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A guiding rubric and usage manual for the doctoral supervisor and doctoral student in the discipline of statistics

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Abstract

Following the discussions documented by [3], guidelines were devised to support active early-career, emerging doctoral supervisors in Statistics in South Africa. These guidelines developed are incorporated into a guiding rubric and this associated usage manual. The rubric is not presented as a formal set of rules, but rather a dynamic document encouraging the growth of both the novice supervisor and the doctoral student. The rubric need not be used in its entirety either, since it is only intended to aid in the supervision process within the discipline of Statistics; it is not meant to be overwhelming or overbearing in the supervision process.

We present the current evolution of this guiding rubric, after discussions with, and feedback from, both novice and senior supervisors within South Africa over the period from 2022-2024. If the rubric is used, the conference paper [14] should be cited.

This document is compiled with the intention of improving the potential for emerging supervisors in Statistics to be appointed as primary supervisor, while allowing for the inclusion of senior academics as expert co-supervisors or mentors in the team. While the development of the doctoral student is the primary goal of this guiding rubric, the development of the novice supervisor is also important as a secondary goal, contributing to the sustainability of academia in Statistics.

Key words: Doctoral supervision, Guiding rubric, Statistics.

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1 Instructions for use

This manual is intended for use by the doctoral student and the supervisory team from the beginning of the doctoral journey, starting before registration, to the end of the journey at graduation. The sections below are meant as discussion points for the team continuously through the journey, updating each as the doctorate progresses. This aims to achieve growth in the student and emerging supervisor at every step of the process, as well as to ensure a holistic doctoral journey resulting in a properly trained doctoral graduate, and effective supervisor.

This manual has been designed according to the six sections identified in [3], and expanded upon in [14]. The authors welcome any and all feedback on its use, as it is intended to be a 'living' document, as far as possible, being updated when and where necessary. This is, of course, best illustrated by the turmoil caused by the sudden proliferation of the use of generative AI (GenAI) in education, something that was barely considered in the original research in [3] and [14].

A section on GenAI has been added to the guiding rubric, under Section 3, but because of the rapid evolution of this topic, this subsection will most likely constantly feel outdated.

2 Additional lists

Many items in this rubric guide have been labelled as [MOU], or 'Memorandum of Understanding' items. These items are compiled at the end of the manual into a list of items that could be incorporated into a Memorandum of Understanding between a research student and their supervision team at the institution of registration, should that institution not have an institutional MOU agreement that the team must sign. Some items in the rubric guide are also indicated as risks with an asterisk (*). These items are also compiled into a risk register at the end of the manual, for ease of reference. The risk register should be used as a critical reflection of the state of the doctorate at any stage.

References

[1] Backhouse JP, 2009, *Doctoral education in South Africa: Models, pedagogies and student experiences*, Doctoral dissertation, University of the Witwatersrand, Johannesburg, South Africa.

[2] Cross M & Backhouse J, 2014, *Evaluating doctoral programmes in Africa: Context and practices*, Higher Education Policy, 27, 155-174. DOI: https://doi.org/10.1057/hep.2014.1.

[3] Fabris-Rotelli I, von Maltitz MJ, Das S, Roberts D, Smit A, Correa FM, Maposa D & Maribe G, 2022, *Development of an early career academic supervisor in Statistics: A discussion towards a guiding rubric*, ORiON, 38(1): 29-51. ISSN: 0259-191X (print) / 2224-0004 (online). URL: https://journals.co.za/doi/full/10.5784/38-1-716.

[4] Frick L, Albertyn R, Brodin E, McKenna S, Claesson S, Fourie-Malherbe M, Albertyn R, Aitchison C & Bitzer E, 2016, *The role of doctoral education in early career academic development. Postgraduate supervision: Future foci for the knowledge society*, Stellenbosch: AFRICAN SUN MeDIA, 203-219.

[5] Harman K, 2002, *The research training experiences of doctoral students related to Australian Cooperative Research Centres*, Higher Education, 44 (3–4), 469-92. DOI: https://doi.org/10.1023/A:1019894323421.

[6] Hodgson D, 2017, *Helping doctoral students understand PhD thesis examination expectations: A framework and a tool for supervision*, Active Learning in Higher Education, 21(1), 51-63. DOI: https://doi.org/10.1177/1469787417742020 (Original work published 2020).

[7] Krumsvick RJ, 2022, *Academic writing in scientific journals versus doctoral theses*, Nordic Journal of Digital Literacy, 17(2): 78-94. DOI: https://doi.org/10.18261/njdl.17.2.1.

[8] Lee A, Brennan M & Green B, 2009, *Re-imagining doctoral education: Professional doctorates and beyond*, Higher Education Research & Development, 28(3), 275-287. DOI: https://doi.org/10.1080/07294360902839883.

[9] Nulty D, Kiley M & Meyers N, 2009, *Promoting and recognising excellence in the supervision of research students: An evidence-based framework*, Assessment & Evaluation in Higher Education, 34(6), 693-707. DOI: https://doi.org/10.1080/02602930802474193.

[10] Parker R, 2009, *A learning community approach to doctoral education in the social sciences*, Teaching in Higher Education, 14(1), 43-54. DOI: https://doi.org/10.1080/13562510802602533.

[11] Resnik DB & Shamoo AE, 2011, *The Singapore statement on research integrity*, Accountability in Research, 18(2), 71-5. DOI: https://doi.org/10.1080/08989621.2011.557296.

[12] Samuel M & Vithal R, 2011, *Emergent frameworks of research teaching and learning in a cohort-based doctoral programme*, Perspectives in Education, 29(1), 76-87.DOI: https://hdl.handle.net/10520/EJC87633.

[13] Szanton DL & Manyika SL, 2002, *PhD programs in African universities: Current status and future prospects*, Institute of International Studies and Center for African Studies, University of California, Berkeley.

[14] von Maltitz MJ, Fabris-Rotelli I, Smit A, Roberts D, Das S & Maposa D, 2023, *A guiding rubric for the early-career doctoral supervisor in Statistics*, Proceedings of the 6th International Academic Conference on Education, Oxford, UK, 24-26 March 2023. DOI: https://www.doi.org/10.33422/6th.iaceducation.2023.03.1030.

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1. Statistics Identity (Crisis) Opportunities

The pre-registration phase of any postgraduate degree forms the foundation of the proposed degree and sets the stage for the future student-supervisor relationship. Utilising the pre-registration proposal will help pair committed and capable students with the appropriate supervisor team, generate enthusiasm and momentum within the team, and identify the required novelty of the research. The feasibility of such a process depends on the relevant institutions' regulations and the financial requirement of the students (von Maltiz et al., 2023). Following this section of the rubric could help mitigate some of the risk factors associated with the initial stages of a postgraduate degree and help align the study with the relevant institutional requirements.

On completion of this section of the rubric, students will have developed, amongst others, the following postgraduate attributes: entrepreneurial mindset, professionalism, responsibility, emotional intelligence, self-awareness.

<table>
<tr><th colspan="2">Pre-registration research proposal</th></tr>
<tr><td colspan="2">Responsible parties: student and supervisor</td></tr>
<tr><td>A pre-registration proposal allows for 1) attract an appropriate supervisor, and/or 2) apply for admission. This document also displays commitment to the PhD, so that only dedicated students are registered at an institution.
Determine whether or not a pre-registration research proposal is required by the institution. This process is not enforced - some supervisors and students are already familiar with each other, and this process will not be required.
Take note of funding deadlines.
Does your institution integrate this formally into the PhD journey i.e. officially registered as doctoral pre-registration?
Students and new supervisors should be aware that line managers do not assign students and topics to supervisors, but line managers are involved in the process of admission and work allocation.
An online (or other) writing course may be beneficial to consider for the student to help with writing and choosing a topic.
Acknowledge the risks of registering without a pre-registration proposal: 1) the student may not be fully committed to their studies; 2) early on, topics/supervisors may change; 3) it may take more time to build momentum in the research process.*</td><td></td></tr>
<tr><td colspan="2">Levels of achievement<table><tr><td>☐ Not considered</td><td>☐ Risks acknowledged</td><td>☐ Partially considered and risks acknowledged</td><td>☐ Fully considered and risks acknowledged</td></tr></table></td></tr>
</table>

Background in mathematical and statistical sciences

Responsible parties: student and supervisor

It is important to make sure that students have the required level of statistical and mathematical knowledge before going into a PhD study in Statistics.

- ☐ Be aware of your institution's and department's rules for admission into the chosen doctoral programme.
- ☐ It is generally recommended that at least one mainstream year in calculus and linear algebra, along with a major in statistics, as well as masters research (or equivalent RPL) of a statistical nature is required.
- ☐ Honours with a Statistics major may not be necessary if the Masters research is of an appropriate topic and quality.
- ☐ If the study is in any Mathematical Statistics field, the mathematics requirements may be higher. The supervisor and student need to clarify this requirement if this is not set by the institution.

Levels of achievement

☐ Not fully acknowledged	☐ Fully acknowledged

Placement of research/degree within Statistics and the specific subfield

Responsible parties: student and supervisor

The placement of the research within a subfield in Statistics is not to limit the work, but to ensure that the relevant necessary background knowledge is met and that the appropriate team of supervisors is chosen. Knowing the field also helps to solidify the purpose of the PhD.

- ☐ Determine the subfield before commencement of doctoral research e.g. Applied Statistics, Mathematical Statistics, Risk Analysis, Operations Research, Data Science, Biostatistics or Biometry, Econometrics, Psychometrics or Machine Learning.
- ☐ Determine the subfield knowledge that may be needed by the supervisory team.
- ☐ Acknowledge the statistical nature of the PhD is planned, and the research falls under the umbrella of all mathematical and statistical sciences, as long as the foundation of the research is statistical in nature.

Levels of achievement

☐ Subfields not identified	☐ Subfields are not clear yet	☐ Subfields fully identified

Acknowledgment of purpose of a PhD	
Responsible parties: student and supervisor	
☐ Convey to the student the nature and general purpose of a PhD. ☐ Acknowledge that just because a student is admitted to a PhD doesn't mean that they have the capacity to complete a PhD. ☐ Acknowledge that PhDs are hard work and have to be earned through commitment. They are not the inevitable end to a process. ☐ Acknowledge that ending a PhD journey within a reasonable timeframe is possible with commitment.	
Levels of achievement	
☐ Not all items acknowledged	☐ All items acknowledged

Part-time vs full-time	
Responsible parties: student and supervisor. MOU item.	
A decision should be made concerning part-time and full-time studies. ☐ Check if your institution considers both these options. ☐ Check your institution's rules regarding the minimum and maximum length of allowed studies under each option, as appropriate. ☐ Acknowledge the minimum time commitment required by the student for a PhD. From SAQA regulations, this is 360 credits or 3600 notional hours of work. For perspective, this is 450 full days of work or 900 half-days. ☐ Acknowledge the understanding that sometimes funding cannot be obtained for part-time students, or vice-versa. ☐ Discuss the age of the doctoral student and the effect of this on the timeline of the studies.	
Levels of achievement	
☐ Not all items acknowledged	☐ All items acknowledged

Initial topic discussion	
Responsible parties: student, supervisor, and line manager	
Whether this is the student's pre-registration topic or a topic suggested by the supervisor, the feasibility of the topic should be determined. Feasibility includes the certainty of making a novel contribution. ☐ Early-career supervisors should engage with the South African Statistics community to check feasibility if there is any uncertainty. Experts, both in SA and internationally, in the proposed field of research could be identified by the supervisor. ☐ The topic's current status in international research should be assessed for risk of being completed by others before the student and risk of limited contribution to the field. ☐ Does the supervisor have capacity and expertise in the field for this topic? Acknowledge the risk that a supervisor may reach a point in the research where their input may be limited. [MOU] ☐ It is important for the student to acknowledge their interest in the topic decided on. The study will be the main focus of the student for an average of 5 years (in SA), so interest is important. Students need not be pressured into working on a particular topic if it is not of interest to them, and should be willing to change topics/supervisors if this is the case on the first annual review. ☐ Major changes in topic should be finalised no later than one year after first registration. ☐ Acknowledge the risks associated with lack of interest in a topic: lack of motivation to complete; prolonging residency; personal priorities and circumstances may change; mental and financial stress if the study takes longer to complete. ☐ The student acknowledges to communicate such issues promptly due to change of circumstances, such as lack of interest in a topic, lack of motivation to complete, prolonging registration period, personal priorities, mental and financial stress if the study takes longer to complete.	

Levels of achievement

☐ Partial consideration of feasibility and student interest, and supervisor capacity. Risks not acknowledged.	☐ Full consideration of feasibility, capacity and student interest, supervisor capacity NOT confirmed by line manager. Risks acknowledged.	☐ Full consideration of feasibility, capacity and student interest, supervisor capacity confirmed by line manager. Risks acknowledged.

Publication potential, and possible restrictions in terms of NDAs / IP

Responsible parties: student and supervisor. MOU item.

There should be discussion between the supervisor and student on the expected outcomes in terms of publications from the PhD.

- ☐ Check on the institution's explicit rulings in terms of the number of published or 'publishable' papers that need to be created during the degree.
- ☐ What are the expectations from the involved parties with regard to publications? Acknowledge and discuss these expectations.
- ☐ There has been discussion on the risk that these expectations might have to be limited if any NDAs / IP agreements reduce the potential to publish work.*

Levels of achievement

☐ No consideration of publication requirements.	☐ Institution requirements and publication requirements considered. NDA/IP issues not considered or not necessary.	☐ Institution requirements and publication requirements considered, and NDA/IP issues are understood by both the student and supervisory team.

Creation of networks

Responsible parties: student and supervisor

At least within SA, field experts should be made aware of the proposed study so that they can indicate their willingness to provide quality control advice, co-supervision if appropriate, or even assessment/evaluation. Supervisors are encouraged to contact experts in the field outside SA to facilitate the proposed research to be at the cutting edge of the field.

While both the supervisor and student should be aware of the fact that networks of experts should be developed in order to raise the quality (and visibility) of the degree outputs, the primary burden is on the supervisor to form these networks. Such networks can facilitate post-PhD research for the new graduate.

- ☐ The minimum effort required in this area is to attempt to involve the South African Statistics community in certain aspects of the study, namely in co-supervision (if at all necessary), quality control (ensuring that the experts of the field at least with SA are involved), and assessment.
- ☐ International academic involvement is recommended, and may even be mandated by the institution for the panel of assessors.

☐ The supervisor should be aware of the institutional requirements for internal and external supervision and assessment from the outset. ☐ Students should also be encouraged to join networks of peers across SA. ☐ Supervisors should ensure they are aware of (at least) the local networks in the field of study that have already been established or are established during the student's studies.	

Levels of achievement

☐ No networks joined or established.	☐ Networks established/ joined only for assessment, as mandated by the institution.	☐ Partial networks established/joined for quality control, assessment, or peer support.	☐ Networks established/joined for quality control, assessment, and peer support.

2. Funding

The financial management and stability of the student potentially plays a crucial role in the successful completion of the degree. Discussions regarding funding should include the different options of registration (full-time and part-time), movement between the two, potential institutional and governmental funding structures, potential short-falls between funding and overall expenses can occur, and what the impact of such shortfalls can have on the completion times. Additional costs associated with conference attendance and publications should also be considered. Assistance with grant proposals should also be discussed and be seen as one of the outcomes strived for by the students.

On completing this section of the rubric, students will have developed the following graduate attributes: entrepreneurial mindset, ethical reasoning, professionalism, responsibility, financial management, digital literacy, critical thinking, written communication.

<table>
<tr><th colspan="2">Part-time vs full-time decision-making process</th></tr>
<tr><td colspan="2">Responsible parties: student and supervisor. MOU item.</td></tr>
<tr><td>Full-time students are more likely to be awarded university financial support, or even supported by projects under which there is funding for PhD students.
☐ Should funding received not be enough, options of teaching undergraduate courses, or tutoring should be discussed.
☐ With part-time PhD students (if the institution allows this), funding is usually less of an issue as they are often professionally full-time employed. Discuss this as appropriate.
☐ It is also possible that in the first year of study the student is full-time, but later gets a job and may or may not have to move to part-time studies. As this choice is made regarding financing, it must be understood that the length of study will be affected and must be discussed.</td><td></td></tr>
<tr><td colspan="2">Levels of achievement<table><tr><td>☐ Not all items discussed.</td><td>☐ All items acknowledged</td></tr></table></td></tr>
<tr><th colspan="2">Funding needs and sources</th></tr>
<tr><td colspan="2">Responsible parties: student and supervisor.</td></tr>
<tr><td>The funding needs and possible primary and secondary sources for a student need to be discussed early on.
☐ There should be a discussion on the amount, type, and</td><td></td></tr>
</table>

term of funding that is required for the PhD (in relation to the full-time / part-time status of the student). Note that certain funding sources are limited in their length, and this should be taken into account from the outset. ☐ There will be a reduced risk of not having enough funding for the PhD if it is ensured that both the student and supervisor are in agreement on the needs for the degree. ☐ Students should be aware that supervisors are not always able to fund studies and the ability may change over the duration of the study period. Students should profile their financial needs with an actual budget into the future including their possible life changes. ☐ Both primary and secondary sources of funding should be identified. Fees and subsistence funding should be discussed, as well as other items like academic funding for conferences, etc. Secondary sources of funding should also be considered if primary sources are limited in length or amount. ☐ Take note that institutional regulations concerning "over-funding" or "double-dipping" are important to consider and abide by. The supervisor and/or institution should monitor the possibility of double-funding. ☐ Potential of fixed-term contracts available for junior staff working on research should be discussed. There may be internal funding for contract positions from the department, and other divisions within the institution. These options should be investigated. ☐ Also consider external funding for fixed-term contract positions for PhD students. Any retention policy on financed positions should be carefully considered.	

Levels of achievement

☐ No funding is considered / no need for funding.	☐ Funding needs are identified, but not sources.	☐ Funding needs are identified, as well as primary sources, but no secondary sources are identified.	☐ Funding needs are identified, and both primary and secondary sources.

Applications for funding - using the “central resource” list	
Responsible parties: student and supervisor.	
☐ There is an accessible list of possible resources at https://sites.google.com/view/statsnetsa/funding that should be consulted for every PhD requiring funding, but this list is not exhaustive, and more sources specific to mathematical sciences (such as	

the CoE-MaSS published opportunities) should be considered. National sources of funding should be considered as becoming more scarce, so these identified avenues are likely to be more productive. Supervisors and students that obtain funding from novel sources should make contact with StatSNetSA to include the source of funding on the centralised list if it may be considered a possible source of funding for later students/work.	

Levels of achievement

☐ Central list not consulted (or funding is not required)	☐ Central list consulted; new sources published with StatSNetSA.

Grant-writing

Responsible parties: student and supervisor.

Writing (successful) grants is an art. By the end of a PhD, the supervisor should ensure that the student, if they intend on moving into academia, is comfortable writing high-quality grant proposals in relation to their research. A student who is not staying in academia can also benefit from grant-writing skills as it teaches the ability to promote and explain one's research. ☐ The first exposure to this will be the application for initial funding (grant/bursary) for PhD studies, in which the supervisor should guide. ☐ Subsequent proposals should be improved continuously as the main body of research is built upon, so that in the event a call opens, the fine tuning to the call's specifics can easily be made. ☐ Note that one way to enrich your proposals is to link your work to a Sustainable Development Goal [https://sdgs.un.org/goals]. ☐ By the end of the PhD journey the student should be equipped to apply for research grants with less guidance.	

Levels of achievement

☐ No funding is needed and grant-writing is not a requirement.	☐ No funding is needed, but grant-writing will be practised.	☐ The student may be partially responsible for developing and submitting grant proposals.	☐ The student will be able to develop and submit their own grant proposals after the PhD, and is aware of any applicable SDGs.

NRF rubrics for grant-writing	
Responsible parties: student and supervisor.	
In addition to generic grants, NRF Thuhthuka grants are specifically available to PhD students who are employed as academic staff permanently or on a 3 year fixed term contract. The main component of any proposal is whether it is aligned to the call, within budget (of funder) and also of course the scientific merit. It is also beneficial if the proposal can indicate previously peer-reviewed work of the team that aligns with the proposal. Funders are also positively influenced if there is evidence of co-funding, and student supervision in the work packages of the proposal. In proposal-writing the supervisor and student should clearly motivate the novelty of the research and the contribution of each team member. ☐ The supervisor should mentor the student to complete such an application successfully. It is beneficial to the outcome of a proposal if the young PhD gets the draft reviewed by a senior academic, particularly with regards outcomes, budget parity and rubric used by the assessment panel. ☐ Discuss the applicable NRF rubric with the student available on the NRF website (grant type specifics should be taken into account as well): 1) Proposal; Scientific merit (rationale, approach, methodology, scientific & ethical logistics and technical feasibility) 2) Track record of applicant; Past research (contributions to knowledge production); ability of the applicant to do the research proposed. 3) Equity of applicant (Race/gender) and Equity of students supervised (+ M and D degrees) (In South Africa this is considered - take note of it) 4) Collaboration; international, national and institutional (appropriateness; roles clearly indicated); in the proposed research, and this should be explicit. 5) Impact of the proposed research on the field and its wider impact in society.	
Levels of achievement ☐ No funding is needed and funding applications are not a requirement. ☐ NRF rubrics have been consulted and discussed.	
Finalisation of funding	
Responsible parties: student and supervisor.	
Special attention should be paid to the finalisation of funding and payment into the university account. This item should be	

continuously reviewed during the PhD. ☐ Once the funding award letter arrives, one needs to be vigilant about administration details with regards to release and receiving of funds. ☐ There will be differences concerning the type of funding (e.g. bursary, released to the student, versus a grant, ring-fenced to an entity). It may be necessary to indicate to finance that funding be ring-fenced for a purpose. ☐ Annual reporting of funding will have to be completed, so flows of money (as well as research outcomes) should be well documented. The student is responsible for reporting to funders when notified, and should always involve the supervisor.	

(Current) level of achievement

☐ No funding is needed - university accounts will be paid privately, but are not yet finalised.	☐ Funding administration acknowledged but payments and reporting not yet complete.	☐ Funding administration and reporting complete; university accounts paid.

3. The Thesis Document

The successful completion and submission of the thesis document is the tangible end goal of a doctoral degree. Initiating discussions pertaining to this document in the pre-proposal phase and consistently continuing its development through the whole process will help the student to better navigate the requirements of the degree. Included in these requirements are the advantage and disadvantages between a full thesis and a thesis by publication, the inclusion of external (to the department) supervisors, expected contributions by all parties, and the general ethical and integrity obligations associated with the research process as captured in the Singapore Statement on Research Integrity (Resnik & Shamoo, 2011). The relevant institutional rules and consequences regarding misconduct (e.g. plagiarism and misrepresentation of data and result engineering) should be clearly understood by both the student and the supervisor(s). There should also be an agreement on the utilisation of AI and other large language models (LLMs) during the generation of knowledge and final write-up.

A pivotal aspect of the student and supervisor(s) relationship is the discussion and agreement regarding feedback on draft chapters and publications. Both parties should agree on submission and feedback timelines, while making allowances for delays.

The administrative role of the supervisor for the selection of appropriate external examiners and the institutional title registration should be done with circumspection to avoid negative repercussions on the student.

On completing this section of the rubric, students will have developed the following graduate attributes: critical thinking, written communication, digital literacy, responsibility, emotional intelligence, and self-awareness.

<table>
<tr><th colspan="2">Second discussion on topic</th></tr>
<tr><td colspan="2">Responsible parties: student and supervisor.</td></tr>
<tr><td>The topic for the proposal (post-registration) can come from the supervisor or from the student but should be developed together for the title registration document / post-registration proposal document and any proposal for ethical clearance.
☐ Check institutional requirements for title registration, proposal submission and ethics requirements and processes.
☐ Consider co-supervisors and industry links for student-and-staff research teams. Industry and literature reviews are good sources to help identify projects and gaps within the literature.
☐ Supervisor administration documents contribution: The expectations and role of the supervisory team and student should be clarified during the process of creating the title registration document / post-registration proposal document. The responsibility sharing of this task will not necessarily</td><td></td></tr>
</table>

remain the same allocation as it will be for later work - the supervisor will probably have to help more on these documents at first, since the student is transitioning from Masters and is new to these processes. As the PhD progresses, more of this work should fall on the student's shoulders.

- ☐ At this stage the students are encouraged to keep reading and researching journals, practise freewriting, and participate in informal email exchanges with the supervisors to exchange ideas.

Levels of achievement

☐ The topic and proposal for any needed title registration or ethical clearance documentation are not in place yet, and the supervisory team's role is not quantified in the creation of these documents.	☐ Supervisory team's contribution is defined. The topic and proposal for any needed title registration or ethical clearance documentation are in development.	☐ The topic and proposal for any needed title registration or ethical clearance documentation are complete.

Institutional research mandate and the four principles of the Singapore Statement on Research Integrity

Responsible parties: student and supervisor.

The institution's research mandate should be acknowledged.

- ☐ Always familiarise yourself with your institution's internal policies regarding the registration process, the MOU, the post-registration documents, the format of the thesis, the regulations regarding the appointment of internal and external co-supervisors, publications (where and how), the appointment of external examiners and the submission of the final product. Do not underestimate the importance of knowing these policies. The risk of adhering to this guiding rubric while not knowing the institution's own policies should be acknowledged. *

Additionally, there should be acknowledgement of the Singapore Statement on Research Integrity (2010), which is a global movement toward promoting ethical conduct among scientists around the world. These four guiding principles are:

- ☐ Honesty in the research process
- ☐ Accountability in the conduct of the research
- ☐ Professional courtesy
- ☐ Good stewardship of research

Acknowledgement of implications of Research and Scientific Misconduct:

- ☐ The supervisors and students must have an initial discussion about research and scientific misconduct in terms of fabrication, falsification and plagiarism in all aspects of the PhD process, including AI tools e.g.

ChatGPT. The student must be made aware of the serious consequences of the misconduct, and the supervisors have the responsibility to guide the student throughout the whole process. ☐ Always familiarise yourself with your institution's internal policies regarding the registration process, the MOU, the post-registration documents, the format of the thesis, the regulations regarding the appointment of internal and external co-supervisors, publications (where and how), the appointment of external examiners and the submission of the final product. Do not underestimate the importance of knowing these policies. The risk of adhering to this guiding rubric while not knowing the institution's own policies should be acknowledged. * ☐ TurnItIn Reports: Departmental and/or institutional regulations on plagiarism (and self-plagiarism) need to be reviewed and adhered to. If there is no formal institutional regulation, for novice supervisors we recommend that the report should not indicate more than 2% from any one source, and ideally less than 20% similarity overall. Ensure that there are no blatantly plagiarised sections. ☐ The AI-detection from tools such as TurnItIn should not be used as a definitive AI detection mechanism (it is possible that AI use is not detected, and also possible that AI use is incorrectly flagged). The use (and misuse) of generative AI is discussed in more detail below. ☐ Self-plagiarising (or uncited copying of) work that was previously examined may be more serious than self-plagiarising one's own publications that make up the PhD, and this should not be taken lightly. The student's work that has already been published or examined should be cited appropriately.	
Levels of achievement	
☐ Not all items discussed	☐ All items acknowledged
Ethical clearance and title registration	
Responsible parties: student and supervisor.	
☐ Processes of the institution for the relevant ethical clearances; including data collection procedures, etc. should be discussed. The supervisor should help the student to navigate the relevant ethics approval process at their institution and/or other relevant institutions.	

- ☐ During the discussion of choosing a topic and developing the title registration document / post-registration proposal document, the relevant ethics associated with the project must be discussed. This includes human, animal and data (whether open source or not) ethics, both data collected/sourced and data created. It will form part of the literature review of the students to determine the ethics relevant to their projects.
- ☐ All students must acknowledge ethical risks associated with their projects even if there are no ethical clearances required. There is the potential for ethical liability or risk in any sort of data ownership or analysis, so the implications of not having clearance from the institution needs to be carefully considered as a risk. *
- ☐ More than this, if there is no ethical clearance currently required for this type of study at the institution, the possibility may exist that the ethics proposal will need to be created or updated later in the project's life, as the project or institutional policies change. Note that ethical clearance can not be applied for *after* the research or data collection has been started.
- ☐ The format of title registration (no examiners at this stage) and length of the post-registration proposal document will depend on the requirements set out by your university and/or departmental postgraduate research or administration committee.
- ☐ The forum for feedback within the department, for example, a department research seminar should be discussed. Each university and department run their postgraduate research programme uniquely. It is strongly suggested that the student participate in (departmental) research seminars by presenting their ideas or progress. This will build the public speaking confidence of the student, encourage the student to understand their work on the level where they can convey it to their peers, and present the topic (and its feasibility) for discussion within the department that can result in additional ideas and support from the supervisor's peers.

(Current) Level of achievement

☐ Title registration and ethical clearance documentation has not been considered yet, and the project has not been presented at departmental level.	☐ Title registration and ethical clearance documentation is in development; the project may or may not have been presented at departmental level.	☐ Title registration and ethical clearance documentation is complete but has not been processed; the project may or may not have been presented at	☐ Title registration and ethical clearance documentation is complete and has been processed by the institution, and the project has been

		departmental level.	presented at departmental level.

Contribution proportions

Responsible parties: student and supervisor. MOU item.

The discussions that were initialised in title registration and post-registration proposal discussion about responsibility allocation for the thesis document and publications of the research should be revised and included in the MOU.

- ☐ Be aware of institutional rules on thesis/paper contribution proportions. Where the rules are not strictly given by the institution, at least a general agreement on where the supervisor will contribute more should be made (e.g. in the beginning vs when the work becomes solely the student's responsibility), including author order on publications.
- ☐ Papers should not be submitted for publication without the supervisor's and student's involvement, as the IP belongs to the institution.
- ☐ The authorship of each publication must be discussed and agreed upon by the supervisory team and the student. The first author should ideally be the student, and/or ordered by contribution to the content, methodology development and programming. In some instances, the supervisory team's contribution may be more than that of the student in the initial (and possibly second) publication.
- ☐ The right to be included as an author of a paper should follow some general guidelines, such as 1) planning of and contribution to some component of the work (e.g. the concept, the design); 2) writing or revising of a draft of the intellectual content; and 3) final approval of the version to be published. It is important that in total (with the final outcome of the degree), the contributed proportion of the student is more than that of the supervisors; ordering of authors should also indicate this. The sixth guideline of Statement on Research Integrity 2010 (https://wcrif.org/) on authorship states "Researchers should take responsibility for their contributions to all publications, funding applications, reports and other representations of their research. Lists of authors should include all those and only those who meet applicable authorship criteria."
- ☐ There may be institutional regulations that will have to be considered for authorship of student work.

Levels of achievement

☐ Supervisory team's contributions, and paper authorship hierarchy are not yet defined.	☐ Supervisory team's contribution or paper authorship hierarchy are not yet defined.	☐ Supervisory team's contribution and paper authorship hierarchy are clearly defined.

The Use of Generative AI

Responsible parties: student and supervisor. MOU item.

The exponential expansion of the use of Generative AI in education and research, cannot be ignored, regardless of the stance or policy on AI that the institution has.

- ☐ The institution's policy on the use of AI in research is acknowledged and adhered to.
- ☐ Regardless of whether or not the institution has a formal policy (or an informal policy) for acknowledgement, the student and supervisor need to ensure that the use of generative AI is discussed in the context of research integrity, noting that generative AI can create content that contains false information, made-up references, and biased or prejudiced viewpoints, amongst other things.
- ☐ Generative AI, however, can be extremely beneficial for the research process, and the use of different AI tools should be discussed. This includes tools for correcting language and grammar, tools for finding and summarising topical peer-reviewed literature, and tools for generating, testing and commenting on code, amongst others.
- ☐ It is vital that the student is aware of the fact that every time AI is used in the research process, the content, including code, that it generates needs to be rewritten in the student's own words, understood and defended by the student, verified as true and unbiased by the student, and, if necessary, referenced in the thesis as having been used in the production of the research.

Levels of achievement

☐ Institutional AI policies have not been acknowledged. Generative AI advantages and disadvantages have not been discussed. The supervisor cannot clearly see where and when Generative AI has been used in the dissertation.	☐ Institutional AI policies are acknowledged and adhered to. While the use of AI has been discussed in terms of research integrity, the supervisor cannot see (or is not clear on) where Generative AI has been used.	☐ Institutional AI policies are acknowledged and adhered to and the use of Generative AI has been discussed, with a focus on research integrity. The use of Generative AI is transparent and well referenced in the research product, where necessary.

Thesis vs. separate publications	
Responsible parties: student and supervisor.	
Publication-based thesis (PBT) can result in shorter completion times, lower rates of drop-out, and higher levels of productivity throughout the degree. It addresses the institution's publication subsidy requirements, and it has the immediate benefit of accountability and quality assurance by external reviewers before the examination process, even though the thesis will still be examined as a single product. The published works from the thesis may be available and read more widely than a monograph, and can increase the national and international profile of the student and the supervisors much faster (Frick 2016). ☐ The supervisor should discuss the difference between a traditional thesis as a monograph compared to a publication-based thesis (PBT) with the students (Krumsvick 2022, Hodgson 2017). The PBT usually consists of 3 or more papers, written during the doctoral study period. The final decision will be driven by factors such as full-time vs part-time, contact vs distance learning, the type of supervisory model, the curriculum, structure of the programme, funding requirements, the student's abilities, partnership opportunities, expected outcomes, and institutional guidelines. ☐ Acknowledge that a thesis with a unified narrative is still required for PhDs completed by publication. For the PBT, publications will have to be accompanied by an introduction to and a summary of the papers included. It can be in a "sandwich" format where the papers are bounded by the introduction and conclusion, or in the Scandinavian format consisting of a summary thesis and the publications in the appendix. ☐ It remains the supervisor's responsibility to guide the student towards ensuring that the PhD's purpose is addressed in one or more of the publications in a PBT and that the overarching research contribution is appropriate and highlighted in the final submission for examination. ☐ Acknowledge that one form (thesis/publications) might transform into another during the PhD journey. Discussions on the format of the thesis should be done at the start of the research process. This decision will form part of the expected deliverables and outcomes of the student. The student and supervisor should plan the steps required to complete a certain format. However, it may happen that the format of the thesis could change as the study progresses and that adjustments would have to be	

made for a move from a PBT to a hybrid PBT-monograph or monograph thesis. At the core, the final product must still adhere to the requirements of the institution and the core nature and purpose of the PhD.

- ☐ There should be understanding that the supervisory team will advise on the journals that will be targeted for PhD publication outputs. The payment of publication costs should also be discussed, given the choices of journals.
- ☐ Data providers and co-researchers may need to be cited on published papers - it is important to ensure all parties are aware of the requirements by roleplayers.
- ☐ It is recommended that the corresponding author be the supervisor of the thesis. The IP of the paper belongs to the institution, so if the student does not remain at the institution there may be implications for movement of IP if the student is the corresponding author.

Levels of achievement

☐ Unified PhD narrative, and the terms of conduct and authorship for PhD publications are not yet defined.	☐ PhD narrative might be fully developed, but terms of conduct and authorship for PhD publications are not yet defined.	☐ PhD narrative is unified, and terms of conduct and authorship for PhD publications are clearly defined.

Drafts and Feedback

Responsible parties: student and supervisor.

Part of the initial discussions during the first title registration and post-registration proposal development must be how the different drafts of the proposal, publications and pre-examination drafts of the thesis will be reviewed and assessed by the relevant supervisors.

- ☐ The format of a draft thesis/paper/chapter should be discussed.
- ☐ The format of feedback on drafts by the supervisors and students respectively must also be discussed.
- ☐ The turn-around time on these reviews/assessments by the supervisors and students respectively must be discussed.

Levels of achievement

☐ Draft and feedback format, as well as review turnaround time are not yet considered.	☐ Draft and feedback format, as well as review turnaround time are clearly defined.

Data and document backup procedures and version-control processes

Responsible parties: student and supervisor.

- ☐ Discussion and agreement on a data *and* document management structure with the student is essential to ensure the student does not lose information.
- ☐ Version control must, at a minimum, be manual if not automatic. A new document could be copied over and dated on a weekly basis, for example.
- ☐ Review your institution's requirements regarding data management and storage. Loss of work and data represents a substantial risk. *****

Levels of achievement

☐ Data and document backup processes are not in place, nor are version control processes.	☐ Data and document backup processes are in place, without version control.	☐ Data and document backup processes are in place, as well as a form of version control

Final Title Registration

Responsible parties: supervisor.

Roughly six months before the final submission of the thesis, the final title registration must be completed (if a different timeline is not imposed by the institution).

- ☐ The supervisory team and student must agree upon the final title of the thesis.
- ☐ The supervisory team must also suggest appropriate external examiners for each individual thesis. These examiners should be selected with the same care and consideration with which the co-supervisor was selected.
- ☐ The number of external examiners and their distribution nationally and internationally will typically be determined by the institution, but even if the institution does not mandate it, we recommend at least one international external examiner.

Levels of achievement

☐ Title registration documents (with assessors) are not yet completed.	☐ Title registration documents (with assessors) are completed and submitted to the institution.

Final Document Preparation	
Responsible parties: student, supervisor, and line manager.	
☐ It is the responsibility of the student to make corrections to the thesis, after examination, as recommended by the assessors. The student must commit to make these changes, otherwise the line manager cannot support the awarding of the degree. ☐ A report to the examiners/postgraduate committee clearly indicating how the comments were dealt with should be included in this process.	

Levels of achievement

☐ Student has not completed corrections, and has not compiled a correction report.	☐ Student has completed corrections, but has not compiled a correction report.	☐ Student has completed corrections, compiled a correction report, and the supervisor has submitted the corrected thesis and report to the line manager.

4.

5. Student-supervisor relationship

The student-supervisor relationship is closely related to the student and supervisor growth (Section 6). A fractious relationship could have a detrimental impact on the successful completion of the degree. Clear expectations, boundaries and limitations set out by both the student and the supervisor(s) should ensure a good working relationship. Any misunderstanding should be addressed quickly and professionally, with guidelines on escalating grievances being available to both parties.

<table>
<tr><th colspan="2">Supervisor capacity</th></tr>
<tr><td colspan="2">Responsible parties: supervisor</td></tr>
<tr><td>It is important to be clear about any limitations in the supervisor's workload capacity or field of expertise.
☐ The possibility of a co-supervisor should also be discussed with the student if it has not been already.
☐ The risk of the supervisor not having enough time to attend to another student should be discussed.*
☐ There may be institutional limits to the number of students a supervisor may supervise concurrently.
☐ Early-career supervisors are advised to take on at least one supervisory role initially. Supervision experience is important immediately after PhD graduation. Depending on the supervisor, one may want to bring in more supervision roles in a staggered manner as experience builds.
☐ It is advised to not supervise colleagues unless there is already a good working relationship. In any case, clear boundaries should be established, making sure that the student will be able to defer to the supervisory decisions of the supervisory team, even if the student happens to be in a more senior role in the department, for example.</td><td></td></tr>
<tr><td colspan="2">Levels of achievement
☐ Not all items have been discussed or acknowledged. ☐ All items have been discussed and acknowledged.</td></tr>
<tr><th colspan="2">PhD Process timeline completion</th></tr>
<tr><td colspan="2">Responsible parties: student, supervisor, and co-supervisor. MOU item.</td></tr>
<tr><td>The timeline is a standard item in a PhD proposal, but should be adapted with input from the supervisory team, using their experience in order to ensure the timeline is practical and feasible.
☐ The proposed timeline is suitably updated.</td><td></td></tr>
</table>

- ☐ The student should be aware of the minimum term of registration as well as the time it may require to become an independent researcher.
- ☐ Early-career supervisors will find it difficult to produce a full-time PhD in the SAQA-mandated 3 years. This should be taken into account when generating a timeline.
- ☐ There should be a balance between being specific and being realistic when constructing the timeline.

Levels of achievement

☐ Proposal timeline is not yet updated.	☐ Timeline may be updated, but needs revising for feasibility concerns.	☐ Timeline is updated and strikes a reasonable balance between feasibility and specificity.

Relationship between primary supervisor and student

Responsible parties: student and supervisor. MOU item.

While the MOU should observe that supervision arrangements vary, it nevertheless assumes a 'main supervisor' ('an identified single point of contact'), with the 'team' potentially including other supervisors, research staff in the subject and departmental advisers to postgraduate students, one of whom may be a 'second supervisor'.

- ☐ Any notion of substantial and even equally shared co- or joint supervision with supervisors of equal supervisory (if not institutional) status should be agreed upon, although it is most likely that the institution will require the identification of a main supervisor. This person will be responsible for the progression and administration problem-solving within the PhD.
- ☐ The supervisor should inform the student on what they can expect from them in terms of meetings and feedback. The supervisors should also take into consideration full-time vs part-time and distance students, the power relations between student and supervisors, culture and other matters of diversity and their roles as a knowledge creator/facilitator for the student.
- ☐ The supervisors must realise they may have a preferred type of supervisory model they would like to implement with all students, but that it can and will need some adjustments over the course of an individual student's degree. These models include the apprenticeship model (e.g. Szanton and Manyika, 2002; Backhouse, 2009 etc), team/co-supervision model (e.g Nulty et al 2009; Lee 2009, etc).

☐ and group/cohort supervision (e.g. Parker 2009, Samuel and Vithal, 2011, Harman, 2002). The correct model for your context should be driven by the curriculum, structure of the programme, funding, the student in context, partnership opportunities and the expected outcome (Cross and Backhouse, 2014). ☐ The institutional MOU should be adhered to. All parties must acknowledge the institutional MOU between student and supervisor if there is such a document. Take note that if the institutional MOU does not cover how editing of the MOU is moderated, this should be discussed. If the institution does not have an MOU it is recommended one is compiled by the department for internal use at least. ☐ Right from the start of the PhD, the supervisor and student should come to an agreement on how much typesetting and non-scientific editing will be done by the supervisory team. This can differ substantially across different supervision teams, so it is vital to have this discussed early on. The student's needs should also be taken into account, with acknowledgement that different students may require different levels of editing help. We recommend at least some guiding support is provided by the supervisor. Take note that, if a very high level of support is provided by the supervisor, the goal is that the student eventually grows to be capable of proper academic writing by the end of their degree. It may be beneficial to show your student an example of the intensity of your feedback or an explanation of your intensity (or lack thereof), so that this does not come as a surprise. ☐ Your institution may provide writing workshops, or facilities to edit language of research outputs. Alternatively, if funding is available, your institution may have a list of qualified editors that can be hired for editing. ☐ The student must commit to making the content and editorial changes that are recommended by the supervisory team. ☐ It is recommended that as far as possible, grievances be discussed within the student-supervisory team. If this is not possible, procedures for non-compliance of the institution should be followed. Procedures for non-compliance are generally listed in the institution's regulations, but if this is not the case, it is important to understand that the usual procedure is to take the matter up with the departmental head if needed, and progressively higher up, if needed. These procedures must be understood and acknowledged by the student.	

- ☐ Extraneous problems do often arise during the life of a PhD study. While these are seldom under the responsibility of the supervisor, it is vital that open lines of communication exist between the student and some advisor be it a predetermined mentor, member of the department, or a counsellor, AND the supervisor to a limited extent - it is important that the supervision team is aware of any extraneous problems that may be hindering any major progress on the PhD, but it is not necessarily their responsibility to solve these extraneous problems.
- ☐ The risk that the PhD's duration may have to be increased because of both internal and external circumstances needs to be acknowledged.*

Levels of achievement for establishing student-supervisor relationship

☐ The relationship between student and supervisor is not yet well defined, and the institutional MOU has not been signed.	☐ The institutional MOU has been signed. Formal relationship facets are not defined for type of relationship, the level of editing help, and the possible influence of extraneous problems.	☐ The institutional MOU has been signed. Formal relationship facets are defined for type of relationship, the level of editing help, but not for the possible influence of extraneous problems.	☐ The institutional MOU has been signed. Formal relationship facets are defined for type of relationship, the level of editing help, and the possible influence of extraneous problems.

Levels of achievement for grievance procedures

☐ The student is not aware of grievance and grievance escalation procedures.	☐ The student is fully aware of grievance and grievance escalation procedures.

Relationship between co-supervisor(s) and student, and between supervisor and co-supervisor(s)

Responsible parties: student, supervisor, and co-supervisor. MOU item.

An obvious issue with co-supervision is the extra dimension of communication required, including discussion and planning between the co-supervisors, the co-supervisors' provision of oral and written feedback, including on draft chapters, students' perceived support needs being articulated to both co-supervisors, and all parties making arrangements to meet and to allocate work.

- ☐ The supervisor should also reflect on the advantages (for example, mentorship, coaching and research teams) and disadvantages (increased administration and collation of works) of including co-supervisors. The supervisor network list can be of benefit to source co-supervisors for optimal expertise. Both the student and supervisor must acknowledge the benefit

of bringing in a co-supervisor to enrich the PhD study, especially when this guiding rubric is being used by an early-career main supervisor. Ensure that the supervisory team meets and discusses the strengths and weaknesses of the members of the team, and for which topics each supervisory team member can be engaged with. ☐ The student-co-supervisor communication dimension should be discussed. ☐ It should also be acknowledged that in some unfortunate circumstances, co-supervisors may have to take over the role as main supervisor for continuity purposes (retirement, etc.), thus transparent communication at all stages is advised. Unforeseen circumstances e.g. health, maternity leave, resignations, may require a change in role of supervisor and co-supervisor. A sustainable supervisory team should be put together as far as possible. ☐ The co-supervisor(s) and student must acknowledge their type of relationship (mentioned in the student-supervisor relationship above) and how they plan to work together. The relationship between student and supervisor may be different to that of the relationship between student and co-supervisor. ☐ Contributions must be defined in advance by the supervisory team, but can be adapted by the supervisory team across articles from the PhD or simply across the duration of the PhD. The co-supervisory team may require certain outputs in terms of publications. These should be discussed before finalisation of the supervisory team, in order to manage expectations. ☐ Co-supervision should not replace the supervisor's role - this role is intended to assist in the supervisory team, rather than to distribute workload. It is important to determine whether the co-supervisors are qualified enough, and if they are making enough of a contribution to the education of the PhD student. In some institutions there may be regulations that require the supervisor to motivate the appointment of (external) co-supervisors. Some institutions may also require their staff to be offered affiliate positions before they allow their staff to act as external co-supervisors at those institutions. ☐ The supervisor and student must acknowledge that the co-supervisor is not usually brought in to take on a major portion of the workload; co-supervisors may be brought in to raise the quality of the research output. ☐ The full supervisory team must acknowledge that the requirements for a PhD in Statistics will require	

statistical contribution to the relevant research fields. Publications will therefore first and foremost be of a statistical nature. Papers in other fields will be relegated in priority. Of course, it may be better (impact-wise) to publish in non-statistically-oriented science journals, but the statistical methodological contribution needs to be acknowledged in the paper and the thesis.	

Levels of achievement

☐ The relationship between student and co-supervisor is not yet well defined, in terms of type of relationship, communication protocols, and contribution extent.	☐ The relationship between student and co-supervisor is still in development, in terms of type of relationship, communication protocols, and contribution extent.	☐ The relationship between student and co-supervisor is clearly defined in terms of type of relationship, communication protocols, and contribution extent.

Mental health rules of engagement

Responsible parties: student, supervisor, and co-supervisor. MOU item.

An agreement needs to be made between the student and their supervisors as to the extent to which the supervisors can individually be approached should the student develop any mental health issues during the course of the degree. ☐ The risks associated with not having such an agreement need to be acknowledged.* ☐ In order to reduce the risk of mental health problems becoming a major issue during the PhD journey, the institution's mental health care pathways need to be identified.*	

Levels of achievement

☐ The risks associated with possible mental health problems, and the formal pathways to deal with these problems, have not been discussed.	☐ The risks associated with possible mental health problems, and the formal pathways to deal with these problems, have been discussed clearly.

Acknowledgement of differences in culture, language, and ages/generations

Responsible parties: student, supervisor, and co-supervisor. MOU item.

Differences between the supervisors and the student in terms of culture, language, gender and age, for example, need to be acknowledged, in that certain barriers need to be overcome in	

order for the supervisory team and student to communicate well. ☐ The risk that these barriers may lead to miscommunications need to be acknowledged.* ☐ It is encouraged that all team members develop sensitivity towards these differences, encouraging students to air any discomfort. ☐ Differences should be discussed openly and early on.	

Levels of achievement

☐ The risks associated with team differences are not yet acknowledged.	☐ The risks associated with team differences are yet acknowledged, and the doctoral team has committed to dealing with the implications of these differences openly but with sensitivity.

Communication protocol

Responsible parties: student, supervisor, and co-supervisor. MOU item.

Forms of engagement (formal vs informal conversation, e-mailing, messaging) need to be discussed and agreed upon. ☐ The "rules of engagement" - when, where and how the supervisors and student can be engaged with should be discussed. ☐ Some institutions may require you as supervisor to follow formal communication channels (via online management systems or e-mails). ☐ A two-week turnaround on moderately-sized pieces of work is recommended. ☐ POPIA act should be acknowledged in terms of not sharing communications and information with student's family, SRC members, etc.	

Levels of achievement

☐ Rules of engagement (and communication channels) have not been established, and/or the turnaround time is not adhered to. POPIA has not been considered.	☐ Rules of engagement (and communication channels) have been established, and POPIA is adhered to, but turnaround time could be better.	☐ Rules of engagement (and communication channels) have been established, POPIA is adhered to, and turnaround time is strictly adhered to.

Meeting protocol

Responsible parties: student, supervisor, and co-supervisor. MOU item.

Meeting protocol should be discussed at the start of the PhD. Meetings provide students the platform to continually defend	

their work orally, which is especially important in the context of the over-use of GenAI; supervisors can use the meetings as opportunities to check that their student can defend their work as their own.

- ☐ The student does the speaking at meetings.
- ☐ The agendas are set by the student.
- ☐ After the meeting, the student provides a summary of the meeting via email.
- ☐ POPIA is acknowledged in terms of not sharing meetings with student family, SRC members, etc.

Levels of achievement

☐ Student is not vocal at the meetings, nor do they set the agenda or provide summaries of the meetings. POPIA may not have been acknowledged (or adhered to).	☐ Student is not vocal at the meetings, OR they perhaps do not set the agenda OR they perhaps don't provide sufficient summaries of the meetings. POPIA has been acknowledged.	☐ Student are vocal at the meetings, they set the agenda or provide summaries of the meetings. POPIA has been acknowledged.

Progress reports

Responsible parties: student and supervisor. MOU item.

Institutions and bursars will require progress reports from the students and supervisory team. It is important to know how and when these are completed at your particular institution.

- ☐ The student and the supervisory team have been made aware of the progress report requirements of the institution.
- ☐ Progress reports are completed on time.

Levels of achievement

☐ The institution's progress report requirements are unknown and/or progress reports are not completed on time.	☐ The institution's progress report requirements are known and adhered to, with progress reports being made on time.

6. Standardised Assessment

The supervision guiding rubric in this section most closely resembles an assessment rubric that academics will be familiar with. However, this rubric *does not need to* be used in the assessment of the PhD. This assessment section is included so that, right from the start of the PhD study, both the supervisor and student are aware of how PhDs in Statistics are typically assessed from the beginning of the doctoral programme. Moreover, this section could be used as a marking guide for examiners if rubrics are not provided for the assessment of a particular thesis in Statistics.

For each subsection, a level of achievement will be chosen. If *any* category is judged as "**Unacceptable**", the thesis should not be handed in for assessment until corrections have been made. The same goes for any category judged as having "**Major corrections**" necessary. This is to avoid the worst-case scenario that an examiner suggests a failure rather than a major revision.

If this rubric section is being used for examination purposes, if two or more "**Major corrections**" are indicated, then an overall "**Major corrections**" decision should be made. Otherwise, a "**Minor corrections**" decision will suffice. It will be extremely rare that a pass without corrections will be indicated, as the grading of a research work often incorporates an element of holistic grading, and often assessors will require clarification on certain items even if corrections do not seem of utmost importance. That said, now that there is a standardised assessment rubric available to the Statistics community in South Africa, a rubric that can be given to students and supervisors in advance of even *starting* the PhD, we hope that, in future, we will see examples of unconditional passes, and thus the rubric makes allowance for that.

We note that, as the use of generative AI is growing, the need for an oral defence of the PhD research is becoming more apparent. This is not yet considered as part of the assessment of the PhD in South Africa, but will be added as an additional section in this guiding rubric as more South African institutions make the move towards formally implementing this oral defence. We acknowledge that this is a very complicated process, and as such, significant research should be undertaken in establishing a guide for its implementation in postgraduate Statistics research.

<table>
<tr><th colspan="2">Focal question or hypothesis</th></tr>
<tr><td colspan="2">Responsible parties for all subsections: student, supervisor, co-supervisor, assessors</td></tr>
<tr><td>☐ Are the chosen title/subject, scope, and objectives of the research thesis clearly defined, contextualised, and scientifically founded?
☐ Note that this does not cover whether or not objectives were met, but merely whether or not the objectives establish for the reader the clear scientific direction that the research is taking.</td><td></td></tr>
<tr><td colspan="2"></td></tr>
</table>

Levels of achievement

☐ **Unacceptable.** The title doesn't align properly with the scope or context of the study, or the objectives are not well defined or scientifically based.	☐ **Major corrections.** While the title seems appropriate, given the study context, the objectives are not well defined or scientifically based, or are too numerous or too few for the PhD context.	☐ **Minor corrections.** Title seems appropriate, but some objectives are not appropriate, or not appropriately scientific. Rephrasing or simple reworking is in order.	☐ **Satisfactory/Accomplished.** The chosen title/subject, scope, and objectives of the research thesis are clearly defined, contextualised, and scientifically founded.

Rationale/motivation

☐ Is the gap in the research field properly identified? ☐ What will the original contribution of the research be? ☐ Do the research findings make a contribution to the knowledge base of the discipline? ☐ Is the work or parts thereof, suitable for publication?	

Levels of achievement

☐ **Unacceptable.** The gap in the field is not identified, and/or the contribution is not original nor a proper contribution to the field. Publishing is in doubt, or publications from the research are possibly only in predatory/poorly reviewed journals.	☐ **Major corrections.** The gap in the field is not properly identified, or the contribution is not well defended as being original or a proper contribution to the field. The work is publishable, with a little effort.	☐ **Minor corrections.** The gap in the research field is identified, and the work seems novel, but the contribution needs to be better defended. The work is indeed publishable as is, or has already been published in peer-reviewed journals.	☐ **Satisfactory/Accomplished.** The gap in the research field is identified, the work is novel, and the contribution to the field is clear. The work has already been submitted for publication in acceptable peer-reviewed journals/books.

Scholarly context

☐ Is there proof of sufficient knowledge, interpretation and application of the relevant literature? ☐ Has any reviewed literature been taken out of context or misinterpreted? This must be avoided at all costs.	

Levels of achievement

☐ **Unacceptable.** The study has not reviewed a wide enough selection of relevant, respected, and recent literature on the topic. There may have been an element of "cherry-picking" literature to support the study, rather than covering literature that might criticise or invalidate any part of the student's work.	☐ **Major corrections.** The study has not reviewed a wide enough selection of relevant, respected, and recent literature on the topic. There is literature that exists that seems to argue against the student's study, but the student's argument could be the stronger one. However, this literature is not engaged with. This criticism must be addressed.	☐ **Minor corrections.** There may be some recent or relevant literature that needs to be incorporated into the study, simply to strengthen the study's argument. Alternatively, some research may have been accidentally misinterpreted.	☐ **Satisfactory/Accomplished.** The study has reviewed a wide enough selection of relevant, respected, and recent literature on the topic. This literature is correctly interpreted and applied in the current study.

Approach/methodology

- ☐ Is appropriate novel research methodology applied or introduced?
- ☐ In this guide, the recommendation is that, for a PhD in Statistics, there is an emphasis placed on novel methodology. Therefore, this section is of the utmost importance.

Levels of achievement

☐ **Unacceptable.** The study does not incorporate methodology appropriate to answering the research questions or meeting the research objectives. Alternatively, the methods are completely lacking in novelty - they have been used to answer the same problems before, in similar contexts, and with similar results.	☐ **Major corrections.** There may be some methodology that is inappropriate, or possibly some important methods that are missing in the student's work; these methods may even produce results different to those found by the student. These should be incorporated and their results should be interpreted together with the results that exist already.	☐ **Minor corrections.** There may be some methodology that is slightly inappropriate, however, with a proper additional defence, this can be overlooked. There may also be some additional methodology that would probably support the student's argument. These methods should be added for the sake of completeness.	☐ **Satisfactory/Accomplished.** Methodology is novel, appropriate, and extensive; it is well informed by the reviewed literature, and there are no obvious omissions of methods that might counter the student's arguments.

Application and/or simulation; Use of evidence

☐ Is sufficient application of appropriate research methodology, techniques and analysis demonstrated? ☐ Take note that even in applied studies there may be simulation requirements for publications.	

Levels of achievement

☐ **Unacceptable.** The methodology introduced is not utilised correctly. Alternatively, the application or simulation does not align with the research objectives.	☐ **Major corrections.** The methodology introduced, although aligned with the research objectives, is not utilised correctly (or some methods are not used).	☐ **Minor corrections.** The methodology introduced is utilised correctly, and aligned with the research objectives. Perhaps some methodological comparisons with literature need to be further explored.	☐ **Satisfactory/Accomplished.** The methodology introduced is utilised correctly and aligns well with the research objectives, even if the results were not expected.

Interpretation/discussion of results

☐ Is there a display of critical thinking (evidence-based personal insight) in terms of interpretation of methodology and results? ☐ Are the interpretations presented and evaluated as novel in the context of authoritative published literature?	

Levels of achievement

☐ **Unacceptable.** Results are not interpreted correctly, or are not evaluated within the context of the established literature.. Alternatively, the results do not align with the research objectives.	☐ **Major corrections.** There are minor errors in the interpretation of results, and/or there needs to be additional contextualising of the novelty within the current research field.	☐ **Minor corrections.** The results seem to be correctly interpreted, but perhaps not fully, and there may be some comparisons with existing literature that need to be further explored.	☐ **Satisfactory/Accomplished.** The results seem to be correctly and fully interpreted, and they are well placed within (or even against) the existing field of research.

Research insight/foresight

☐ Does the student show understanding of the possible further research as well as the limitations of the research? Are the strengths and weaknesses of the research sufficiently identified?	

Levels of achievement

☐ **Unacceptable.** Neither possible future research, nor the strengths of the research, nor the limitations (or weaknesses) are identified clearly.	☐ **Major corrections.** Perhaps one of the future research / strengths / weaknesses of the study are completely missing, or major work needs to be completed in all three areas.	☐ **Minor corrections.** While all areas are included, some work needs to be added on future research / strengths / weaknesses of the study.	☐ **Satisfactory/Accomplished.** Areas of future research are identified, and the strengths and limitations (or weaknesses) are clearly stated

Abstract, Introduction, and Conclusion

☐ Does the abstract, as well as the introduction-conclusion pair fully encapsulate the contribution of the thesis? ☐ The abstract should be written in layperson's terms. ☐ The student should understand that examiners should be able to have an idea what mark they will be heading towards at the end of the introduction, and that often examiners scan the abstract, introduction and conclusion to quickly see the 'golden thread' of the research work.	

Levels of achievement

☐ **Unacceptable.** The abstract does not cover every aspect of the monograph (rationale, question, method, and result/conclusion), and the introduction and conclusion don't fully encapsulate the study.	☐ **Major corrections.** Either the abstract or the introduction-conclusion pair do not fully summarise the study.	☐ **Minor corrections.** The abstract is sufficient, but either the introduction does not make the goal of the study clear, or the conclusion does not wrap the dissertation up properly.	☐ **Satisfactory/Accomplished.** The abstract, as well as the introduction-conclusion pair, fully encapsulate the contribution of the thesis (including the strengths, limitations and further research areas as mentioned before).

Writing mechanics; Organisation

☐ Does the subject of the study form a logical progression from the research objectives, and are the chapters coherent units? ☐ It is important to make sure that there seems to be a 'golden thread' tying all the sections of the thesis together. For example, the introduction might motivate the need for the literature review and the	

methodology section, that the methodology is linked to the literature, and that the results are compared with those found in the literature.	

Levels of achievement

☐ **Unacceptable.** Chapters seem isolated and independent, with the common 'golden thread' of the study not evident everywhere.	☐ **Major corrections.** Chapters or topics seem isolated, but with some revision could be better threaded together.	☐ **Minor corrections.** With a little effort in linking sections together, the 'golden thread' of the research could be pulled through the entire study.	☐ **Satisfactory/Accomplished.** The study flows well from the objectives, through the literature and methodology, to the results and conclusion. There is evidence of a 'golden thread' throughout, where sections are well linked together.

Grammar, spelling, usage

☐ Is the dissertation free of linguistic, typographical, and stylistic (consistency) errors?	

Levels of achievement

☐ **Unacceptable.** The thesis was not professionally edited. There are 100+ linguistic, typographical and/or consistency errors (not including referencing errors).	☐ **Major corrections.** The thesis was not professionally edited. There are dozens of linguistic, typographical and/or consistency errors (not including referencing errors)..	☐ **Minor corrections.** The thesis was probably professionally edited, but a number of linguistic and/or consistency errors still remain. There should be an absolute minimum number of typographical errors.	☐ **Satisfactory/Accomplished.** The thesis looks to have been professionally edited, with only a handful of linguistic, typographical and/or consistency errors.

Clarity, style, readability

☐ Is the argument in the research thesis presented systematically, logically, in a well-structured and coherent manner? Are the style and quality of tables/lists, illustrations and/or graphic representations satisfactory and in accordance with formal conventions of statistical scholarship? ☐ Are abbreviations, tables, lists, notations, algorithms, appendices, etc., consistent? ☐ We recommend that programming code is not added in the appendices - code can be requested or added as a link instead.	

Levels of achievement

☐ **Unacceptable.** Sectioning is not coherent, and some major work is needed on tables/lists, illustration and graphics to ensure that they are consistently up to the standard of formal statistical scholarship. Some tables/illustrations may even be missing.	☐ **Major corrections.** Sectioning is not coherent, and some major work is needed on tables/lists, illustration and graphics to ensure that they are consistently up to the standard of formal statistical scholarship.	☐ **Minor corrections.** Sectioning is coherent, but some minor work is needed on tables/lists, illustration and graphics to ensure that they are all up to the standard of formal statistical scholarship.	☐ **Satisfactory/Accomplished.** Sectioning is coherent and, tables/lists, illustrations and graphics are consistent and up to the standard of formal statistical scholarship.

Referencing, plagiarism

- ☐ Are the references made in a proper and consistent manner, and are the format and layout of the bibliography correct; and, does it include the most important and recent sources? Are all needed references provided? Has a plagiarism report been conducted?
- ☐ It should be noted that plagiarism is a serious issue, and if the student fails to reference where necessary, the responsibility of identifying these missing references falls on the main supervisor.*

Levels of achievement

☐ **Unacceptable.** Referencing is not consistent (10+ inconsistencies); **OR** more than 5 unlisted references or listed references not used in-text; **OR** a plagiarism report is not included; **OR** the plagiarism report seems to indicate a suspicious level of replication (generally >15%, without defence); **OR** important sources and/or recent papers are not included in the study.	☐ **Major corrections.** Referencing is inconsistent (10+ inconsistencies, or maybe one or two references missing in the list, and/or one or two references listed but not referred to). A plagiarism report is included, but seems to indicate a suspicious level of replication (generally >15%, without defence). Some important sources and/or recent papers are not included in the study.	☐ **Minor corrections.** Referencing is consistent and according to a named standard. All used references are listed, and all listed references are used. A plagiarism report is included, and the results are within acceptable bounds (generally <15%, but could be more with good reason). The most important sources have been included, but perhaps some newer sources need to be included.	☐ **Satisfactory/Accomplished.** Referencing is consistent and according to a named standard. All used references are listed, and all listed references are used. A plagiarism report is included, and the results are within acceptable bounds (generally <15%, but could be more with good reason). The most important, as well as good recent sources have been included.

7. Supervisor and Student Growth

The successful completion of a PhD degree should result in the growth of both the student and the supervisor - both on academic and professional levels. This can be accelerated by attending conferences, joining local and international research groups, learned societies and being available for co-supervision, editor and peer-reviewing duties and serving as external examiners.

Networks established

Responsible parties: supervisor, co-supervisor, student

- ☐ Supervisor growth requires the early-career researcher to join research groups and work on building a team of collaborators. This helps in sharing new ideas about supervision, problems encountered in supervision, ethical issues involved in supervision, and sharing of diverse research expertise, assisting the early-career supervisor to develop into an experienced supervisor in Statistics. The need for collaboration is also necessitated by the fact that most experienced supervisors in the field of Statistics are either retired or past retirement age.
- ☐ If supervision networks cannot be built with these senior academics, at least providing an opportunity for early-career supervisors to join together will allow for sharing of supervision styles and skills.

Levels of achievement

☐ No research network(s) established, and supervisor peer network not consulted.	☐ Supervisor peer network consulted, but no research network(s) formed.	☐ Research network(s) established and supervisor peer network consulted.

Student taking part in networks

Responsible parties: student

- ☐ The students should also be exposed to networks in the form of research groups, collaboration, co-supervision of Honours/Masters students, *etc*.
- ☐ While the supervisory team may be integral in introducing the student to networks, young PhDs should continue the engagement within these networks as appropriate.
- ☐ Effort should be made to keep the flame burning with collaborators.
- ☐ PhD students should also consider engaging with other young statisticians through the South African

Statistical Association.	

Levels of achievement

☐ Student is not taking part in networks.	☐ Student is engaging in some of the peer networks and research groups and/or with collaborators.	☐ Student is actively engaging in peer networks and research groups and/or with collaborators, wherever connections were made.

Using networks for external assessment and article review

Responsible parties: supervisor

☐ The networks established should be used to make yourself, the supervisor, available to externally assess Ms and PhDs. ☐ In order to start reviewing articles for journals: 1) ensure that your profile page on your university website is updated, 2) after submitting articles for publication, check for feedback e-mails from the journal inviting you to review, and 3) consider going to a few of your favourite journals' websites to see if you could possibly register to be a reviewer.	

Levels of achievement

☐ Supervisor not using networks to expand their academic citizenship; neither in external assessment nor for article reviewing.	☐ Supervisor is using networks to partially expand their academic citizenship; either in external assessment or for article reviewing.	☐ Supervisor is using networks to expand their academic citizenship; both in external assessment and for article reviewing.

Conference attendance and presentations

Responsible parties: supervisor, co-supervisor, student

☐ Conferences present great opportunities for young researchers as it provides a platform for sharing knowledge, new ideas, different viewpoints and the latest trends and techniques. It offers an opportunity for networking and collaboration, particularly on an international scale. For young, aspiring researchers pursuing a doctorate, attending and presenting at a conference can also contribute to their professional growth and development, especially if the supervisor also attends, at least initially. ☐ Learning to budget for conferences is also an important skill that needs to be developed. Note that many conferences have funding available for	

early-career attendees (e.g. IBC, ISI) ☐ Supervisors should be willing to impart conference etiquette. It is important to attend as many presentations as possible, even if the student does not understand much of what is being presented. It is important to learn how to engage with presenters.	

Levels of achievement

☐ Student has not made an effort to attend and present at any conference.	☐ Student has made some effort to attend a conference, but may not have presented, or did not engage fully at the conference.	☐ Student has made substantial effort to attend and present at one conference per year at least, and has properly engaged in conference presentations.

Diverse external examiner panel

Responsible parties: supervisor, co-supervisor

☐ The networks established by a supervisor can aid in building up a diverse panel of external examiners for PhD theses. This is important as the PhD topic can be diverse and requires examiners that are knowledgeable in the topic, otherwise the examination may not be successful, and/or a bad experience for the supervisor and student. ☐ If the postgraduate office of the institution of registration is not ensuring that the same examiners are being used in successive years (or within a three-year period), we highly recommend that this guideline is adhered to. Best practice is to maintain a database of external examiners that have been used by supervisors - a duty of the institution's postgraduate office.	

Levels of achievement

☐ Diverse examiner panel not selected; supervisor is using their "regular" examiners for this PhD.	☐ A diverse examiner panel has been selected. The examiners are knowledgeable in the topic, and have not been selected in successive years.

[MOU] Student growth - Learning Outcomes and Graduate attribute skills completion

Responsible parties: supervisor, co-supervisor, student

☐ It may be helpful for a supervisor to offer the student previous theses in a similar research field, or from students from one of the supervisory team. This will	

encourage the initial development of a student.

- ☐ Are there specific outcomes that both the student and supervisor wish to accomplish over the course of the research, or skills that either wish to develop? These should be identified early on in the partnership, and should be allowed to grow as the research continues. These outcomes should be listed in this guide.
- ☐ Most institutions will have a list of graduate attributes for PhD degrees. Students and supervisors should be aware of these.

Levels of achievement

☐ Neither the personal nor the institution's graduate attributes have been met, and the student has not looked at existing theses in the preparation of their own thesis.	☐ The institution's graduate attributes are met, but the student has not been properly exposed to existing theses and/or has not completed their goals as far as graduate attributes are concerned.	☐ Student has been exposed to previous theses, has listed and completed personal graduate attributes, and the institution's graduate attributes have been met.

If student is an academic staff member: [MOU] Student growth - Moderating for modules, internally, and co-supervision of honours/masters

Responsible parties: supervisor, co-supervisor, student

While in pursuit of a PhD, specifically if the student wishes to become a full time academic, having the opportunity to build their academic CV is vital. Being able to build an academic CV during the process of a PhD rather than only starting after the completion of a PhD can also aid in fast tracking promotion.

- ☐ This can start with internally moderating modules as well as co-supervising Honours/MSc students or just being included as co-researchers. This not only contributes to their increased chances of obtaining a permanent academic post after or during their PhD, but also contributes to their experience and development which is beneficial to the department as well.
- ☐ Mentorship opportunities (from the supervisor, co-supervisor or another staff member) should be discussed. It is important to carefully consider the balance between academic duties and research time, especially with full-time staff.

Levels of achievement

☐ Staff member student has not been recruited to moderate modules and help in the supervision of other pre-PhD	☐ Staff member student has been recruited in a limited manner to moderate modules or help in the supervision of other pre-PhD	☐ Staff member student has been recruited to moderate modules and help in the supervision of other pre-PhD postgraduate

postgraduate students.	postgraduate students.	students.

[MOU] Student growth - Participant in the funding applications

Responsible parties: supervisor, co-supervisor, student

A successful funding application takes time, patience and experience, and with a mentor it can not only be fruitful but also very enjoyable. Applying for funding is a skill that should be developed by the time the PhD student completes their degree, whether or not it is listed as a graduate attribute by the institution. ☐ Student has been exposed to funding applications.	

Levels of achievement

☐ Student has not participated in any funding applications.	☐ Student has fully participated in completing funding applications.

8. Memorandum of Understanding

The following items have been extracted from the Guiding Rubric for quick reference, and for compilation into a personalised Memorandum of Understanding:

- What discussion has there been concerning Part-Time and Full-Time studies as far as timeline and financial consequences are concerned?

Comments by Student	Comments by Supervisor

- Provide evidence that the supervisor has capacity and expertise in the field for this topic. If this is a new research field for the supervisor, discuss how involved the supervisor (and/or co-supervisors) will be in *leading* the discussion, and how this leadership will evolve.

Comments by Supervisor

- What is the publication potential for this research? Are there possible restrictions in terms of NDAs / IP?

Comments by Student	Comments by Supervisor

- What are the expected outcomes in terms of publications from the PhD?

Comments by Student	Comments by Supervisor

- Has the institutional MOU between student and supervisor been consulted? If not, are the student and supervisory team satisfied that this MOU is sufficient and complete?

Comments by Student	Comments by Supervisor

- What are the responsibilities for the members of the supervisory team in terms of contribution to the thesis document and publications of the research?

Comments by Supervisor

- Provide the (very general) timeline for the main components of this PhD study, that has been agreed upon by the student and the supervisory team.

Timeline by Student

- How often will the student and the supervisory team communicate? How often will work be required from the student and after what time period should the student expect feedback on this work?

Comments by Supervisor

- How will communication proceed? (E-mails are preferred, in order to maintain an auditable paper-trail, but a preferred method can be decided upon if necessary, and details of face-to-face or online meetings should be decided).

Comments by Supervisor

- What is the protocol to follow if the student develops mental health issues during the course of the degree?

Comments by Supervisor

- Identify differences between the supervisors and the student in terms of culture, language, gender and age, for example, **that might lead to breakdowns in communication**. Lay down 'ground rules' that will help the supervisory team and student to communicate well.

Comments by Student	Comments by Supervisor

- Institutions and bursars will require progress reports from the students and supervisory team. How and when these are completed at your particular institution?

Comments by Supervisor

- What are there specific outcomes that both the student and supervisor wish to accomplish over the course of the research, or skills that either wish to develop?

Comments by Student	Comments by Supervisor

- Does the student intend on moving into academia after the PhD? If so, discuss mentorship of the student and the opportunity to, for example, moderate lower-level postgraduate research and undergraduate modules in order to strengthen their CV.

Comments by Student	Comments by Supervisor

- Signatures:

Student	Supervisor
Name: Date: Signature:	Name: Date: Signature:

9. Risk Register

The following risks are described and discussed in the guiding rubric above. The student-supervisor(s) team should acknowledge each of the risks below at the start of the doctoral journey.

- ☐ Acknowledge the risks of registering without a pre-registration proposal: 1) the student may not be fully committed to their studies; 2) early on, topics/supervisors may change; 3) it may take more time to build momentum in the research process.
- ☐ There should be discussion on the risk that these expectations might have to be limited if any NDAs / IP agreements reduce the potential to publish work.
- ☐ Always familiarise yourself with your institution's internal policies regarding the registration process, the MOU, the post-registration documents, the format of the thesis, the regulations regarding the appointment of internal and external co-supervisors, publications (where and how), the appointment of external examiners and the submission of the final product. Do not underestimate the importance of knowing these policies. The risk of adhering to this guiding rubric while not knowing the institution's own policies should be acknowledged.
- ☐ All students must acknowledge ethical risks associated with their projects even if there are no ethical clearances required. There is the potential for ethical liability or risk in any sort of data ownership or analysis, so the implications of not having clearance from the institution needs to be carefully considered as a risk.
- ☐ Review your institution's requirements regarding data management and storage. Loss of work and data represents a substantial risk.
- ☐ The risk of the supervisor not having enough time to attend to an additional student should be discussed.
- ☐ The risk that the PhD's duration may have to be increased because of both internal and external circumstances needs to be acknowledged
- ☐ An agreement needs to be made between the student and their supervisors as to the extent to which the supervisors can individually be approached should the student develop any mental health issues during the course of the degree. The risks associated with not having such an agreement need to be acknowledged.
- ☐ In order to reduce the risk of mental health problems becoming a major issue during the PhD journey, the institution's mental health care pathways need to be identified.
- ☐ Differences between the supervisors and the student in terms of culture, language, gender and age, for example, need to be acknowledged, in that certain barriers need to be overcome in order for the supervisory team and student to communicate well. The risk that these barriers may lead to miscommunications need to be acknowledged.
- ☐ It should be noted that plagiarism is a serious issue, and if the student fails to reference where necessary, the responsibility of identifying these missing references falls on the main supervisor.

10. Version Control

0.1.0 - First completed guide sent in for publication