Centre for Applied Data Science

Masters & Doctoral DEGREES

Research proposal guidelines

(Short version – 5 pages)

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IMPORTANT NOTES

1. **Areas of research**

   a. There are specific areas of research undertaken in the Centre. It is therefore necessary to read up on the research areas undertaken to determine what area of research is available for supervision – uj.ac.za/cads.

   b. The research team leader should be consulted if there are any questions, remembering to cc the administrative officer.

2. **Team supervision model**

   a. The Centre uses a "team supervision" model where students are supervised in teams by more than one supervisor. The supervisors can be from industry and/or academia.

   b. Each supervision scenario is treated on a case-by-case basis.

A. RESEARCH PROPOSAL STRUCTURE

1. Introduction

2. Statement of the problem

3. Objectives of the research

3.1 Primary objectives(s)

3.2 Secondary objective(s)

4. Literature review

4.1 Theoretical paradigm

4.2 Research constructs

4.3 Relationships between variables

5. Research Methodology and Design

5.1 Research design and plan

5.2 Population and Sample

5.3 Data collection instruments, sources and procedures

5.4 Data analysis and procedure

6. Study contribution and envisaged data science artefact

IN THE CASE OF A DOCTORAL PROPOSAL THE CONTRIBUTION TO THE STUDY MUST BE INDICATED AT POINT 6 AS A SEPARATE POINT.

THE PROPOSAL MUST BE SUBMITTED IN ARIAL, FONT SIZE 12, 1 ½ SPACING. ALL HEADINGS ARE 14 FONT SIZE AND SUB HEADINGS 12 FONT SIZE!!!

B.   Short Research Proposal Guideline Discussion

Nr	Step	Discussion
1	**Introduction to the research**	• An introductory perspective to the research is provided • What is the research all about? • What data science methods and techniques do the researchers intend to use? • Why? • What is the researcher's intention with the research?
2	**Statement of the problem**	• What is to be researched?
3	**Objectives of the research**	**3.1 Primary objective** • Link to the primary research problem **3.2 Specific Objectives** • Link to the secondary research problem
4	**Literature review** **4.1 Theoretical paradigm** **4.2 Research constructs** **4.3 Relationship between the variables**	• Different books, journals, websites or these used as reference material to illustrate what has been researched on the topic before
5	**Research methodology and design**	**5.1 Research Design and Plan** • Design Science vs Qualitative vs. Quantitative research • Motivate why? **5.2 Population and Sample** • Who is the population and sample? • Motivate why? **5.3 Data Collection instruments, sources, and procedures** • Techniques applied. Motivate why? **5.4 Data analysis procedure** • How was it done? • Who did it? (For example, the statistical services of the university?)

C. IMPORTANT POINTS WHEN WRITING THE METHODOLOGY SECTION

- Start the section by discussing why it is important to follow a scientific methodology approach in your study THEN.
- Indicate the relevance of empirical research to your study.

- **Research design**
- Indicate what research design is (i.e. provide a theoretical perspective on the concept "research design").

- **Research Method**
- Is the research DESIGN SCIENCE, QUANTITATIVE or QUALITATIVE in nature in terms of the methodology?
- Now discuss what it is (i.e. provide a theoretical perspective).
- Why do you apply it to your study? (i.e. highlight and discuss the relevance of the method to your study).
- Apply the method to your study (i.e. provide a practical application of the theory to your study).

- **Research format**
- Is the research Design science, Explorative, Descriptive, Causal or a Case study method?
- Now discuss what it is (i.e. provide a theoretical perspective).
- Why do you apply it to your study? (i.e. highlight and discuss the relevance of the format to your study).
- Apply the format to your study (i.e. provide a practical application of the theory to your study0.

- **Research Technique(s)**
- Which research technique(s) are you using to gather the primary data? (i.e. personal interviews or focus groups).
- Now discuss what it is (i.e. provide a theoretical perspective).

- Why do you apply it to your study? (i.e. highlight and discuss the relevance of the technique to your study).

- Apply the technique to your study (i.e. provide practical application of the theory to your study).

- **Data Collection methods**
- Clearly indicate whether you are going to use primary or secondary data

- Indicate what primary or secondary data is (i.e. provide a theoretical perspective).

- Identify the secondary data which you are going to use for your study.

- Cross reference to the section on the research technique(s) which the primary data technique(s) you have applied to your study.

- **Population**
- Specify who or what is your population?

- If there are different components of the population, clearly indicate this.

- **Sampling procedures**
- Introduce the reader to what the terms of "sampling" and " sampling procedure" implies (i.e. provide a theoretical perspective to the terminology)

✓ *Sampling Type*
- Do you use probability or non- probability sampling?

- Now discuss what it is (i.e. provide a theoretical perspective).

- Why do you apply it to your study? (i.e. highlight and discuss the relevance of the sampling type to your study)

- Apply the sampling type to your study (i.e. provide a practical application of the theory to your study)

✓ *Sampling technique(s)*
- Clearly indicate the size of the sample

- How was this sample selected? (e.g.: which formula was applied to calculate the size of the sample specified above)

- Now, indicate which sampling technique do you use in the study (i.e. random sampling or judgmental sampling etc)
- Now discuss what it is (i.e. provide a theoretical perspective).
- Why do you apply it to your study? (i.e. highlight and discuss the relevance of the sampling technique to your study)
- Apply the sampling technique top your study (i.e. provide a practical application of the theory to your study).

✓ *Data Analysis*
- Start by discussing what data analysis is (i.e. provide a theoretical perspective on the topic)
- Discuss what the data analysis process entails in terms of your study (i.e. provide a practical application of the theory to your study)
- Identify who is going to analyze your data? (e.g. Statkon at UJ)
- What data science package is to be used for the data analysis?

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