Action Plan

Where do I want to be by the end of the module 'Research Methods and Professional Practice'?

I want to be proficient in scientific investigations, ethical considerations, and risk management, as well as in all the intricate stages of research, from problem definition to data analysis and reporting.

What do I want to be doing?

Gain a deep understanding of various research methodologies, including quantitative, qualitative, and mixed methods. Learn about experimental design, case studies, surveys, and other research approaches. Familiarise with data collection methods such as interviews, surveys, observations, and document analysis. Understand the strengths and weaknesses of each method and when to use them (Saunders et al., 2007). Develop a strong grasp of research ethics, including principles of informed consent, confidentiality, privacy, and the responsible conduct of research (Aguinis & Henle, 2004). Be aware of ethical considerations in human and animal research, as well as intellectual property and plagiarism issues. Study risk management principles related to research in computing (Aven, 2016).

Learn statistical analysis techniques for quantitative data, including descriptive statistics, inferential statistics, and regression analysis. Gain proficiency in statistical software tools like SPSS, R, or Python. Familiarise with qualitative data analysis methods

such as content analysis, thematic analysis, and grounded theory. Understand software tools like NVivo or ATLAS.ti for qualitative data analysis (Wang et al., 2016).

Develop skills in conducting comprehensive literature reviews to identify gaps in existing research and to position my work within the context of prior studies. Master the art of research proposal writing, including defining research questions, formulating hypotheses, and creating a clear and persuasive research plan. Understand data management best practices, including data collection, storage, and security. Learn about data documentation and organisation. Refine my skills in presenting research findings effectively through written reports, presentations, and visualisations. Work on my ability to communicate complex information to both technical and non-technical audiences.

Develop project management skills to ensure that research projects stay on schedule including time management, resource allocation, and task coordination. Strengthen my critical thinking skills to assess research problems, evaluate evidence, and make informed decisions throughout the research process (Nystrand, 2006). Adhere to research regulations or standards that apply to my research. Stay up-to-date with the latest developments in research methods, tools, and ethical standards, as these fields are continually evolving.

What do I want/need to learn?	What do I have to do to achieve this?	What resources or support will I need?	How will I measure success?	Target dates for review and completion
Acquire knowledge on ethical issues in Research especially in computing field	Reading ethical guidelines and codes of conduct and publications on ethics standards. Engaging in discussions with peers	ACM Code of Ethics and Professional Conduct: Available on the Association for Computing Machinery (ACM, 2018) website. IEEE Code of Ethics: Found on the Institute of Electrical and Electronics Engineers (IEEE, 2020) website. Collaborative Discussion Forum in the module	Response from peers and feedback from tutor	Nov 2023
Develop skills on Literature review and Research writing	Read extensively, make notes, practice regularly and continuously refine my skills with every project	Library support and adequate time	Writing review articles for peer-reviewed journals. Feedback from tutor	Apr 2024
Understand the different research and data collection methods	Learn about research methods and data collection methods from books and other publications (Paradis et al., 2016). Review research articles and assess the validity and reliability of the data collected (Walliman, 2021)	Library support and adequate time	Seek feedback on my research and data collection methods from mentors, advisors, or peers.	Jan 2024
Be expert in statistical data analysis	Consistent learning and practical application.	Statistical software such as R, Python (using libraries like Pandas, NumPy, and SciPy), or specialised software like SPSS or SAS Library support and adequate time	Successfully using data analysis tools in research projects and obtaining peer-review or feedback from tutor	Continuous journey

References

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Saunders, M., Lewis, P. H. I. L. I. P., & Thornhill, A. D. R. I. A. N. (2007). Research methods. Business Students 4th edition Pearson Education Limited, England, 6(3), 1-268.

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