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Research

Research Integrity

Course outline (Irish version)

Core Modules		
Module	**Content**	**Learning outcomes**
Good Research Conduct	• Definitions and concepts • Professional responsibilities • Public responsibilities • Institutional responsibilities • Personal responsibilities	• Recognise the importance of good research conduct and define some of the basic terms associated with it • Distinguish between research integrity and research ethics • Identify sources of guidance on professional responsibility • Identify the general scope and function of government regulations • Explain the role of institutions in promoting good research conduct • Summarise the basic virtues that guide personal integrity
Irresponsible Research Practices	• Characterising misbehaviour • Misconduct vs questionable research practices • The impact of irresponsible practice • Reporting irresponsible conduct	• Describe and provide examples of the two approaches that governments and organisations worldwide have taken in defining and responding to irresponsible conduct in research • Explain how irresponsible research conduct is defined and handled in Ireland • Be aware of the questions you should ask yourself to avoid irresponsible research practices • Explain the difference between questionable research practices and misconduct • Discuss the impact of irresponsible practices on research • Identify the steps to be taken to report irresponsible behaviour in research

Planning your Research	• Research plans • The use and misuse of research plans • Governance approvals • Agreements • The consequence of poor planning	• Describe the common elements of a research plan • Discuss the importance of research plans and identify how others might use your research plan • List the types of governance approval that could be required before beginning a research project, and describe the implications of not having approvals in place • Explain the reasons for and types of agreements that should be in place before beginning a research project • Illustrate some of the problems that could arise if a research project is not properly planned
Managing and Recording your Research	• Project management • The importance of a research record • The format and content of research records • Validation • Data storage and retention • Data ownership, protection and sharing	• Be able to create a project management checklist to summarise the main responsibilities in your research project and identify potential problems • Describe the purpose and importance of keeping a record of your research • Explain what is required to keep a record that will validate your findings and allow others to replicate your work • Know and apply the basic standards for storing, protecting and sharing research data
Data Selection, Analysis and Presentation	• Data selection • Data analysis • Guiding virtues in data presentation • Data presentation in practice: Writing • Data presentation in practice: Tables, charts and graphs • Data presentation in practice: Images	• Identify responsible and irresponsible practices in data selection • Describe the role of analysis in the responsible conduct of research • Explain the virtues underpinning best practice in data presentation • Provide examples of irresponsible practices that researchers have used when selecting, analysing and presenting results
Scholarly Publication	• Preparing to publish • Journal selection • Drafting your manuscript • Assigning authorship • Avoiding plagiarism • Submission and review	• Discuss the factors that should be considered when making decisions on when and how to publish • Identify key factors that should be considered when selecting a journal • Summarise the key elements that need to be considered when drafting a scholarly publication

Scholarly Publication cont.	• Post-publication responsibilities	• Summarise the basic principles for assigning authorship and acknowledging the contributions of others • Illustrate the different types of plagiarism and how to avoid plagiarism • Explain how scholarly publications are submitted and reviewed • Identify and explain the key post-publication responsibilities authors have
Professional Responsibilities	• Mentors and mentees • Individual responsibilities in teams and collaborations • Considerations for larger collaborations • Best practices in peer review • Irresponsible practices in peer review	• Set out the responsibilities that supervisors, students and researchers have when they enter into a mentoring relationship • Explain the responsibilities of individual researchers engaged in teamwork/collaborations • Explain the additional responsibilities that can emerge when researchers are involved in larger scale teams/ collaborations • Discuss the primary responsibilities of peer reviewers, and provide examples of the ways in which these responsibilities can be compromised.
Communication, Social Responsibility and Impact	• Broader responsibilities • Responsible communication • Working with colleagues • Working with the public • Impact • Setting high standards	• Identify the broader roles researchers can take on over the course of a career and the special responsibilities that come with these roles • Discuss the challenges researchers face when identifying their audience and developing plans for research communications • Illustrate the ways in which poor working relationships between professionals engaged in broader services can be detrimental to research • Explain why it is important for researchers to separate their personal positions from their professional views when communicating their research • Explain what is meant by 'impact' and the different views on how impact should be assessed

Specialist Modules

Module	Content	Learning outcomes
Conflicts of Interest	• Identifying your interests • Disclosing conflicts of interest • Handling conflicts of interest in Ireland • Institutional policies • What can go wrong?	• Recognise the importance of disclosing conflicts of interest • Define and give examples of conflicts of interest • Describe when and how conflicts of interest should be reported • Explain how conflicts of interest are handled in Ireland • Explain the expectations institutions have in relation to conflicts of interest • Give examples of the consequences of not reporting conflicts of interest
Research Involving Human Participants	• Guiding principles • Review and approval • Preparing for review • Irish policies and processes • Ethical considerations • Continuing responsibilities • What can go wrong?	• Describe the origin and purpose of the guiding principles set out in the major codes of conduct for research involving human participants • Explain why research involving human participants requires review and approval before any work is undertaken and how projects are reviewed • List the main information researchers are expected to provide when applying for approval to conduct research involving human participants • Summarise how research involving human participants is reviewed and approved in Ireland • Explain what is meant by an 'ethical' study and the primary concerns that research ethics committees address when making judgements about the ethics of studies • Summarise the continuing responsibilities researchers have once a project is approved • List and provide examples of the major challenges that can be faced in ensuring human participants in research are protected
The Care and Use of Animals in Research	• Basic responsibilities • The 3Rs • Irish care and use policies • Institutional programmes	• Summarise the four basic responsibilities researchers have for the care and use of animals in research • Describe the purpose and content of the 3Rs (replacement, reduction, refinement)

The Care and Use of Animals in Research cont.	• Continuing responsibilities • Examples of problems and poor practice	• Discuss the role and purpose of the animal Research Ethics Committee (REC), and government regulation of experiments using live animals (via the Health Products Regulatory Authority (HPRA)) • Summarise the information that could be called for when you are seeking approval for a project • List some of the continuing responsibilities researchers have after receiving REC/HPRA approval when conducting research with animals • Explain why it is important to take public attitudes into consideration when conducting research that involves the use of animals
Intellectual Property	• Copyright • Patents • Ownership of intellectual property • Irish intellectual property policies • Intellectual property issues and problems	• Define 'intellectual property' as it relates to research • Explain when and how researchers can copyright their research • Explain when and how researchers can patent their research • Discuss some of the limitations on intellectual property protection in research • Explain the steps that should be taken to establish ownership of intellectual property • Explain how intellectual property is managed in Ireland • Provide examples of the emerging issues associated with copyright and the patent protection of research
Export Controls	• Coverage • Advice and institutional support • Export control policies in Ireland • What can go wrong?	• Explain the purpose of export controls and their role in research • Describe and provide examples of the major ways in which research could be subject to export controls • Summarise the steps researchers should follow to identify and manage export controls • Explain how export controls that could apply to your research are governed and administered in Ireland and at your institution • Provide examples of how export controls affect researchers and some of the consequence of failing to comply