staff. If the supervisor is a member of the University's staff, either another lecturer at the University or a person external to the University may be appointed co-supervisor"* (Calendar Part 1, 2019: 196). The policy also speaks to the institutional obligation in that when *"the subject of a dissertation has been approved, a supervisor must be appointed for the Doctoral candidate. If necessary, (a) co-supervisor(s) may also be appointed"* (Calendar Part 1, 2019: 196). Some faculties have formalised the criteria for appointment as a supervisor beyond the employment affiliation and described the characteristics that make someone eligible to be a supervisor or co-supervisor. For example, the FMHS Memorandum of Understanding (MoU) between Postgraduate Student and Supervisor(s) and Doctoral Guidelines regulate supervision criteria. The supervisors and co-supervisors are to provide adequate supervision and there must be coherence between the research expertise of the supervisor(s) and the research topic supervised. Supervisors and co- supervisors of doctoral students must have doctorate qualifications or must have obtained by another means a standard of competency in the relevant field of study that is sufficient for this purpose. In cases where the supervisor does not have a Doctoral qualification, the relevant Postgraduate Committee Report should include a strong motivation for the nomination of the supervisor. The FMHS Review Committee assesses the competency of each supervisor in terms of their qualifications, participation in under- and post-graduate teaching, list of publications and papers, national and international status as expert in the field of study, as well as proven postgraduate study supervision guidance. Postdoctoral Research Fellows are also permitted to co-supervise doctoral students. This presents the Postdoctoral Research Fellows with the opportunity to gain supervisory experience.

It is institutional policy that where the supervisor is external to SU the appointment of an internal co-supervisor is mandatory. This also applies to Emeritus Professors and Honorary Professors. Where the supervisor is appointed on a part-time or contractual basis at SU, including extraordinary or honorary positions, provision should be made for continuous support of the candidate by the SU academic department where the PhD is registered.

Different aspects make up academic work. These aspects also differ across faculties and across levels of seniority. The job description of an academic staff member could include postgraduate (Master's and doctoral) supervision, under- and post-graduate teaching, research, publication, grant-writing, fund-raising, administrative duties and social impact responsibilities. There is thus a considerable balancing act required. As for ensuring adequate supervision workloads, individual staff members are responsible for ensuring that they can meet all their commitments but workload is managed as part of the annual work agreement that staff must put in place with their line manager (Heads of Department, Vice-Deans, Directors, etc.).

Some faculties reported that undergraduate teaching responsibilities are more closely managed than postgraduate supervision workload. In part, this is because capacity varies greatly between individual supervisors, which makes the quantification of supervisory workload difficult. The need for guidance of individual doctoral students also varies thus affecting the time they require from their supervisor: those who are more confident, independent and prepared may require less input from their supervisor than others may. The Faculty of Education advanced the suggestion that it is generally accepted at Lecturer/Senior Lecturer level that on average, no more than two PhDs and three Master's students represents a full supervisory workload in that faculty. In the Faculty of Theology, there is an informal understanding than no supervisor will have more than ten students at once (it can be a combination of Master's and doctoral students). In the Faculty of Engineering, each department has its own system of calculating workload, with some making provision for PhD supervision, and some not. Disciplinary differences also play a role. A supervisor in Mathematics for example, could potentially supervise more PhD students than a supervisor in Biochemistry given the subject matter and laboratory-based nature of the latter.

5.1.4 Policies for the roles and responsibilities of students and supervisors, including criteria for student/supervisor interaction

Stellenbosch University publishes a **Code of Conduct** in the General Yearbook (Calendar Part 1, 2019, 210-12). The following has been extracted from this source and is meant as a *reference* to guide the relationship between a student and his/her supervisor to help to

ensure that the relationship is conducive to successful studies at the University. It consists of a set of undertakings or commitments and responsibilities.

Table 7: Undertakings by the student, University and supervisor

1. The student undertakes to stay informed of the infrastructure and the accompanying rules of his/her home academic department (with the requisite inputs from the supervisor).
2. The University undertakes not to select a student for a specific project without confirming beforehand in writing with the faculty concerned that the project may be undertaken. Specifics regarding the responsibility for the required funds and relevant infrastructure shall be indicated.
3. The student shall acquaint him/herself with the guidelines for recording research, as is generally accepted within the discipline concerned, with the aid of the supervisor.
4. The student shall confirm that he possesses, or will acquire, the computer skills to complete the project in a satisfactory manner.
5. Pre-study work, as required by the University, shall be completed in an agreed period of time.
6. A work schedule for each student has to be drawn up within a reasonable time (as a rule within 60 days) in consultation with the supervisor. The schedule shall include target dates for, among others, the submission of a project protocol, the completion of a literature survey, the completion of specific chapters and the submission of progress reports. Times of absence (study leave, university holidays, etc.) shall also be included.
7. During the academic year, regular meetings on fixed dates shall be scheduled between the student and the supervisor.
8. The supervisor shall report annually in writing to the departmental chair/postgraduate coordinator/dean concerned on the student's progress.
9. All submitted work shall be returned to the student by the supervisor within a reasonable time, but not exceeding 60 days for a complete thesis/dissertation.
10. When a project is near completion, the student shall make the necessary submissions in accordance with the requirements for graduation within the discipline concerned. (Refer specifically to the University Almanac as set out in Part 1 of the University Calendar, to ensure that theses/dissertations are finalised and examined in time for the graduation ceremonies in December or April).
11. The student undertakes to produce suitable outputs (such as publications, patents, reports), as arranged with the supervisor. The student shall acquaint him/herself with the customs in the discipline concerned regarding authorship.
12. Where applicable, the student and the supervisor shall acquaint themselves with the requirements regarding intellectual property protection, the University IP Policy and working with the Technology Transfer Office (Innovus) in the environment concerned.

Table 7 continued: Undertakings by the student, University and supervisor

Responsibilities of the supervisor	**Responsibilities of the student**
1. To familiarise him/herself with procedures and regulations. 2. To establish a stimulating research environment. 3. To establish a relationship with the student. 4. To give advice about project choice and planning. 5. To discuss intellectual property protection in consultation with the Technology Transfer Office (Innovus) and publications. 6. To ensure that facilities, where relevant, are available. 7. To provide research training. 8. To consult with the student, to monitor progress continually and to provide structured feedback. 9. To be aware of the student's situation and needs. 10. To arrange for study guidance during periods of absence.	1. To familiarise him/herself with the University regulations regarding postgraduate studies and to abide by these regulations. 2. To undertake research with dedication. 3. To develop initiative and independence. 4. To keep complete records of research results. 5. To establish a relationship with the supervisor. 6. To gain feedback by means of reports and seminars and to act on it. 7. To do a literature survey and to keep abreast of new literature. 8. To benefit from the research environment. 9. To inform the supervisor of non-academic problems. 10. To prepare and write the thesis or the dissertation. 11. To prepare and write publications, reports and patents, considering possible patent protection, requirements of confidentiality and where applicable, timeous engagement with the Technology Transfer Office (Innovus).

The roles and responsibilities of students and supervisors and the criteria for student/supervisor interaction are thus explicit in the *Code of Conduct Guiding the Relationship between the Supervisor and Student*. However, because the code has until recently only served as a reference for students and supervisors, and not all supervisors and postgraduate (doctoral) students are familiar with it, it has happened that students could enrol for doctoral studies without clarifying roles and responsibilities with their supervisor or agreeing criteria for their interaction.

In 2018, the Postgraduate Office (PGO) in the Division for Research Development (DRD) proposed that a Memorandum of Understanding (MoU) between postgraduate student and supervisor(s) be made mandatory for all postgraduate students at SU. This recommendation was accepted and ratified by SU Senate in March 2019. A template MoU is available for Faculties to use. During consultation with faculties as part of the National Review Institutional

discussions, it was confirmed that not all faculties have a formal requirement for students and supervisors to clarify roles and responsibilities and agree criteria for their interaction in an agreement. Where faculties do have a requirement for its supervisors to have such an agreement in place for each student under his/her supervision, the practice is not monitored in all cases. Some faculties make no provision for supervisors to generate an agreement with their students, whilst others like the FMHS have their own faculty-approved MoU template. The Graduate School in the FASS have a standard student-supervisor agreement in place for their doctoral scholarship students and the expected frequency of interaction is once a month. The agreement is a faculty-level requirement, but it is only monitored for the FASS Graduate School students. The Faculty of Engineering expect student and supervisors to interact weekly but do not expect a formal MoU to be in place. The Faculty of Science expect a MoU but there is not a standard document and the practice of implementation is not monitored. After the consultations, it is clear that all the faculties will be reviewing their practice in terms of requiring a MoU (the Senate decision of March 2019 makes it mandatory) and many will be revisiting their faculty-level template to ensure alignment with or adoption of the institutional example.

5.1.5 Provision for a developmental role for new/emerging supervisors, in the form of co-supervision under guidance from experienced supervisors

Whilst there is now widespread understanding that not all who do research can supervise and that although being active in research is essential to effective supervision, research activity alone is not enough. (Taylor, 2019). Despite this, the institutional tradition at SU remains that there is no institutionally endorsed supervision training available nor are novice supervisors required to undergo supervision training. The only institutional quality check is that novice supervisors may not generally supervise their first doctoral student alone. The consensus across all the faculties is that novice supervisors must co-supervise under the guidance of an experienced supervisor before they may take on a main supervisor role. This guidance amounts to a form of mentoring. Taking this approach in isolation can be criticised if one considers that *"the mentored learning process is not quality assured formally by anyone anywhere and the mentor is not taught how to mentor"* (Petersen, 2013). Nonetheless, the implementation of this norm takes place at Faculty Board where supervisors are vetted, and

formally appointed and inexperienced supervisors are paired with more experienced colleagues.

Of all the faculties at SU there are only two who have a formal requirement for novice supervisors to undergo supervision training. Perhaps unsurprisingly, given its concentration of academic interest in the pedagogy of supervision, the Faculty of Education have a formal requirement in place for novice supervisors to attend a suitable training opportunity for postgraduate supervision within the first year of their appointment as a supervisor. Encouragingly, the FMHS have recently taken a decision that all newly appointed novice supervisors in the faculty are required to attend an accredited Supervisor Training Course within three months of taking up the position. The Faculty of Law are considering investigating more formal supervisor development opportunities for the future. The Faculty of Theology indicated that most of its supervisors attend some form of supervisor training, but it is not mandatory. Postdoctoral Research Fellows represent a valuable source of expertise and capacity in some faculties at SU.

Elsewhere, newly appointed academic staff are encouraged to sign up for the Early Career Academic Development (ECAD) programme offered by the Division for Research Development (DRD). This programme includes pairing a novice supervisor who is in the early stages of their academic career with a carefully selected mentor (not in a co-supervision relationship as described above) who is not their line-manager and who can be in a different department, to mentor them. In addition to making provision for career development, this programme provides access to supervision training, research start-up funding and other developmental opportunities. There are currently around 100 mentees on the ECAD programme. This is an example of an above-threshold practice in terms of its recognition that novice supervisors need a holistic induction programme to prepare them for academic work.

The Centre for Higher and Adult Education (CHAE) and the African Doctoral Academy (ADA) at SU both offer courses on doctoral supervision training. More recently, the DIES/CREST Online Training Course for Supervisors of Doctoral Candidates at African Universities has emerged as a flexible study opportunity to academic staff members, particularly novice doctoral supervisors, who are interested to advance their knowledge, skills and networks in doctoral supervision. All of these SU based opportunities are available to the mentees on the ECAD programme but also to any other academics who wish to enrich their own supervisory

practice. The biggest challenge is unfortunately the cost of attendance. Some faculties sponsor attendance but not all are able to afford to do so.

5.1.6 Adequate infrastructure for hosting a Doctoral programme in the relevant field(s) of study (library resources, and laboratories and specialised equipment, if applicable)[15]

It can confidently be said that SU has excellent infrastructure for hosting its Doctoral programmes. Land, buildings and fixed infrastructure are adequate. However, scientific equipment that supports doctoral research and which often requires specialised spaces (in terms of temperature control, power supply, lighting, etc.) sometimes requires the institution to repurpose existing spaces or acquire new land. These arrangements require significant institutional investment. As the national funding climate deteriorates and the institutional budget comes under pressure from competing demands, the institution's ability to adjust its buildings and/or acquire land decreases. The national electricity shortage and the disruption to the country caused by load-shedding has a negative impact on all research. Interruption of power to laboratories where sample material is sensitive to changed conditions, damage to sensitive and expensive equipment that disrupts machine time, data loss and interrupted access to electronic resources all contribute to delays, which can also negatively affect doctoral research progress. To counter this risk, the institution has had to invest in emergency power supplies at great cost to the University.

The Stellenbosch University Library is the main library of the SU Library and Information Service and is situated on the Stellenbosch campus. There are a further five branch libraries, as well as several academic departments on the Stellenbosch campus who have Departmental Libraries. All faculties commented on the excellent library collections and resources at their disposal, either through the physical libraries or via the digital collections. The Faculty of Military Science pointed out that it has a library at the Military Academy, which is a Department of Defence (DoD) facility and supposedly stocked and kept up to date by the DoD. However, the reality is that the library is poorly stocked with almost no inflow of books or

[15] Contribution from Ms Hilda Kruger is gratefully acknowledged.

journals. Fortunately, access to the Stellenbosch University Library network ensures that Military Science students have good access to material, which largely mitigates the barrenness of the Military Academy Library.

Many of the services in support of doctoral research be these through the Library, in laboratories or through specialised research facilities, depend on adequate IT infrastructure. SU is well-supported in this regard. There is a wide range of Information and Communications Technology (ICT) services in support of doctoral research at SU that spans the doctoral research lifecycle from inception to completion. The Library's training programme for postgraduates and researchers is also structured to provide support throughout the research journey.

To complete the ethics review process, SU researchers use the Infonetica Ethics Review Manager application – *'powerful software used to manage the full life cycle of all ethics applications from researcher to reviewer'*. Infonetica Ethics RM is available 24/7, and records are kept of everything done in the system.

To collect data, doctoral students have multiple institutional solutions at their disposal, including REDCap (Research Electronic Data Capture) – *'a secure web application for building and managing online surveys and databases'*. The solution is hosted on institutional infrastructure and requires two-factor authentication for additional security. Researchers can use the REDCap mobile app to collect data by way of an iPhone, iPad, or Android phone or tablet.

To store and share research-related information and data securely with peers and/or supervisors – whether affiliated with SU or not – during the active research phase, doctoral students can create instances of Microsoft Teams. Microsoft Teams is a cloud-based Unified Communications and Collaboration (UCC) solution that provides functionalities such as group and private messaging, voice and video meetings, collaborative authoring, file sharing, task management, and more.

Every doctoral student also has access to five terabyte (5TB) of cloud storage space on OneDrive. This means doctoral students have ample space to store documents that will be available from anywhere, anytime, on any device with an internet connection.

Through its agreement with Microsoft, SU students have access to a wide range of MS Office productivity suite tools. In addition, SU has institutional or group licenses for a number of software solutions, including Mathematica, Statistica, and SPSS.

SU hosts multiple High-Performance Computing clusters (HPCs). All users are granted 1000 CPU hours to test the system and determine its usefulness. Once the 1000 hour quota is depleted, users are required to pay a registration fee to gain unlimited access. Free users are granted 1000 CPU hours and a 10GB disk quota. Paid users are granted unlimited CPU and a 1TB disk quota. The SU HPC team also provides guidance to students who choose to make use of the CSIR's Centre for High Performance Computing.

Through the main library, students can access a wide range of digital information literacy training and other services. There is also access to an extensive collection of E-books, E-databases, E-journals, E-reference works, and E-newspapers.

SU students have access to Mendeley - a reference management tool that enables students to manage citations and PDFs using a desktop client or through an account on Mendeley web. Mendeley also includes plug-ins for Word or OpenOffice, so students can easily create citations and/or bibliographies as they write. It also allows students to organise their research, collaborate with others online, and discover the latest research.

The Research Commons is a communal space in the main library on the Stellenbosch campus, which is dedicated to Master's and Doctoral students. It is equipped with computers, workstations and seminar rooms, as well as areas for discussion and relaxation. The Research Commons provides an environment conducive to research and offers services that directly support the research endeavours of postgraduate students and researchers.

In 2019, SU launched SUNScholarData - an institutional research data repository which can be used for the registration, archival storage, sharing and dissemination of research data produced or collected in relation to research conducted under the auspices of SU. SUNScholarData has a public interface, which can be used for finding content as well as a private user accounts that can be used by SU users in order to upload, share or publish their research data. In addition to this, SU researchers can also use SUNScholarData in order to collaborate with researchers from other institutions whilst working on their research projects.

SUNScholarData is powered by Figshare which is a web-based interface designed for research data management and research data dissemination.

Doctoral dissertations are archived in SUNScholar - a leading digital archive for the preservation and promotion of the research output of Stellenbosch University. SUNScholar is an interoperable open access system that is hosted and managed by the University library.

The Central Analytical Facilities (CAF) at SU is in a unique position nationally to provide high quality, hands-on training on the use and functioning of a range of high-end analytical equipment not readily available at all universities in South Africa. Equipment within the CAF is clustered into nine units as follows:

1. CT Scanner
2. DNA Sequencer
3. Fluorescense microscopy
4. Human movement analysis
5. ICP-MS & XRF
6. Mass Spectrometry
7. Nuclear Magnetic Resonance (NMR)
8. Electron Microscopy (EM)
9. Vibrational Spectroscopy (VS)

Apart from the CAF, which is organised around large, expensive equipment, there are many individual laboratories where the infrastructure is also of an exceptional standard and supports extensive postgraduate research.

Despite the great infrastructure at SU's disposal, there are some challenges. The ongoing funding of research equipment, the expense of maintaining experimental farms, loss of journal subscriptions, ageing infrastructure without access to resources to replace, inadequate funds to cover journal fees for publishing and the high cost of software license fees are all examples of infrastructural challenges which can place the offering of doctoral programmes at risk, or at least hamper students' progress. Beyond the Research Commons, SU does not have a dedicated space where doctoral and other postgraduate students could

get together in a peer-group environment and interact on a social and academic level. Whilst in some faculties and particularly within research groups (often clustering around specialisation areas) there is strong peer interaction allowing for peer-to-peer learning to take place, in other instances, doctoral student can become isolated and lonely. The expanding need around postgraduate skills development support in general, also raises the need for at least one dedicated training venue on the Stellenbosch campus. There is thus a need for more postgraduate spaces for students to congregate and facilities to offer the Postgraduate Office's Skills Development programme.

Another form of risk to the offering of Doctoral programmes exists when projects are approved without ensuring that access to the equipment or services required is available, or if a project changes and requires additional equipment or resources that were not considered, and which may be unavailable.

5.1.7 Adequate provision for unusual circumstances, including, but not limited to: apparent conflicts of interest, student leave, extension as a consequence of indisposition, suspension of studies, exceeding the maximum period of enrolment, termination of enrolment

The Stellenbosch University Calendar Part 1, General Policies and Rules (2019) contains references to a range of policies, regulations and procedures that affect all students. The specific section on postgraduate qualifications makes provision for changing from one subject/field of study to another (p 176, par. 1.1.2 and par. 1.1.3) and conversion or upgrading from Master's to Doctorate (p 177, 1.2). Part 6 of the section on postgraduate qualifications on the doctorate (= THE DEGREE OF DOCTOR) (p 191 – 210) covers some unusual circumstances in the form of cases of dispute amongst examiners and the handling of sensitive dissertations and theses. Other unusual circumstances like interruption of studies (p 214, par. 10), extension (p 213, par. 8.3.1.1 and par. 8.3.2), exceeding the maximum period of enrolment (p 213, par. 8.3.1.2 and par. 8.3.2.) and termination of enrolment (p 213, par. 8.3.1.2 and par. 8.3.2.2) are also covered.

Provision for student leave is currently under review (as an extension of the current provision for interruption of studies). There is also an SU Policy on Conflict of Interest that makes broad reference to students and their responsibilities. Different faculties also have their own specific guidelines to address conflicts of interest.

The phenomenon of joint degrees presented in collaboration with international partner universities also present some unusual circumstances. Depending on the national regulations of the partner institutions, there are some instances that require that the supervisor be a member of the joint examination panel. In such cases, SU supervisors and SU co-supervisors may be part of joint examination panels. These exceptions must be negotiated as part of the conclusion of agreements with international partner universities and the appointment of the panels of examiners must be done via SU structures in the usual manner. These agreements invariably affect the normal PhD process, and this is most noticeable during the examination phase and is discussed further under 5.4.6.

5.1.8 Policy and procedures for the research process: provisional admission; assessment and acceptance of the research proposal; approval of research design and methodology; ethical clearance

As discussed earlier, different enrolment statuses exist of which 'PhD without proposal' and 'PhD with proposal' are both formally approved statuses. With reference to the research process, consisting of provisional admission; assessment and acceptance of the research proposal; approval of research design and methodology; ethics clearance; data-collection; data-analysis; and so forth, different faculties handle the change from provisional admission to full-admission differently. For example, the order in which things happen is not the same for all. The respective input of the student and the supervisor into the project definition and selection of methodology shows disciplinary differences. Ethics clearance may not be required for all studies. At SU, there is a diversity of procedures in place to guide the research process, but each faculty has its own process. Some environments focus only on the academic merit of a proposed study whilst most other environments also take the resources required into consideration when considering approval of a proposed study.

Before a candidate can register fully for a PhD in the Faculty of Engineering, a full research proposal, and corresponding Executive Summary, has to be approved by a Candidature Panel.

Table 8: PhD Proposal Review in the Faculty of Engineering

Candidature Panel	The Vice-Dean (Research) in the faculty must approve the proposed Candidature Panel.

	The candidature panel comprises of the proposed/actual supervisor(s) and at least two expert and experienced people, one of whom must come from outside the home department, with at least two members holding PhDs.
Full Research Proposal	This is a document, typically 20 to 30 pages in length, set up in consultation with the supervisor(s). It must contain at least the following information: 1. A descriptive title. 2. A comprehensive exposition of the literature relevant to the proposed PhD study, as well as a synthesis and assessment of the most important themes found in the literature. 3. A clear explanation of the objectives of the study, with particular reference to how it corresponds to already published work and what the expected original contribution of the study will be. 4. A description of the research methodology that will achieve the stated objectives. 5. A broad time framework for the study, typically in terms of 4 to 10 activities, and a brief description of the main focus of each activity. 6. A clear explanation of the infrastructure and equipment (including software, equipment, laboratories, operating costs, etc.) that will be required to complete the study, as well as arrangements that have been made to ensure that the infrastructure will indeed be available. 7. A critical self-evaluation of the student's progress to date.
Executive Summary	This consists of the Research Project Title and the following: 1. Introduction – short background (<100 words) to the research project 2. Project Details a. Short description of the project (<100 words) b. Project Goals (bullet list, <100 words) c. Timeframe (typically 4 to 10 activities, with completion dates, <100 words). 3. Original Contributions - clearly indicate the unique research contributions anticipated in the project, (bullet list, <200 words).
Criteria for evaluation of a Research Proposal	Confirm that: 1. The candidate has satisfactorily demonstrated background knowledge appropriate for the study.

	2. The candidate has satisfactorily demonstrated research capabilities appropriate for the study. 3. Satisfactory expected original contributions are explained in the research proposal. 4. A satisfactory exposition of the literature relevant to the PhD studies, as well as a synthesis and evaluation of the most important themes found in the literature, is given in the research proposal. 5. A satisfactory explanation of the study's objectives, as well as how it relates to previously published work and the expected original contribution of the study, is given in the research proposal. 6. The research methodology, aligned with study's objectives, in the research proposal is satisfactory. 7. The research proposal gives a broad time schedule for the study (typically in terms of 4 to 10 activities, with a short description of the focus of each) that is reasonable. 8. The research proposal gives a clear explanation of the infrastructure (software, equipment, laboratories, operating costs, etc.) necessary to complete the study, as well as reasonable arrangements to provide it. 9. The critical self-evaluation by the student of progress made to date and of his/her research capabilities given in the research proposal is satisfactory. 10. The supervisor and co-supervisors (if applicable) have expertise appropriate for the study. 11. The Executive Summary is an accurate summary of the research proposal.

In the FMHS, an extensive protocol review process is followed before a study is approved. The review process for doctoral protocols in the FMHS is as follows:

Table 9: PhD Proposal Review in the Faculty of Medicine and Health Sciences

Head of Department / Supervisor / Departmental Postgraduate Coordinator	• Selects and organised the Review Committee. • Decides who will Chair the meeting. • Student's CV, External supervisor(s) CV, Synopsis and Proposal are sent to the Review Committee Panel ahead of time.

	• If there are existing Ethics Approval Certificates, these should also be submitted to the Review Committee Panel. • Checklist for the Evaluation of Doctoral Protocols (Form A3) to be completed by HOD and Supervisor **BEFORE** the Review Committee meeting.
Review Committee Panel composition	• Convener/Chair • Health Research Ethics Committee (HREC) representative (member list) • Committee for Postgraduate Research (CPR) representative • Other domain experts
Post-Review Committee Meeting process	• Student makes recommended changes before submitting final version to the Chair. • Chair verifies that the recommended revisions are made correctly. • Chair ensures that the reports from members are incorporated in the final report. • Chair completes the remaining items on the Checklist for the Evaluation of Doctoral Protocols (Form A3) to be submitted with the final report to the Doctoral Office. • Student submits their documents to the Doctoral Office.

Other faculties at SU all have approval processes but the two outlined above are examples of above threshold practice both in terms of being thorough and well-documented. The faculties of Science and AgriSciences where the research projects being done are often resource intensive and even expensive could potentially improve their research project approval practices along the lines of those in especially Engineering in order to more thoroughly focus on the cost and available expertise considerations.

As discussed earlier in this report, ethical awareness is developed throughout the PhD. SU first introduced guidelines on ethical aspects of scholarly and scientific research in 1996. A

more comprehensive policy on the responsible conduct of research was approved in 2009. A revised version of this policy was approved in 2013. SU also appointed a Research Integrity Officer in 2016.

"SU is of the view that good science assumes ethical accountability according to internationally acceptable norms and that the responsibility for this lies with every person conducting research under the auspices of SU" (Policy for Responsible Research Conduct at Stellenbosch University, 2013, p.1). The policy sets out the broad categories of research (involving human participants, animals, environmental and bio-safety concerns and any other ethical concerns) that require ethics clearance. The policy places the onus of responsibility for obtaining such ethics clearance on all researchers (including students). Furthermore, there is an expectation that established researchers must provide leadership and acceptable standards for mentorship and supervision in respect of research conduct.

SU has five Research Ethics Review Committees that function under the Senate Research Ethics Committee (SREC):

1. Research Ethics Committee: Humanities (REC: Humanities)
2. Health Research Ethics Committee 1
3. Health Research Ethics Committee 2
4. Research Ethics Committee: Animal Care and Use (REC: ACU)
5. Research Ethics Committee: Biosafety and Environmental Ethics (REC: BEE)

Ethics applications, review and approvals are all processed online via Infonetica. The respective committees review applications for ethics clearance, provide ethics approval and monitor research. The composition and functioning of these committees are set out in a Standard Operating Procedures document such as the Research Ethics Committee: Biosafety And Environmental Ethics Standard Operating Procedures.

Other policies at SU that support and promote responsible research conduct are the Policy on Plagiarism in Support of Academic Integrity, the Commercial Exploitation of Intellectual Property Policy and the Conflict of Interest policy.

5.1.9 Policies governing the form(s) that are the subject(s) of final assessment appropriate for diverse types of research output: thesis, portfolio of research work, artefact(s), creative work or performance, clinical practice or other output. Policies should include criteria to ensure internal coherence and equivalence between different forms or combinations thereof

Every candidate for the degree of Doctor is required to produce a dissertation. A dissertation is the report on research done under supervision on one central and coherent research problem. A dissertation as a whole is examined as a single work. Coursework may be required as part of a doctoral study programme but is not credit-bearing and is therefore not taken into account during the examining of the dissertation and the determining of the final result.

The Calendar Part 1, General Policies and Rules (2019, par 6.9) sets out the regulations that are applicable to all dissertations in all faculties of SU. In general, there are four formats for doctoral dissertations:

1. A monograph consisting of an introduction, followed by a number of chapters, followed by a summary of the research results that indicate the scientific contribution of the study.
2. A manuscript consisting of an introduction, followed by either:
    a. a number of published and/or unpublished articles or
    b. a combination of chapters and published and/or unpublished articles, followed by a summary of the research results that indicates the scientific contribution of the study, provided that only articles that originated after the student registered for the Doctoral study may be used (with the exception of the Faculty of Medicine and Health Sciences), or, if a Master's study is converted to a Doctoral study, only articles that originated after the student registered for that particular Master's degree.
3. A manuscript consisting of an introduction, followed by either:
    a. a number of chapters, or
    b. a combination of chapters and published and/or unpublished articles, of which one or more of the sub-parts of the integrated and cohesive whole may take the form of a creative output, followed by a summary of the research results that indicate the scientific contribution of the study, provided that only articles and creative outputs that originated after the student registered for the Doctoral study may be

used, or, if a Master's study is converted to a Doctoral study, only articles that originated after the student registered for that particular Master's degree.

4. In the case of senior Doctorates, a manuscript consisting of an introduction, followed by a number of published articles, followed by a summary of the research results that indicate the scientific contribution of the study.

All the Faculties with the exception of the Faculty of Law at SU allow for doctoral candidates to submit a dissertation in the form of a collection of publications. Most faculties are guided by the General Yearbook's provisions in this regard, but some faculties have set up faculty-specific guidelines that elaborate on the requirements.

Three alternate versions of a dissertation for the doctoral degree are allowed to be submitted in the FMHS:

1. Conventional format dissertation
2. Publication format dissertation, and
3. Hybrid format dissertation

The focus and quality of the research and of the reporting remain the most important aspects in all formats and these formats are treated equally. The requirements for each dissertation format is summarised in the table below.

Table 10: Alternate doctoral dissertation formats in the Faculty of Medicine and Health Sciences

<table>
<tr><td>Conventional</td><td>Introduction</td><td colspan="2">Chapters</td><td>Discussion</td><td>Conclusion</td></tr>
<tr><td>Publication</td><td>Introduction</td><td colspan="2">At least 4 x 1st authored peer-reviewed published / accepted for publication articles</td><td>Discussion</td><td>Conclusion</td></tr>
<tr><td>Hybrid 1</td><td>Introduction</td><td>At least 2 x 1st authored peer-reviewed / accepted for publication articles</td><td>At least 2 x 1st authored submission-ready / submitted articles</td><td>Discussion</td><td>Conclusion</td></tr>
</table>

Hybrid 2	Introduction	At least 2 x 1st authored peer-reviewed / accepted for publication articles	At least 2 x chapters	Discussion	Conclusion
Hybrid 3	Introduction	At least 2 x 1st authored peer-reviewed / accepted for publication articles	Combination of 1st authored submission-ready/ submitted articles (minimum 2) and chapters	Discussion	Conclusion

The document that is submitted for examination in the publication or hybrid options consists of a bound (if print) or consolidated document (e-dissertation) that has an introduction, chapters, a discussion and conclusion. The mandatory first four pages and the relevant declarations as described in the General Yearbook (and in 5.3.2 of this report) complete the dissertation.

In the FASS, the decision to submit a collection of scholarly articles for the purpose of the PhD must be approved and planned in advance. At least three articles are required. Although published and unpublished articles may be included in a dissertation, the candidate should endeavour preferably to include already published articles, articles in print or articles already accepted for publication. Only those publications for which the candidate is the only or first author or the primary researcher may be included.

The plan/strategy for the way in which the articles are to be assimilated in/integrated into the dissertation must be drawn up by the candidate in consultation with the supervisor. The plan/strategy forms part of the candidate's research proposal. The FASS' Admissions Committee must be convinced that the study/project has academic merit, is practically feasibility and is capable eventually of being examined as a dissertation. The candidate must thus indicate:

1. the rationale for including the articles as a part of the dissertation;
2. how the envisaged articles belong within the research problem and focus of the dissertation;
3. how the articles will be integrated in the overall structure and/or chapter division of the dissertation to form a coherent whole;
4. in a short paragraph, the envisaged content of each article and also the kind of contribution the candidate will make to each article.

The FASS have identified the need to develop their guidelines for dissertations that have a creative output component. A student in the faculty is preparing the first dissertation of this kind, which will be submitted for examination in the near future.

5.2 Progress and review

Describe and evaluate how your institution addresses the requirements related to the progress and review of the performance of Doctoral students as stated in the Standard.

5.2.1 Institutional mechanism to monitor progression in studies: formal progression procedures that will normally be used to check the level of knowledge and skills or informally through discussions with the candidate's supervisor. This includes written submission and oral presentation

Progression milestones should be agreed between a supervisor(s) and the doctoral student. The typical formal points at which progression in doctoral studies is assessed or monitored is at the proposal defence and during annual student progress reporting, where such reporting is formalised. Informal progress monitoring and assessment takes place on a continuous basis during the interaction between a supervisor(s) and the doctoral student, whether in person or virtually, throughout the doctoral journey. Some progression milestones are generic (for examples, conducting a thorough literature review, selecting an appropriate methodology, etc.) whilst others may be more specific and disciplinary-driven (for example, mastering an analytical technique). A doctoral student's level of knowledge and skills is tested through

written submissions (e.g. submitting drafts of the dissertation chapters) and presenting at seminars or other forums.

According to Par 6.9.7 in the Calendar Part 1, General Policies and Rules, doctoral students must report **bi-annually** on their research progress to their supervisor, "*otherwise the approval of the topic for the dissertation and of the study for the degree of Doctor may be suspended"* (2019: 200).

5.2.2 Policies governing the monitoring of students' progress and how records of monitoring are kept and applied to inform students of progress and to assist them accordingly

Paragraph 5.3 regarding **Annual reporting** of the Calendar, Part 1 2019, p 180 states the requirements for annual reporting that are applicable to Master's students. These requirements "*are also applicable mutatis mutandis to Doctoral students"* (2019: 195).

A doctoral candidate is thus obliged to keep his/her supervisor informed of how his/her research is progressing. If the supervisor deems it necessary, such as in cases where sustained contact with the student is not possible, he/she may require one or more written reports from the student. Academic departments are required to report **annually** to their faculty on the progress of students engaged in research for degree purposes. "*Where a department's annual report shows that a student is not making satisfactory progress or has failed to report on his progress or lack thereof, the dean shall in a formal letter remind such student of his above-said obligation" (*Calendar, Part 1 2019, p 180).

Additional provisions relating to progress of doctoral students appear in par. 8.3 of the Calendar (2019: 213). SU expects students to complete a doctoral dissertation within three years. Each faculty through its Faculty Board may decide on the maximum number of years that a Doctoral candidate may be administratively admitted for continued registration. This number of years is recommended to Senate via the Programme Advisory Committee (PAC) and Academic Planning Committee (APC) and is included in each faculty's calendar.

Each Faculty Board may set conditions, which must be included in the respective faculty Calendar part, in terms of which Doctoral candidates

1. may apply for continued registration after exceeding the maximum number of years for continued registration;

2. will not be allowed to continue their studies, even though the maximum number of years for continued registration are not yet exceeded. If the maximum number of years for continued registration is not exceeded, the Faculty Board may recommend to the EC(S) and Senate why a Doctoral candidate's studies must be terminated.
3. if the maximum number of years for continued registration is exceeded, the Faculty Board must report annually the names of the candidates that are admitted to continued registration in the Communications Report to the EC(S) and Senate. This report must serve at the first round of meetings of the subsequent academic year, after the grace period has expired.
4. registration for Doctoral studies is terminated if the Faculty does not approve continued registration.

The above provisions translate into different practices across the faculties. All of the faculties at SU have Faculty Committee or Research Committee structures that monitor progress and are the custodians of such records, in conjunction with the Registrar's Office. In the Faculties of AgriSciences and Science, a form is circulated annually amongst supervisors of doctoral students requesting of them to indicate progress and whether a student may continue with his/her registration in the following year. In the case of the Faculty of Law, the student must submit a progress report. There is no specific template for this, but the Faculty of Law does prescribe what the student must report on. The Faculty of Education requires bi-annual progress monitoring and reporting and stores the documentation electronically (SharePoint). The Graduate School in the FEMS also has a good progress report template in use.

The primary responsibility for communicating with a doctoral student regarding his/her progress, or lack thereof belongs to the supervisor(s). Where the student is having trouble with his/her doctoral project, it is the supervisor(s) responsibility to assist him/her to address the shortcomings. The nature of some of the reported shortcomings are however not always a function of the project and more of the doctoral student's preparation. Examples are academic writing skills, lack of language proficiency, as well as some softer skills like poor time management, lack of motivation and commitment. Whilst some of these aspects could have been picked up during screening and selection, they sometimes only emerge when the student is actually engaging with the study.

There is no single, institutional solution or source of assistance available to doctoral students to address shortcomings. Specialised interventions, for example accessing particular equipment and receiving training on techniques would be more in the domain of the supervisor or other technical specialists. There are however a wide range of excellent sources of assistance available to address needs that are more generic. These services are provided amongst others by the Language Centre, Library and Information Service (LIS), the Centre for Statistical Consultation (CSC), the African Doctoral Academy (ADA) and the Postgraduate Skills Development Programme in the Postgraduate Office. An overview of the host of services is encapsulated in Figure 5. Find a list of SU's services with links to the services here.

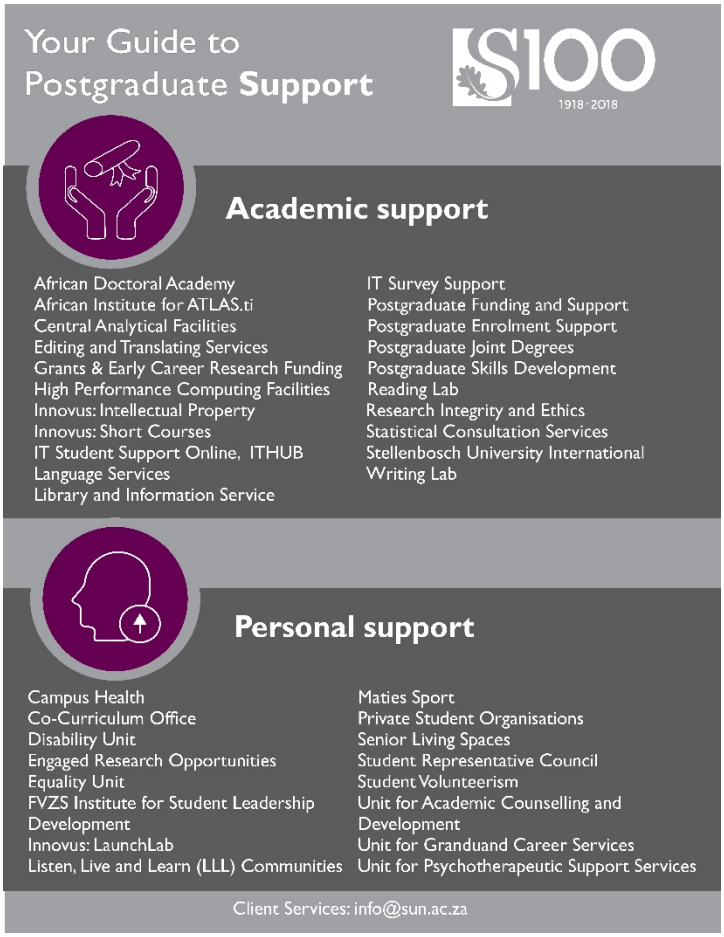


Figure 5: Institutional support available to SU Doctoral candidates

In principle, by enrolling as a student and through a supervisor agreeing to take on a doctoral student, there is an implicit expectation that the parties will adhere to the institutional code of conduct. In practice, this code of conduct is not sufficiently prominent and not all role-players are adhering to it. Some faculties have implemented student-supervisor agreements

or memoranda of understanding as a means for supervisors and students to manage their relationship, along with the project that gives effect to the code of conduct. These agreements would thus be the place where doctoral students and their supervisors should be/are held accountable for meeting their respective obligations to one another. In practice, even though there are some excellent examples of faculty based MoUs and there is broad agreement that such an agreement should be available for each enrolled doctoral student, this is not yet the case for all. Corrective institutional action has been taken to address this situation and is addressed elsewhere in this report (section 5.1.3).

5.3 Submission

Describe and evaluate how your institution addresses the requirements related to the submission of Doctoral work as stated in the Standard.

5.3.1 Policies on the minimum, typical and maximum duration of the Doctoral programme

The minimum duration of all doctoral programmes offered at SU and after which the doctoral degree may be awarded is two years. It is important to note that SU only offers full-time doctoral programmes. However, many doctoral students, especially in some faculties are in full-time employment and are thus pursuing their doctoral studies on a part-time basis. The FMHS, FASS and Law allow a maximum duration of five years. The Faculty of Science regard completion in three years as ideal but typical completion times are between four and five years. In Engineering and in the FEMS all doctoral students are expected to submit their dissertation after three years. In FEMS, candidates who have not yet submitted are informed of a deadline date in year 4 by which they must submit their dissertation, otherwise their study will be terminated.

5.3.2 Policies on the submission process: the intention to submit, the research proposal, the regulations on submission procedures, and the thesis submission

Students shall not submit their dissertation for examination until they have been granted permission to do so from the supervisor. Written or oral permission shall not necessarily imply that the supervisor approves the dissertation.

Students may submit their dissertation for examination at any time during the academic year, but there are deadline submission dates if a student aims to graduate at a specific graduation ceremony. Most of the faculties have good guidelines in place that explain the steps that need to be followed. In the FASS, a candidate must complete an Intention to submit form and submit it to the Postgraduate Examination Office. This document triggers the appointment of examiners. Similarly, in the FMHS, students must also signal their intention to submit at least six months before the intended date of graduation to the Doctoral Office.

The first four pages of a student's dissertation have specific requirements. The University's crest must appear on the title page of the dissertation as a watermark. The candidate must include the following note on the lower half of the second page:

The year reflects the year of electronic submission. This note confirms the earlier written assignment of the PhD candidate's copyright work to the university as required by the IP Rights Act, Act 2008 of 2010 and the institution's intellectual property policy. The student must declare the nature and scope of his/her contribution to the work and that of others. In this manner, any significant material assistance by others towards the completion of the dissertation is declared. The name(s) of the supervisor/co-supervisor(s) and the year and month in which the degree will be awarded, e.g. either December or March also appears within the first four pages. An additional declaration confirms that the dissertation has not previously been submitted for obtaining a qualification.

The Postgraduate Office at SU also provides some resources to doctoral students that they may consult when preparing the layout and format of their dissertation. For example, the Generic guidelines for thesis and dissertation layout gives advice that complies with the requirements in the General Yearbook but also makes some suggestions for the doctoral student to consider when making decisions about their own dissertation. Students are also pointed to SUNScholar, the digital research archive of the University to view examples of completed dissertations. After examination, all SU graduates are required to deposit their dissertations online before graduation.

5.3.3 Policies on the form and substance of the submission, and the evaluation of originality, coherence and contribution to knowledge in the context of diverse types of research production

Whatever format a student's dissertation takes, it remains the responsibility of the supervisor(s) to verify that the content and editorial care of a student's dissertation is of acceptable quality. This includes an evaluation of originality, coherence and contribution to knowledge. These considerations would be critical for the supervisor when making the decision to grant permission to a student to submit his/her dissertation for examination. Originality, coherence and contribution to knowledge are amongst the criteria which examiners are asked to assess, when they receive a dissertation for examination.

A dissertation in the FEMS must also include a written declaration by a professional language editor (preferably accredited by a professional body such as The Professional Editors' Guild) to confirm that both the language and technical aspects of the dissertation have been edited. Should the services of an accredited editor not be used, the supervisor must approve the editor whose services are being used.

5.3.4 Policies on any additional requirements over and above the submission of research work, such as peer-reviewed publication, if applicable

No faculties at SU have any formal additional requirements over and above the submission of research work, such as peer-reviewed publication in order for a doctoral student to proceed to examination unless there was a decision early on in the process that the student would be pursuing his/her PhD by publication. Where this is the case, then the requirement is that the manuscript must contain a few published and/or unpublished articles and that these should be produced after enrolment for the PhD. Some faculties at SU apply additional criteria to the articles. Raising the minimum standard requirement to at least a first-authored, submitted for publication article to a reputable, accredited journal would be an improvement in practices.

5.3.5 Policies on ensuring that the student's work is original, with adequate procedures for identifying, assessing and penalising proven instances of plagiarism

Departments and Faculties are responsible for creating an awareness of the contents of the Policy on Plagiarism in Support of Academic Integrity as well as the Procedure for the investigation and management of allegations of plagiarism and for providing learning opportunities to all students and staff regarding the avoidance of plagiarism.

Departments and Faculties are responsible for establishing processes for the detection, reporting and investigation of allegations of plagiarism that are compliant with the University's overarching policy and procedures.

The primary responsibility for avoidance of plagiarism and for complying with the policy requirements remains with the student who will be held accountable should the work involve plagiarism or in any other way fail to meet the required standards of ethical conduct. Dissertations must be submitted to the Turnitin playground module (or other appropriate similarity detection software) prior to submission for examination. The student and supervisor should concur that the Turnitin or similar report is acceptable, prior to submission of a dissertation for examination.

Examiners who suspect plagiarism in a submitted dissertation are responsible for immediately alerting the departmental chairperson of their suspicions. The allegation must be made in writing to the departmental chairperson and supporting documentation, such as an indication of the plagiarised source or a Turnitin (or similar) report, should be provided.

Some faculties require the 'Turnitin' report to be attached to the dissertation when it is sent to the examiners. The Faculty of Engineering expect the doctoral student to sign a plagiarism declaration and insert it directly after the institutional 'Declaration' (see 5.3.6) in the dissertation. It remains the responsibility of the supervisor(s) to ensure that the document is beyond reproach concerning plagiarism.

The supervisor(s) gives written permission for the dissertation to be submitted for examination. If the supervisor(s) does not give permission for the dissertation to be submitted, the candidate can insist that his/her dissertation be examined. In such a case it is *required* in the Faculty of Engineering that the supervisor(s) submits a report by the due date for submission of the examiners' evaluation reports. The Examination Commission will then review the report upon finalisation of the examination process.

It remains the *prerogative* of the supervisor(s) to submit a report on the dissertation, by the due date for submission of the examiners' evaluation reports, to the designated postgraduate departmental officer. The Faculty of Science on the other hand *require* a two-page

Supervisor's report on the candidate and his/her dissertation which must cover the following aspects:

1. the motivation for, and brief contents of the dissertation;
2. how the study progressed;
3. to what extent the student worked independently;
4. problems experienced by the student, for example regarding the collection of information or the writing of the dissertation;
5. an unequivocal recommendation on the outcome of the examination process (i.e. whether or not the degree should be awarded)

The Supervisor's report thus serves to contextualise the dissertation for the non-examining chairperson and the panel who read the examiner's reports.

Distribution of the dissertation

The student submits the required number of hard copies and a pdf of the dissertation to the postgraduate departmental officer (Faculty of Engineering) or in the case of other faculties, the designated person who is responsible for distributing the documents. Using the example of the Faculty of Engineering, the postgraduate departmental officer, sends the dissertation to the internal and external examiner(s) – preferably by courier to the external examiner(s) including:

1. A cover letter that identifies the candidate and indicates the deadline for submission of the evaluation report.
2. The evaluation report form, which includes the instructions to the examiners.

The written letter of consent from the supervisor(s), which confirms that the dissertation may be submitted for examination, is <u>not</u> sent to the examiner(s).

5.3.6 Policies for ensuring that any significant material assistance by others towards the completion of the thesis is declared

All candidates for the degree of doctor must include an author's declaration as part of the first four pages of the doctoral dissertation. The prescribed wording of this institutional declaration is as follows:

DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained herein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

In cases where the dissertation forms part of a joint-degree agreement with another university, the following sentence must be added: "This dissertation has also been presented at ..... (state the name of the other university here) in terms of a joint-degree agreement.")

Date: ....."

In the case of dissertations in alternative formats, the following general declaration should be added as a second paragraph, in addition to the above declaration:

"This dissertation includes [*insert number*] original papers published in peer-reviewed journals or books and [*insert number*] unpublished publications. The development and writing of the papers (published and unpublished) were the principal responsibility of myself and, for each of the cases where this is not the case, a declaration is included in the dissertation indicating the nature and extent of the contributions of co-authors."

The nature and extent of the contributions of co-authors must be declared as follows:

Declaration by the candidate:

With regard to [*specify chapter or part of a chapter and page numbers in the dissertation]*, the nature and scope of my contribution were as follows:

Nature of contribution	**Extent of contribution (%)**

The following co-authors have contributed to [specify chapter or part of a chapter and page numbers in the dissertation]:

Name	**e-mail address**	**Nature of the contribution**	**Extent of contribution (%)**
[name 1]			
[name 2]			
[name 3]			

Signature of candidate: ……

Date: ……..

Declaration by co-authors:

The undersigned hereby confirm that:

1. the declaration above accurately reflects the nature and extent of the contributions of the candidate and the co-authors to [*specify chapter or part of a chapter and page numbers in the dissertation*],
2. no other authors contributed to [*specify chapter and page numbers in the dissertation*] besides those specified above, and

3. potential conflicts of interest have been revealed to all interested parties and that the necessary arrangements have been made to use the material in [*specify chapter or part of a chapter and page numbers in the dissertation*] of this dissertation.

Signature	Institutional affiliation	Date
[signature 1]		
[signature 1]		
[signature 1]		

5.3.7 Satisfactory evidence that the implementation of submission policies is monitored and documented

Each faculty has a procedure in place for how dissertations are submitted. Once submitted, the process is monitored by designated individuals in each Faculty. These individuals track the progress of the examination. In some faculties, the Dean's Personal Assistant is responsible and works in close collaboration with the respective Faculty Administrator in the Registrar's Division and keeps record of where the dissertation is in the examination process. Some faculties have a Postgraduate Examination Office or a Doctoral Office who oversee the full process from submission to receipt of the examiner reports, convening the examination panel that reads the reports from the examiners to arranging the oral defence.

The power of disposal for the approval of a Doctoral examination result is handled as follows:

1. If the examination panel recommends the conferment of the Doctorate unanimously, the Faculty Board makes the final decision. The Faculty Board's decision is included in the Communications Report to the EC(S) and Senate.
2. If the examination panel does not recommend the conferment of the Doctorate unanimously, the Faculty Board's decision must be included in the Recommendation Report to the EC(S) and Senate.
3. If the examination panel unanimously recommend that the Doctorate not be conferred upon the candidate, the Faculty Board's decision must be included in the Recommendation Report to the EC(S) and Senate.

5.4 Final assessment

Describe and evaluate how your institution addresses the requirements related to the final assessment of Doctoral work as stated in the Standard.

5.4.1 Policy for the selection of examiners that guarantees expertise in relation to the topic of study, independence, integrity, fairness, reliability and rigour of the examination process, the number of examiners (internal and external) and criteria for selection

The integrity, rigour and independence of the process of examination of doctoral dissertations at SU depends heavily on the integrity of the supervisors. The supervisor nominates examiners to the relevant faculty board via the chair of the department concerned and the relevant faculty committee. To support the integrity, fairness, reliability and rigour of the examination process, there are minimum institutional guidelines in place that are complemented by faculty-based guidelines that set the criteria for selecting examiners.

The institutional requirement is that there must be at least three examiners appointed for the examination of every doctoral dissertation. All three examiners must be unattached (independent), and at least two examiners should be external examiners. A person is external if he/she does not have a permanent or temporary appointment at the University. Faculties may set additional requirements regarding unattached external examiners, for instance that one of the external examiners should preferably be a person from outside South Africa. For the purposes of examination, professors extraordinary and honorary professors of the University do not qualify as external examiners but may be appointed as internal examiners. In all cases, a minimum of two years must have passed since a person's retirement, accelerated retirement, or leaving of SU's service, before the person may be appointed as an external examiner. These are minimum requirements and faculties may (and do) impose more stringent criteria on the nomination process.

The following general considerations are extracted from the Faculty of Science's documentation guiding the nomination of examiners for doctoral dissertations.

Qualifications of the examiners: The guiding principle is that the examiner should hold a qualification that is at least of an equivalent level to the qualification being examined. At PhD level the requirement is a PhD or equivalent degree.

Experience of examiners: Examiners should preferably have a track record of successful student supervision (i.e. graduated students) and recognised status in the field (as evidenced by publications and other tangible outputs). Where a less experienced examiner is nominated, the examination panel should be balanced by using other examiners that have high levels of experience. In some instances, a potential examiner may not have supervised students because they come from a research institute or company. Where it is considered desirable that such a person should be an examiner, the other members of the panel should have substantial university experience. It is important to appoint a balanced examination panel.

Independence of examiners: Examiners must be able to give fully independent opinions on a dissertation. The appointment of two examiners from the same department is therefore not permitted and preferably two examiners from the same institution should be avoided. Similarly, examiners who are close collaborators of the supervisor and/or candidate or who may find themselves in a position where they are able to discuss the dissertation prior to submitting their reports should not be appointed on the examination panel. An examiner whose close association with the supervisor or student can cast doubt upon his/her impartiality, should also not be considered (e.g. a recent PhD graduate of the supervisor, recent postdoctoral research fellow, etc.).

Reusing examiners: To ensure the rigour of the doctoral examination process, it is advisable to avoid the excessive reuse of examiners to the point where their independence and their capability to act as impartial examiners become questionable. The recommendation is that a supervisor should not use the same examiner for his/her students more frequently than once in every three years.

Unattached examiner: To qualify as unattached, an examiner must not have been involved with the student in any way that would compromise their capacity to act as an independent examiner of the dissertation. Examples of activities that would exclude an individual from serving as an examiner include involvement with supervision, assistance with dissertation preparation, publication co-authorship or being a research collaborator.

Unattached internal examiners: Any appointed academic staff member who qualifies as being unattached may be used as an examiner where their background and experience is suitable. Postdoctoral research fellows may be used as internal examiners after taking

qualifications, experience, independence and balance of the examination panel into account. The appointment of recent PhD students as examiners (themselves frequently students of the supervisor / co-supervisor and often friends of the candidate) is not permitted. If, for whatever reason, ex-students are named as examiners, sufficient time (typically five years or more) must have elapsed to justify their recognition as independent researchers in their specific fields (this will be judged by information contained in their CV). The same consideration applies to postdoctoral research fellows as they may have built a similar relationship with the supervisors or the candidate. An extraordinary professor, because he/she has a relationship to the department, may be used as a replacement for the unattached internal examiner, but not in the place of an external examiner.

Unattached external examiners: Suitably qualified persons who have no appointment at SU, whether remunerated or not, are eligible to be external examiners. These may be national or international. In the case of PhD examiners, the Faculty of Science requires that at least one of these should be truly international. That is, someone from an international training and experience background as opposed to an ex-colleague who has moved to another country.

The academic standing of examiners is paramount in determining their nomination to examination panels. To determine this, the faculties at SU follow different approaches. The Faculty of Science require a comprehensive CV to accompany each nomination as well as completion by the supervisor of an Abbreviated CV for External Examiners in which the supervisor is expected to distill information about the nominee's postgraduate student supervision experience, their research output and their research expertise. The FEMS require a short motivation per nominated examiner, whereas the Faculty of Engineering require the Scopus profile of each nominated external examiner to be provided.

The process of nomination of examiners has checks and balances built in and spreads the responsibility for ensuring independence and rigour amongst a few role players, namely the supervisor, Head of Department, the Faculty Committee and the Faculty Board. The Head of Department endorses the supervisor's nominations. It is then up to the Faculty Committee (or similar structure to consider the nominations and recommend these to the Faculty Board. The faculty board makes the final decision regarding the approval of the examiners and communicates this decision, including the name of the supervisor, as well as the co-supervisors where applicable, to the Executive Committee (Senate) and Senate by means of

the Communications Report. An unattached, non-examining chairperson must also be appointed, in accordance with faculty-specific procedure. This chairperson does not have to be reported in the Communications Report to Senate.

Despite the checks and balances in the system, it is not completely failsafe for the following reasons. It is impossible for members of a Faculty Committee or Faculty Board to be able to know enough about a supervisor's research associations and collaborations to always detect the connections that may exist between a supervisor and nominated examiners. It is also a feature of research that there are 'schools of thought' within disciplines that hold sympathetic or opposing views regarding specific lines of enquiry. It is therefore, possible that supervisors may narrow their selection of nominated examiners to those who they know would be agreeable toward the findings of their student's doctoral work. Therefore, despite the best intentions of institutional processes to ensure independence and rigour, there is always some chance that examiner nominations may be biased.

The most reliable means available in the academic community to ensure independent scrutiny of academic research is that of the journal peer-review system. Journal editors are removed from institutional interests and are well positioned to select independent reviewers. The requirement for every PhD student to publish one or several peer-reviewed articles, and especially as first author during or in partial fulfilment of the requirements for the doctoral degree would build in a more stringent independence factor.

5.4.2 Policy for the coordination and approval of examiners' reports; criteria and responsibility for deciding to award the degree; quality assurance and consistency of standards applied across the institution

The examination process

The written and signed reports of the examiners are received directly by the relevant faculty or departmental office and not by the supervisor. After the faculty or departmental office has received all the reports from the examiners, these are sent to the unattached non-examining chairperson of the examination panel. Faculties have their own structures that read the examiners' reports and decide whether the subsequent actions taken are sufficient for the conferment of the degree. These structures may be the academic or research committees of faculties which, in turn, advise the Faculty Board on the successful completion of the

examination process. These committees are however not decision-making bodies but serve to advise the Faculty Board.

The minimum categories for the result of the Doctoral examination process are as follows:

A	The degree may be conferred upon the candidate, provided that the revision (if any), in accordance with the recommendations of the examiners, is completed to the satisfaction of the supervisor.
B	The degree may be conferred upon the candidate, provided that a material revision is completed to the satisfaction of the examiner(s), as agreed upon by the examination panel.
C	The degree may not be conferred upon the candidate and the work may not be resubmitted for examination.

Faculties may extend these categories and place a limitation on the number of times a doctoral dissertation may be re-examined. Most faculties at SU provide examiners with four or five categories that they may select when making their recommendation about the outcome of their deliberations. For example, in the Faculty of Science give the examiner the following choices:

I have examined the candidate's dissertation and recommend that:

A	The degree be awarded to the candidate.
B	Provided certain factual or editorial changes are made to the satisfaction of the supervisor, the degree be awarded to the candidate.
C	Provided factual or editorial corrections are made to the satisfaction of the examiner, the degree be awarded to the candidate. NOTE: Written confirmation by the examiner that the corrections have been made to his / her satisfaction must be sent by e-mail to both the supervisor and the examination office.
D	The candidate be given an opportunity to revise and resubmit the dissertation.
E	The degree not be awarded.

In the Faculty of Engineering, the Postgraduate Coordinator and supervisor(s) are notified as soon as all the evaluation reports have been received. The supervisor(s) or designated administrative officer are then requested to schedule an oral examination in consultation with

the Postgraduate Coordinator, who is responsible for appointing the Chairperson (equivalent to the non-examining Chairperson) of the Examination Commission.

The supervisor(s) now has full access to the examiners' evaluation reports and may, if the examiner(s) indicated it as such on the report form, share the feedback with the candidate. However, the outcome, as recommended by the examiners, may not be shared with the candidate. Seeing as the candidate, at this stage, is not allowed to contact any of the examiners, the candidate is not allowed to know the identity of the examiners.

Oral examination

The oral examination must be conducted by at least two of the three examiners under the guidance of a non-examining independent chairperson. The examination process is completed after an oral examination (which may take various forms, including a seminar at which questions are posed) and completion of the corrections required by the examination panel. The supervisor, and co-supervisor(s) where applicable, are not members of the Examination Commission who has decision-making powers, and do not submit examiners' reports, but do have observer status at the oral examination.

1. If the recommendations of the examiners are not unanimous with regards to a pass, one of the following options are available to the Postgraduate Coordinator or the Chair of the Examination Commission, in consultation with the supervisor(s):

    a. Changes/improvements, as recommended by the examiners, must be made by the candidate. The improved dissertation is then returned to the examiners for re-evaluation, after which an oral examination is conducted.

    b. An oral examination is conducted, after which the recommended changes/ improvements are made by the candidate.

2. The Examination Commission consists of an independent Chairperson (usually the Postgraduate Coordinator, or a senior member of the academic staff), the internal examiner, and at least one of the external examiners. An examiner who is available via telephone, Skype, or a similar connection, is acceptable and he/she is regarded as being present.

3. If an external examiner cannot be present, he/she can provide the Chairperson with a list of questions, and the Chairperson will in turn present these questions to the candidate.
4. The Chairperson is in possession of all the examiners' evaluation reports and recommendations.
5. The candidate submits a copy of the journal article on his/her research (the article should have been submitted *prior* to the oral taking place).
6. The candidate has the opportunity to deliver a presentation (typically 20 to 30 minutes) on his/her research. This presentation is open to the public and general questions may be posed to the candidate at the end of his/her presentation.
7. If the candidate cannot be present, he/she can request to be allowed an examination via telephone, SKYPE, or a similar connection, for the examination process. For PhD orals, it is **strongly recommended** that the candidate be present in person.
8. If the candidate cannot be present, then the Postgraduate Coordinator can, upon approval by the Vice Dean: Research, waive the requirement for an open presentation.
9. In case the presentation and the examination process follow directly after one another, the general public is excused, and only the members of the Examination Commission, the supervisor(s), and the candidate remain for the formal examination process.
10. The Chairperson now facilitates the candidate's examination by the examiners. The supervisor(s) does not participate in the question session.
11. At the end of the question session, and after the candidate has been excused, the supervisor(s) are given the opportunity to put the candidate's research into context with regards to aspects such as workload, autonomy, unique contributions, etc. The report of the supervisor(s), if submitted, is now presented by the Chairperson and is considered by the Examination Commission. The supervisor(s) is now excused, and the Chairperson attempts to reach consensus with regards to the outcome.
12. In cases where there is no initial consensus with regards to the final outcome, all of the examiners must be consulted in determining the outcome, even if an examiner was not present at the oral examination.

13. Once consensus is reached, the outcome is recorded on the Examination Commission Form and signed by the members present.
14. A candidate has only **one** opportunity to make substantive improvements to the dissertation, to the satisfaction of the examiners. These improvements must be submitted within 12 months after the need for such improvements have been made known to the candidate, with the understanding that the Faculty Committee may approve exceptions to these requirements.
15. The Chairperson returns the Examination Commission Form, as well as all the evaluation reports and recommendations, to the postgraduate administrative officer, who (in consultation with the Postgraduate Coordinator) is responsible for capturing the final outcome on the SU system. The above-mentioned documentation, together with the 50- and 100-word summary, are forwarded to the Faculty Secretary for inclusion in the agenda of the Faculty Committee.
16. The supervisor(s) has the right to appeal if he/she has serious objections regarding the final outcome of the Examination Commission and if a report was submitted on time. Written appeal must take place via the relevant Postgraduate Coordinator, who can then refer it to the Departmental Executive Committee or to the Faculty Committee for further handling.
17. The required editorial changes should now be implemented in consultation with the supervisor(s). The candidate may now know the identity of the examiners, as well as the final outcome.
18. If the supervisor(s) or the examiners are satisfied with the edited dissertation, then the supervisor(s) should inform the postgraduate administrative officer (usually in writing) that the pdf-version of the document can be uploaded to the SU database.
19. A responsible person [usually the supervisor(s) or the postgraduate administrative officer] is now nominated on the SU system

With regard to joint degrees, presented in collaboration with foreign universities, some foreign universities require that the supervisor be a member of the joint examination panel. In such cases, SU supervisors and SU co-supervisors may be part of joint examination panels. These exceptions must be negotiated as part of the conclusion of agreements with foreign

universities and the appointment of the panels of examiners must be done via SU structures in the usual manner.

5.4.3 Provision and procedures for appeals against examination decisions

SU makes provision for cases of dispute, i.e. when consensus about the final result cannot be reached during the normal examination process:

1. A minimum of two external assessors are appointed, of which at least one should be a specialist in the research area of the examiner(s) that did not recommend a pass. The appointment process of the assessors is identical to the appointment procedure for postgraduate examiners.
2. The assessors are provided with a copy of the dissertation, the examiners' anonymous reports, as well as a comprehensive report by the Chairperson of the Examination Commission, which includes the views of the supervisor(s) and the candidate.
3. The reports of the assessors are received by the Chairperson of the Examination Commission and made available to the examiners.
4. If consensus regarding the outcome can still not be reached, it can be expected of the candidate to adapt his dissertation in order to try to achieve consensus amongst the examiners.
5. If consensus can still not be reached, the Chairperson of the Examination Commission should confer with the external assessors in order to the resolve the differences and reach consensus.
6. The external assessors' final reports, regardless of whether consensus has been reached, are submitted together with the complete set of documents to the Faculty Committee, where a final recommendation is made for approval by the Faculty Board.

5.4.4 Evidence that there are appropriate measures for ensuring the security, validity and reliability of Doctoral certification

SU has two graduation opportunities each year – March and December. Deadlines around submission of dissertations are timed to allow for students to be eligible for either of these two opportunities. Upon conclusion of the doctoral examination process, the outcome is captured on the SU Student Information System (SIS). Before a student may graduate, their

dissertation must also be uploaded to SUNScholar. This is verified by faculty administrators in the Registrar's Division. Security, validity and reliability is guaranteed through authentication practices followed by the Student Records Office who are authorised to issue official certificates and transcripts.

5.4.5 Policy, and evidence of inter-institutional agreement, for the award of joint, dual and co-badged degrees

SU has a Policy Regarding Joint and Double Degrees at Master's and Doctoral level with Foreign Universities. This policy was formulated and approved prior to any national policy making provision for such collaborative degree programme arrangements. At the time of writing this report, the National Policy Framework for Internationalisation of Higher Education in South Africa which provides for collaborative degrees is still under consideration.

SU currently has joint degree agreements with the following institutions:

Table 11: SU's list of joint degree agreements

Coventry University	Université de Bretagne Occidentale
Erasmus University Rotterdam (EUR)	Université Jean Monnet Saint-Etienne
Ghent University	Université Rouen
Hasselt University	Universiteit Antwerpen
KU Leuven	University of Groningen
Macquarie University	University of Hamburg
Radboud Universiteit Nijmegen	University of Leipzig
Università degli Studi di Padova	Vrije Universiteit Amsterdam (VUA)
Université Claude Bernard Lyon 1	Vrije Universiteit Brussel (VUB)
Université de Bordeaux	

Regarding joint degrees presented by SU in collaboration with its partner institutions, it should be noted that some partner universities follow a different examination process to SU's standard format. SU's minimum criteria are however always adhered to. There are several examples, but the fundamental differences are summarised below:

SU single institution doctoral degree	*Joint SU and Partner institution doctoral degree*
Minimum of 3 independent, unattached examiners (one internal, two externals of which at least one external to South Africa, or three externals, of which at least one external to South Africa)	Example 1: Each partner in consultation appoints three examiners, i.e. a total of six examiners. Example 2: Each partner, in consultation appoints an internal examiner, i.e. one from SU and one from the partner. In addition, each partner, in consultation appoint an external examiner each, i.e. both must be external to SU and external to the partner. Example 3: The defense of the thesis is subject to prior examination of the research work by at least two external referees, so called 'rapporteurs' (external to both Establishments) put forward by the joint supervisors. Permission to defend the thesis shall be given by the heads of both Establishment on the basis of the reports written by the referees.
Independent, internal non-examining chairperson.	Independent non-examining chairperson from either of the partners
Oral defence	Private defence
	Public defence
SU PhD degree certificate	SU PhD degree certificate cross-referenced to Partner institution's PhD degree certificate OR a single PhD degree certificate carrying the logos and signatures of the designated authorities of both institutions.

5.5 Coursework

If applicable, what measures are in place to ensure that credit-bearing coursework is relevant to the field or discipline of research, and is assessed at NQF level 10?

SU offers 360 credit doctoral degrees by research, which culminate in the submission, assessment and acceptance of a dissertation, the format of which is described above. Whilst

coursework may be required as preparation or value addition to the research, it does not contribute to the credit value of the qualification.

5.6 Work-integrated learning

If applicable, what measures are in place to ensure that credit-bearing work-integrated learning is relevant to the field or discipline of research, and is assessed at NQF level 10?

If applicable, what measures are in place to ensure that credit-bearing work-integrated learning is relevant to the field or discipline of research, and is assessed at NQF level 10?

Policies for ensuring that **credit-bearing** work-integrated learning (if applicable) is appropriate, in terms of scope and complexity, for a Doctoral programme and relevance to the research topic, is assessed at NQF level 10, and that the awarding institution has suitable arrangements for the approval, monitoring and assessment of WIL. The policies should include provision for the external examination of credit-bearing WIL.

Work-integrated learning does not form part of the credit-bearing component of doctoral degrees at Stellenbosch University and is thus not applicable.

6. Areas Identified as Above-Threshold Practice[16]

Where there are areas or aspects of your doctoral qualifications that you identify as above-threshold practice, describe them briefly, or refer to the sections above in which they have already been identified.

Upon reflection, SU has found that the quality of the institutional conditions for enrolling and supporting doctoral students is mostly at threshold and therefore meets the Standard. Policies, regulations and procedures are in place to cover all the critical points in the

[16] Ms Cindi De Doncker is gratefully acknowledged for her assistance with highlighting above-threshold practice.

institutional relationship with doctoral candidates. Institutional guidelines and criteria are also in place to inform the relationship between doctoral candidates and their supervisors. The institution is well-resourced in terms of infrastructure to offer doctoral programmes. The critical progress monitoring and review activities as well as opportunities for accessing institutional support are all in place. Policies and guidelines that detail what the doctoral dissertation must look like, the alternate forms a SU dissertation may take and matters relating to distinguishing the work as the doctoral student's own are well-documented. Ensuring the independence, integrity and rigour of the examination process is at threshold with adequate opportunities for demonstrating fairness and testing the reliability of the outcome of the examination process.

Above-threshold practice

Certain areas or aspects of SU's doctoral qualifications have been identified as instances of above-threshold practice. The strong supervisor corps and the excellent institutional facilities and resources at its disposal are regarded as SU's most important assets for attracting and enrolling doctoral students and ensuring the development of the Graduate Attributes in its doctoral students. In terms of creating abundant opportunities for doctoral students to go beyond the minimum attainment of the graduate attributes, SU's two Graduate Schools, in terms of their holistic approach to doctoral education in general, and then several environments across faculties (often but not always linked to individual, well-resourced supervisors) who make provision for their doctoral candidates to attend international conferences during their PhD and actively cultivate a culture of research publication as an expected outcome of the PhD are examples of above-threshold practice. Other instances of faculties making use of its international partnerships and networks to the benefit of their doctoral students is also considered above-threshold practice.

In the institutional discussions and information gathering, it was evident that some Faculties have excellent administrative structures in place to manage their postgraduate students. A hallmark of these environments is that they have developed good guidelines for students and supervisors thereby aiding the clarification of roles and responsibilities and reducing uncertainty. The Faculty of Law's Postgraduate Guide is a notable example in this regard. In addition, the Faculty of Engineering and the Faculty of Medicine and Health Sciences have

thorough and well-documented proposal review processes in place that take a holistic view of the doctoral project to reduce a variety of risks.

The examiner nomination criteria in the Faculty of Engineering is a further example of above-threshold practice. It allows for simplification of an otherwise administratively onerous task, whilst increasing reliability in terms of ensuring the expertise of the examiners.

It is suggested that the way some faculties (Science, FMHS and Law) employ the supervisor's report increases fairness because it helps to contextualise the dissertation for the examination panel and grants insight into the candidate and his/her journey which can help to facilitate the final decision-making process.

Regarding being able to communicate to non-expert audiences, the importance of PhD candidates developing these skills to communicate their research findings to scholars from other disciplines, industry and the lay person has become emphasised over recent years. The newly adopted *White Paper on Science, Technology and Innovation* (March 2019) confirms the South African government's commitment to science communication. The inclusion of the communication and dissemination to non-expert audiences element as a Graduate Attributes confirms this. SU's Centre for Research on Evaluation, Science and Technology (Crest) houses one of the two science communication chairs in South Africa. Crest is therefore, well positioned to provide expert training and support in the development of this element of this attribute. Through Crest and other science communication initiatives, SU PhD candidates have been afforded opportunities to attend science communication training and participate in events like FameLab for a few years now. This focus is an example of above threshold practice at SU.

The Faculty of Education hosts the Centre for Higher and Adult Education (CHAE) where research is done on various aspects of doctoral supervision. Topics include the aspect of creativity in doctoral study, the conceptualisation of what an 'original contribution' means across a variety of disciplines, the supervisor – PhD candidate relationship, the PhD student experience (including reasons why PhD candidates abandon their studies and surveys of student satisfaction with the quality of supervision that they received in the course of their studies). In addition, the CHAE offers workshops for novice promotors to strengthen supervision capacity and hosts a biennial international Conference on Postgraduate

Supervision (the seventh in this series took place in March 2019). As such, the Centre has built up a consultative and collaborative network of international experts on doctoral education that informs the above-mentioned aspects of its work (and, by extension, that of the Faculty and the University).

7. Areas Identified as Being in Need of Improvement

Where there are areas or aspects of your doctoral qualifications that you identify as being in need of improvement, describe them briefly, or refer to in the sections above in which they have already been identified.

Areas Identified as Being in Need of Improvement at Stellenbosch University per Section	Cross referenced to Plans to Address Areas in Need of Improvement
Section 4 i) All faculties have reviewed their instructions to examiners. Although the majority of faculties are satisfied that their instructions to examiners adequately address the assessment of the Doctoral Graduate Attributes, two faculties have decided to review their instructions to examiners.	**8 A**
ii) Stellenbosch University arrived at the conclusion that its doctoral candidates attain the knowledge and skills attributes set forth in the Qualification Standard by graduation. However, within the context of the Graduate Attributes as set forth in the Standard being new, the institution has identified some areas that could be improved from a *quality enhancement* point of view. SU thus aspires to extend the opportunities and checks for the attainment of ethical awareness and professional conduct amongst its doctoral students.	**8 B**
iii) In addition, SU wishes to round-off the skills attribute that entails communication and research dissemination skills to non-expert audiences amongst its graduates too.	**8 C**
iv) The Graduate Attributes as formulated in the Qualification Standard for Doctoral Degrees are not equally familiar to all potential supervisors of doctoral students or doctoral candidates at SU.	**8 D**

Section 5		
i)	With respect to institutional conditions, the possibility of supervisors in some faculties accepting too many students does exist and represents a quality risk. Where faculties manage these situations through rigorous selection practices and holding supervisors accountable for adhering to completion times, this problem is negated. However, if left unattended, it can have negative consequences for all concerned.	**8 E**
ii)	In some fields, it is possible that a doctoral student's project may evolve along unexpected lines. The project may then, for example, require more or different analyses and/or access to equipment that is beyond the budget of the project. Sometime, even additional supervisory expertise may be required that was not anticipated at the start. These cases cannot be eliminated but must be managed by the supervisor and the responsible academic department in the interests of all concerned.	**8 E**
iii)	The need for all doctoral students to enter into an agreement with their supervisor(s) which should include how they will work together, what they can expect from one another, how frequently they will meet with one another, the project timeline, funding, progression milestones, etc. is an area which needs improvement in some environments.	**8 F and G**
iv)	In cases where doctoral students and/or supervisors do not remain in touch and where poor progress goes unattended, the institution has an obligation to hold the respective parties accountable to one another. In this regard, the Yearbook requirement for bi-annual progress reporting could be interpreted by some supervisors as representing an acceptable level of frequency of interaction with a doctoral student. It is qualified by a requirement for the student to remain in constant touch with the supervisor, but the view was expressed that the mutual expectation regarding frequency of interaction should not be conflated with bi-annual progress reporting.	**8 H**
v)	Despite being a comparatively well-resourced institution in a national context, SU does experience substantial budget pressures in some environments, and these can and do impact on doctoral students' research. These pressures are part of ongoing institutional considerations.	**8 I**

vi)	It must also be mentioned that despite all-round good facilities, SU has spatial constraints. There is no dedicated postgraduate meeting and training facility available to the Division for Research Development yet there is an expanding need around postgraduate skills development support. The recent articulation of the NRF's wrap-around support expectations intensify the need for at least one dedicated centralised postgraduate meeting and training facility in order to allow for an expanded and sustainable (generic) offering. Such a facility would also benefit postdoctoral research fellows and the Early Career Academic Development programme. Equipping the Division for Research Development with a facility would enhance capacity to offer support thereby also relieving the burden on smaller faculties having to, for example offer novice supervisor training or duplicate other generic training that can be handled centrally in a cost-effective manner.	**8 J**
vii)	Faculty level RPL procedures are not yet in place across all faculties.	**8 K**
viii)	The management of postgraduate student information is not particularly easy within the current Student Information System (SIS) at SU. A Postgraduate Administrative Support (PAS) system was developed in 2009 to supplement the central Student Information System's functionality and to assist with the management of postgraduate student information. Not only is the range of functionality of this system limited but no new development of the system is possible.	**8 L**
ix)	Examination administration surrounding doctoral students (and this also applies to Master's students) is a source of significant dissatisfaction amongst SU supervisors in some Faculties. The problems partly relate to procedures but the institutional information management surrounding (postgraduate) doctoral students is in need of improvement.	**8 L**
x)	SU regards its examination processes as sound, especially the inclusion of an oral exam. In this regard, instances of departments requesting that the oral exam should be waived do occur and are permitted within the institutional rules and regulations. It is suggested that this removes the opportunity for the panel to confirm the candidate's knowledge and ownership of the work. The oral examination itself is not dealt with consistently across all faculties. At least two of the three examiners must conduct the oral exam. Some departments do not have the external examiners present. This requirement must be reiterated.	**8 M**

xi)	Student leave provisions are limited and must make better provision for postgraduate students' diverse needs which differ from those of undergraduate students.	**8 N**
xii)	The FASS have identified the need to develop their guidelines for dissertations that include a creative output component.	**8 O**
xiii)	Although there is a verification process to check that a student's dissertation is uploaded to SUNScholar before they graduate, it is a manual process. Because there is no programmatic connection between what takes place in SUNScholar and the current SIS, it is possible for a student to graduate without uploading his/her dissertations to SUNScholar. Therefore there is a small discrepancy between the dissertations on SUNScholar and the PhDs awarded. This is contrary to policy and must be rectified.	**8 L**

8. Plans to Address Areas in Need of Improvement

Where you have identified areas or aspects of your doctoral qualifications in need of improvement, what plans does the institution have to address such areas or aspects, and within what timeframes are the plans intended to be designed and implemented, and the results evaluated?

Plans to Address Areas in Need of Improvement at Stellenbosch University per Section	Cross referenced to Areas Identified as Being in Need of Improvement at Stellenbosch University per Section
A. The FASS and FEMS will consider possible amendments to their instructions to examiners during the course of 2020 for implementation in 2021.	**7 Section 4 i)**
B. Ethics clearance is not required of all doctoral projects yet ethical awareness in research and professional conduct is a Graduate Attribute. The DRD to recommend a minimum level of awareness raising of ethical considerations in research and professional conduct, perhaps through the mandatory attendance of an online module that all doctoral students must register for and complete within the first six months of their enrolment. In cases where existing training opportunities are offered within faculties, the DRD could monitor and recommend improvements if needed.	**7 Section 4 ii)**

C.	To demonstrate the attainment of the graduate attribute that relates to communication of research findings to non-expert audiences, the DRD will recommend the introduction of a **Lay Summary** for future SU doctoral dissertations. This would require implementation and follow up at faculty-level. The requirement would need to be included in the General Yearbook which requires a number of committee-related approval processes. The earliest date for implementation would be January 2022.	**7 Section 4 iii)**
D.	The DRD to raise awareness amongst students and supervisor about the Graduate Attributes. The DRD will prepare a variety of media to give expression to this action and make information available online and in print.	**7 Section 4 iv)**
E.	Faculties to consider intensifying their proposal/project review processes, where applicable, in order mitigate against a variety of risks including supervisors taking on too many students, inadequate resource planning and provisions for projects, etc. This would require implementation and follow up at faculty-level (where faculties found their process lacking).	**7 Section 5 i) and ii)**
F.	Completion of a Memorandum of Understanding (MoU) between postgraduate student and supervisor(s) is mandatory for all postgraduate students at SU. All faculties must implement this practice from 2020.	**7 Section 5 iii)**
G.	Since not all faculties require formal training of novice supervisors, the DRD will recommend mandatory supervisor training for all novice supervisors. The capacity for such training exists in different places and in different formats at SU. The DRD envisage the development of a generic online module. This possibility will be investigated with faculty partners in 2020 with potential roll-out in 2021. Novice supervisors will be required to attend such training prior to supervising their first PhD student. This would require implementation and monitoring at faculty-level.	**7 Section 5 i) – iii)**
H.	The General Yearbook should not conflate the frequency of interaction requirements for Doctoral students with the bi-annual progress reporting requirement. This entry in the Yearbook will receive attention in 2020. The DRD and the Registrar's Division will action this item.	**7 Section 5 iv)**
I.	Seeking new sources of postgraduate funding is an ongoing project within the Division for Alumni Relations (DAR), in close collaboration with the Postgraduate Office (PGO). The institutional bursary budget will annually review its proportional budget allocation of funding to postgraduate bursaries. However, faculties, departments and supervisor are routinely encouraged	**7 Section 5 v)**

	to apply for all available research funding. The DRD provides ongoing support in this regard.	
J.	SU should allocate space to a dedicated postgraduate meeting and training facility. DRD will submit this request via the DVC Research, Innovation and Postgraduate Studies to the spatial planning authorities at SU.	**7 Section 5 vi)**
K.	RPL procedures to be actioned by faculties where these procedures are outstanding	**7 Section 5 vii)**
L.	The University's student information system is being replaced and will be phased in from 2021. Faculties, the DRD, the Registrar's Division, IT, Library and Information Services and others are making input into the postgraduate information management needs on an ongoing basis. The Postgraduate Information Management capability will probably be available by 2022.	**7 Section 5 viii) , ix) and xiii)**
M.	An institutional discussion is required to remove the option for faculties to waive the oral exam. This recommendation must be formulated and serve at an Academic Planning Committee and be confirmed by Senate. The recommendation could serve in 2020 for implementation in 2021. This item will be actioned by DRD in partnership with the Registrar's Division.	**7 Section 5 x)**
N.	New student leave provisions are expected to be approved in 2020 for implementation in 2021. The Registrar's Division has actioned this item.	**7 Section 5 xi)**
O.	FASS to develop guidelines for dissertations with creative output.	**7 Section 5 xii)**
P.	Faculties to consider making at least one first authored, submitted for publication article to a reputable, accredited journal a requirement of all doctoral candidates prior to submission of their dissertation for examination. Faculty consultation will take place.	**General quality enhancement**
Q.	A condensed guideline for all supervisors to be compiled as a quality enhancement output stemming from the Review in order to address inter alia, requirements for conducting the oral exam and other topics that emerged as unclear in the course of the National Review. This item will be actioned by DRD.	**General quality enhancement**
R.	Some faculties to consider updating their internal guideline documents and where feasible, consider adopting some of the good practice in place in other faculties. This recommendation is based on the feedback received during the consultations around section 5 where some faculties indicated that some matters were undocumented or needed improvement.	**General quality enhancement**

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