

AIR UNIVERSITY
OFFICE OF GRADUATE STUDIES

Guidelines for PhD Supervision

The objective of this document is to list broad guidelines for PhD Supervisors, especially First-Time Supervisors, so that high quality research is produced at Air University.

Since a PhD degree represents the entry of a young academic to the world of research and opens the doors for a student to ‘unbounded’ knowledge, it is in the interest of all stakeholders to ensure success in every possible way. Air University, committed to “...be among the leading national universities excelling in teaching, learning, research, innovation and public service”, will remain in full support of the Faculty, especially the PhD Supervisor and the Guidance and Evaluation Committee (GEC), to create a win-win outcome in which the AU PhD scholar achieves excellence and the University contributes to the advancement of higher education. The synergy and symbiosis of research with faculty development and university contribution to higher education is intricately wound within the PhD program at Air University and thus its success gives center stage to the Supervisor whose success in guiding a student is of vital importance.

In these times of SARS-COVID19, the year 2020 beginning with the Spring Semester, brought faculty members to new methods of teaching and interacting in the University. It is not clear as to what extent this will carry into 2021.

PhD Supervisors are advised to read this document and to discuss its specifics in the context of the COVID situation and their discipline with colleagues, Chair Department and Dean.

Undertaking research for a PhD degree is a commitment to learning and research, as well as aiming to contribute to the body of knowledge in the chosen field of research resulting in its advancement for the better of humanity.

There are three primary entities involved in PhD research namely the Student, the Supervisor and the University. In addition to these three is the GEC while the University is represented through statutory bodies which are the Department Board of Studies (DBS), the Faculty Board of Studies (FBS), the Faculty Board of Graduate Studies (FBGS), the University Functional Committee (UFC) and the Board of Governors (BoG). A PhD student is in communication with the supervisor and the GEC and may be assessed by the concerned Department or Faculty through various mechanisms. At all other statutory bodies, concerned with standardization,

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quality of research, adherence to policies, to the ultimate approval and conferment of the PhD degree, the student is represented by the Chair Department or the Dean of the Faculty.

It is understood that at the time of admission, a PhD student has read the AU Policy pertaining to the PhD program, and is familiar with the rules and regulations. All steps of the procedure are presented for approval by the concerned statutory bodies.

After being formally admitted at one of the programs at AU, a PhD student embarks upon the course requirement consisting of a minimum of a six three-CH (credit hour) courses to be completed preferably in the first two semesters. The selection of courses is done in close consultation with the supervisor who is assigned on the basis of the Statement of Purpose which is written by an intending student who has spent typically one month in preparing a 2000 word statement outlining the motivation for research in the chosen area, the active research individuals and groups, the resource requirements, and a sketch of the research plan. This document is crucial as a Supervisor, and GEC, will be assigned and approved on the basis of the intended research area, and is the *first step* in the entire endeavor.

On completion of the courses, a Doctoral Qualifying Examination (DQE) is held, after which a topic for research is proposed and examined. The student enters the research phase after this topic is approved. On completion of the research, within the stipulated timeframe, the thesis is sent to two foreign evaluators. On their acceptance, an open Defense of the Thesis, the Final Defense Examination (FDE), is scheduled which is typically attended by all concerned and the presentation by the Candidate is followed by a Question and Answer session. This is followed by a GEC Meeting in which a Decision is taken by the GEC to recommend the Candidate, the conditions, or otherwise. On recommendation of the GEC, the concerned Department/Faculty presents documents to the FBGS which makes recommendations to the Vice Chancellor. Finally, on the approval by the Vice Chancellor, the Candidate is approved for award of the PhD degree in the Convocation.

It is the responsibility of the student to ensure that all requirements of the degree within specified time limits are carried out to the satisfaction of the University. For this, a student is assisted by the concerned Department/Faculty and by the Office of Graduate Studies.

Clearly, there are no defined steps to undertake in a PhD which is heavily influenced by a Supervisor who is the single most important influence in the life of a PhD student and this relationship, which is formed as a one-way “guide and give” relationship, evolves into a stage

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where a Supervisor senses a certain amount of independence in the student, typically in the second and third years of research, and to a stage where, in many cases, the student moves into an advanced stage of research where a Supervisor is then analyzing and interpreting the results of the research placing them into larger and broader perspectives for the student to present and publish in reputable journals. Beyond the completion of a PhD program, it is common practice to see supervisors and former students jointly publish papers and books during their entire careers.

As mentioned above, the first step was the Statement of Purpose written by a student. Well into the research phase, both the student and Supervisor may have found that a new direction has been taken which they may not have been aware of before.

At the beginning of the research phase, the *second step* in the program would be for a student to get to know the people, groups, research centers and universities worldwide that are active in the research area. They will usually have considerable financial support from national or international organizations. This could be in the form of establishing contact through emails or better through international conferences (in the present SARS COVID-19 period, this may not be possible so alternate ways may be identified such as webinars etc.). From amongst these individuals, a potential external examiner may be identified by the Supervisor and GEC.

The following is a list of best practices for supervisors:

- i- *Guiding in Research* The primary role of a supervisor is to guide a student in research by making a timeline of various milestones and ensuring adherence, introducing relevant and latest research to the student, in the form of journals, research papers and ensuring that the student has the capability of undertaking research through a knowledge of the required concepts, methods and techniques (usually gained through the 600 and 700 level AU courses) as well as an understanding of the specific and in-depth applications of the research (usually through the 800 level AU courses).

- ii- *Identifying Courses in 'Minor' areas* A very important component in PhD research is the development of knowledge, and skills, in an area which typically falls outside the 'Major' area. A Supervisor must continuously assess the PhD student to identify any lacking knowledge which may result in a weakness of the student to provide interdisciplinary content which is most common in present research. The new proposed

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HEC Policy from January 2021 allows the provision of Minor and Major but still needs to be adopted by AU before implementation.

- iii- *Demonstrating a supportive role* A Supervisor should always support the student in academic life, and try to identify the expectations and realities for both sides. For example, a student might be under the impression that the work will be done by the Supervisor in the form of a taught course. Such notions need to be rectified early in the research phase and a student must be 'trained' into the concept of an independent researcher during the PhD years. A student's confidence will depend on the level of this support especially in the first two years when a student may feel uncertain about the 'correctness' of results obtained or of the overall direction and quality of research.

- iv- *Maintaining regular and documented contact, train in oral and writing skills and ensure deadlines are met* A Supervisor must be available at least once a week at a scheduled time for a meeting to review the previous seven days' work even if it very little progress has been made. A weekly meeting is essential even if it is for a short duration. During this meeting, a Supervisor must observe the student especially in terms of oral and written communication of research in clear and simple terms. It is very important for a Supervisor to train the student for making presentations and developing a high level of writing skills, as should be evident from the quality of the Thesis and the Final Defense Examination. The Supervisor is also to help the student ensure completion of all coursework and Qualifying Exam within two years of starting PhD program. In case of delays, Supervisor must immediately bring this to the notice of Chair Dept/Dean.

- v- *Developing an Academic Outlook* A supervisor's role is both implicit and explicit. A student, along with taking explicit guidance, will also be assessing the Supervisor for implicit guidance. As an example, research requires an open-mind which would typically mean that a researcher is free from biases and each statement is based on an accepted body of knowledge such as the laws of nature as enunciated and

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documented in acceptable academic material in the case of science and engineering or evidence, policy or authentic material in other disciplines.

- vi- *Teaching a student the ethics of research* A PhD student would probably not be familiar with the ethics of research, intellectual property rights, patents, proprietary information, ethical use of humans and animals for research *etc.* A Supervisor must teach these basic ethics, as well as train on plagiarism policy of AU, to the student so that no copyrighted material extends into the Thesis. Similarly, at the time of publication, during research a student requires publications in HJRS (HEC Journals Recognition System) journals as first author. At Air University the following principle should preferably be applied, and Supervisor may discuss this further with their Chair Dept./Dean: for a research paper submitted for being counted for the award of the PhD degree, the first author should be the student, the second should be the supervisor followed by other contributors. For all other papers, the main contributor should be the first author.

First-Time Supervisors must exercise great care in selecting a topic of research and identifying resources required such as experimental equipment or open-source codes.

Experienced Supervisors are requested to elaborate or include more points according to their experience and share them with First-Time Supervisors in mentoring sessions within the Department.

Specifics for Supervisors to include or avoid:

- i- In the literature survey phase of research, begin with a few standard graduate level text books, and then gradually move to research papers starting from some well-known classical papers and then move to research of the last five years.
- ii- Train a student to cite only authentic research material and to avoid internet resources such as websites, Wikipedia and blogs.
- iii- Always explain, when and where possible, difficult and domain-specific concepts in simple terms in the Introduction and Literature survey chapters of the Thesis and highlight broad applications.
- iv- Equations should be written in MS equation editor, TeX, LaTeX or a similar environment.

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- v- Ensure that the AU Standardized Template of the PhD Thesis is available to the student at the *beginning* of the research phase. This has been developed by the Office of Graduate Studies and has been disseminated to all Departments.
- vi- Show the student the checklist (Annex I) for the Thesis at the *beginning* of the research phase, so that the student may select appropriate references and plan accordingly.



Dr. Zafar ullah Koreshi
Dean Graduate Studies

1st January 2021

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ANNEX A

Thesis Submission Checklist

This checklist should be completed at the time of submission of your thesis. One copy of this should be placed inside your thesis and one copy submitted to the Office of Graduate Studies.

Please ensure to tick all boxes.

1	<input type="checkbox"/>	Title page as in template
2	<input type="checkbox"/>	Declaration
3	<input type="checkbox"/>	Acknowledgments
4	<input type="checkbox"/>	Nomenclature (SI units, symbols and abbreviations)
5	<input type="checkbox"/>	Abstract
6	<input type="checkbox"/>	Contents
7	<input type="checkbox"/>	List of Figures
8	<input type="checkbox"/>	List of Tables
9	<input type="checkbox"/>	Figure and Table captions
10	<input type="checkbox"/>	Equations in table of three columns 10-80-10
11	<input type="checkbox"/>	References in APA 6 th Edition format
12	<input type="checkbox"/>	Similarity report submitted along with thesis

Summary

Description	Response	Comments
Software used (MS Word, LaTeX etc)		
Word count of thesis		
Number of pages of thesis		
Word count of abstract		
Number of Chapters		
Number of Figures		
Number of Tables		
Units used		
Number of References cited		
Number of books cited in references		
Total number of journal publications cited		
No. of journal publications of last five years cited		
Commercial or open-source codes used		
Total number of your journal papers cited		
Total number of your conference papers cited		

Signature of Student:

Name of Student:

Degree Enrolled for:

Date:

Signature of Chair Dept

Date:

Received by Office of Graduate Studies:

Date: