Research Integrity

Welcome to this Research Integrity training. All University research students and staff are expected to complete this one-hour module before engaging in research at our University.

- You can complete all topics at once, or over several sessions. Your progress will be saved if you close this window.
- There are **knowledge checks** throughout each topic. You must **answer all questions correctly** to complete the module.
- Once your completion is registered, you will be able to access **further training and support** for researchers.

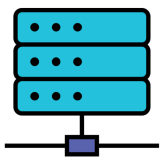
Allow approximately 60 minutes to complete this module. You will be able to revisit the module and materials at any time.

Research integrity principles

5 minutes

Authorship

10 minutes



Research data management

15 minutes

Peer review

5 minutes

Supervision

5 minutes

Collaborative research

10 minutes

Publication and dissemination

5 minutes

Research integrity breaches

5 minutes

Research integrity principles

All the research that you undertake as a staff member or student must be planned and conducted according to the principles and standards of research integrity. This topic will outline the principles of responsible research conduct.

Throughout this module, the term ‘researchers’ will be used to refer to all staff and students who conduct research.

By the end of this topic, you will be able to:

- Identify the key documents that govern responsible research conduct
- Describe the principles of research integrity and how they relate to your research
- Outline the responsibilities of researchers in relation to research integrity.

This topic should take approximately 5 minutes to complete.

Introduction to research integrity

Go →

The research integrity principles

Go →

Introduction to research integrity

Please watch this short video from our Vice Chancellor, as he provides an overview of commitment to research integrity.

Video: 2:36 minutes

+ Text transcript

Conducting your research with integrity is essential because it enables both your academic colleagues and the community to trust your research.

Every researcher has a part in keeping research open, honest and transparent. Whether you are testing materials in a lab, interviewing volunteers, developing new medical equipment or dancing for a virtual reality game, if you are conducting research you must do so with integrity.

As well as developing a higher public profile and fostering trust for research within the country and international community, conducting research with integrity also creates goodwill and respect for researchers and their institutions.

The research integrity framework

University research, whether conducted in this country or overseas, must meet standards of integrity, both at Uni and when collaborating with other institutions or using their data. Both Uni and you, as a staff member or student, must comply with these standards. There are consequences for you if you don’t meet the requirements (also known as a ‘breach’ of the Code).

The framework for research integrity is described in a number of documents, which inform and support one another as shown.

Select each of the (+) icons below for more about each of the key documents.

+ More about the Code

+ MIT policies and procedures

+ Funded research

The research integrity principles

Uni strongly supports a culture of research integrity. We expect all our researchers to complete their work at the highest quality and to be respectful and honest with everyone involved. There are eight principles that underpin excellent research.

Select the buttons below for more information about how to uphold each principle.

P1 Honesty
in the development, undertaking and reporting of research

More about P1 →

P2 Rigour
in the development, undertaking and reporting of research

More about P2 →

P3 Transparency
in declaring interests and reporting research methodology, data and findings

More about P3 →

P4 Fairness
in the treatment of others

More about P4 →

P5 Respect
for research participants, the wider community, animals and the environment

More about P5 →

P6 Recognition
of the right of Aboriginal and Torres Strait Islander Peoples to be engaged in research affecting or of particular significance to them

More about P6 →

P7 Accountability
for the development, undertaking and reporting of research

More about P7 →

P8 Promotion
of responsible research practices

More about P8 →

You have a responsibility to know, protect and uphold these values, have all the necessary ethics approvals, organise your records and to keep up to date with changes to these rules. It is your **personal responsibility** as a researcher.

Meet the experts

In this short video, meet some of the researchers at MIT and find out what questions they are asking. These researchers will share their insights throughout the module.

Video: 1:14 minutes

Research Integrity: Meet the experts

Text transcript

Speaking: Associate Professor Olivia Dean
I am the Director of Impact Trials which is predominantly involved with clinical trials and novel interventions for people with psychiatric illness and we're also interested in the underlying biology of those disorders.

Speaking: Associate Professor Xavier Conlan
The research that I conduct is in analytical chemistry and I really focus on forensic science and the area that we're specifically looking at, or I specifically look at there, is around drug detection and looking at really understanding the chemical environment around the forensic science scene.

Speaking: Professor Tania De Koning-Ward
Okay, so I work on malaria; so I'm interested in how malaria parasites cause disease. And so for that we have to actually genetically manipulate the malaria parasite to try and get into the function of particular genes and their role in disease.

Speaking: Associate Professor Severine Lamon
So I am a muscle physiologist, and I'm mostly interested in understanding the molecular mechanism that underlying muscle adaptation to exercise so that to health and to disease conditions as well.

Speaking: Associate Professor Amanda Mooney
So I'm from the School of Education, so much of my research work has obviously focused on the discipline of education and thought about not only school-based research with teachers and students but also education work that happens in industry beyond the school setting and the higher ed setting.

Thinking about your own research...
What does your research focus on? What ethical and research conduct issues do you feel are most important?

Activity

Kosmo has been a HDR supervisor for fifteen years. He prides himself on being a mentor to his students, ensuring they understand why research integrity is important when planning and undertaking research.

Kosmo's nephew is about to join the School as a HDR student. Kosmo will not be supervising his nephew, but in the interests of **transparency** (P3) and **promotion** of responsible research practices (P8), Kosmo should:

- ◯ Request that his nephew be transferred to another school in order to avoid a conflict of interest
- ◯ Alert his nephew's supervisor immediately, as this appointment is not appropriate
- ◯ Ensure that he never works alongside his nephew on any project
- ◯ Declare his relationship with his nephew as a perceived conflict of interest

Submit

Declaring a conflict of interest

Conflict of interest (COI) is a hugely important consideration for everyone involved in research work. You must declare any actual, perceived or potential COIs that may influence your work.

- Bookmark the **COI declaration form** on ServiceNow
- **Access the MIT Conflict of Interest module** on Staff Learning.

Responsibilities of researchers

In order to conduct your research responsibly, you need to be aware of a number of items the Code specifically lists as the **Responsibilities of researchers**.

Items R14 to R29 within the Code are the specific responsibilities of those conducting research. They relate to:

- Maintaining a culture of responsible research conduct, learning and mentorship
- Ethical conduct and appropriate research methods
- Acknowledging and engaging with the wider research community
- A commitment to reporting breaches of the Code.

Be aware of any laws, regulations or standards that apply to your research and ensure appropriate approvals are obtained before you begin.

You've finished **Research integrity principles**! Select the button below to move to the next topic.
You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Authorship

P1 Honesty

The first principle is honesty in the development, undertaking and reporting of research. Honesty involves being truthful and accurate. You need to be honest across the full path of your research, from the beginning where you start to think about the concept for the research, through to how you conduct the research and then in writing up and reporting it.

"Conducting research with integrity, honesty and accuracy is something to which every scientist should proudly aspire… Every conversation or course in research integrity is an opportunity to grow."

Nature (2019)

In a practical sense, being honest would include:

- Ensuring that you recognise all the authors and contributors to a work
- Carefully keeping clear and accurate records of the data you collect

Correcting errors in the data or conclusions and sharing the new and improved outcomes.

Close

P2 Rigour

The second principle is to be rigorous in the development, undertaking and reporting of research. You need to underpin your research with close attention to detail and ensure your research design and methodology are robust to guarantee high quality, reliable, and reproducible research.

This means ensuring that:

- you have a comprehensive understanding of the topic before you start
- your research methodology is well thought out and excludes or acknowledges any biases
- your conclusions are appropriate and justifiable

All aspects of your work need to be able to stand up to inspection and criticism from your colleagues, other experts in the field and the public and funding bodies.

Close

P3 Transparency

The third principle of research integrity is transparency or openness.

Transparency means stating whether there are any factors that might influence your research, ensuring you declare those interests and having a plan to manage those influences.

Transparency also refers to openness in reporting your research methodology, data and findings fully, responsibly and accurately, and as widely as possible. It includes publicising negative outcomes.

Close

P4 Fairness

Principle four of the research national Code is fairness in the treatment of others. methodology, data and This applies to both your fellow

researchers and anyone else involved in the research. Respect for your research colleagues includes both properly referencing their work and acknowledging their contribution to your project.

Researchers must also be fair when they are peer reviewing the work of others, ensuring that they are impartial, have no conflicts of interest, and keep the draft research confidential.

You can be fair in your research by:

- Making sure your research planning includes authorship discussions
- Recognising students as authors where they have significantly contributed to the research
- Review research objectively and impartially, and be constructive in feedback.

Close

P5 Respect

The fifth principle is respect for human research participants, the wider community, animals and the environment.

The involvement of humans, or their data or tissue, in your research will require approval by a Human Research Ethics Committee. This means if you want to interview anyone (including telling your own story), access anyone's records, images or histories, or use their cells that they may have donated years ago, you need approval. Approval will confirm that your research will treat human participants and communities that are affected by the research with care and respect. This includes considering the needs of minority groups or vulnerable people.

Similarly, if you will be using animals in your research, you are likely to need approval from an Animal Ethics Committee. Respect for animals must underpin all your decisions and actions related to the care and use of animals in your research. This includes only using animals when justified, supporting their welfare and wellbeing, avoiding or minimising harm, and applying current best practice techniques and standards.

The principle of respect also requires you to minimise any adverse effects of your research on the environment. This means if you plan to use Genetically Modified Organisms (GMOs) in your research, you must obtain approval from the Institutional Biosafety Committee. You must also ensure you are aware of any Biosecurity requirements before importing any biological materials.

In your research practice, this would mean that you:

- Clearly explain your research to participants, including why it is important, and any risks to them and how you will manage these.
- Consider the privacy of any human data that you will be using
- Plan for training, reflection, and necessary approvals.

Close

P6 Recognition

Principle six requires the recognition of the right of Aboriginal and Torres Strait Islander peoples to be engaged in research that affects or is significant to them. This includes recognising, valuing and respecting the diversity, heritage, knowledge, cultural property and connection to land of Aboriginal and Torres Strait Islander peoples.

If you do any research involving Aboriginal and Torres Strait Islander
peoples, then you will need to engage with them before you start the research and ensure they are involved in the planning and design of the project. You will also need to report back to the community on the research outcomes. You must respect their legal rights and local laws, customs and protocols.

Such research is reciprocal – it should benefit both you and the community you are researching. Ethical conduct should:

- improve the way researchers work with Aboriginal and Islander peoples and their communities develop
- and/or strengthen research capabilities of Aboriginal and Torres Strait Islander peoples and their communities
- enhance the rights of Aboriginal and Torres Strait Islander peoples.

Close

P7 Accountability

Principle seven requires you to be accountable for the development, undertaking and reporting of your research. You are responsible for ensuring that you meet standards set in laws, policies and guidelines that touch on your work. This could be at MIT, within Nation or internationally.

You are also accountable for receiving and managing public resources, such as University facilities or government funding, that may be used in your research.

Your responsibility includes:

- Understanding and complying with the range of requirements that apply to your research
- Managing your research funds honestly and openly
- Reporting any breaches to the University
- Being aware of potential risks involved with collaborative research and ensuring appropriate agreements are in place.

Close

P8 Promotion

The eighth and final principle is that you promote responsible research practices. In your research team, as a MIT staff member or student, and in your research community, you need to encourage and support a culture and environment of responsible research conduct.

Supervisors of staff or students have an additional responsibility to provide guidance and mentorship on responsible research conduct and monitor conduct where needed.

In your daily research work, you can:

- Be conscious that others are looking to you as an excellent researcher
- Look out for and remove obstacles to good research practice
- Avoid pressures or incentives that might distract you from responsible research conduct
- Be respectful, culturally sensitive and professional to your colleagues, and expect the same in return.

Close

Authorship

Being named as an author is a valuable sign to the research community about a researcher's contribution to inquiry in their field. It is a mark of recognition and academic status. It also means that researcher is accountable for the published work.

By the end of this topic, you will be able to:

- Outline the criteria for authorship (including who is and is not an author)
- Manage and appropriately record conversations about authorship
- Identify when an authorship agreement is required
- Report and seek assistance for authorship disputes.

This topic should take approximately 10 minutes to complete.

Determining authorship

Go →

Responsibilities of authors

Go →

Authorship agreements

Go →

Authorship disputes

Go →

Determining authorship

Your research may take place on the stage, in a laboratory or in a library archive. You may be the sole researcher where you designed the project, conducted data collection and wrote a research paper on your own. Or you may work as part of a large multi-site clinical trial team with researchers working on the trial all over Nation. A study sponsor may have designed the protocol and study documentation but you and ten other researchers are responsible for the research outputs.

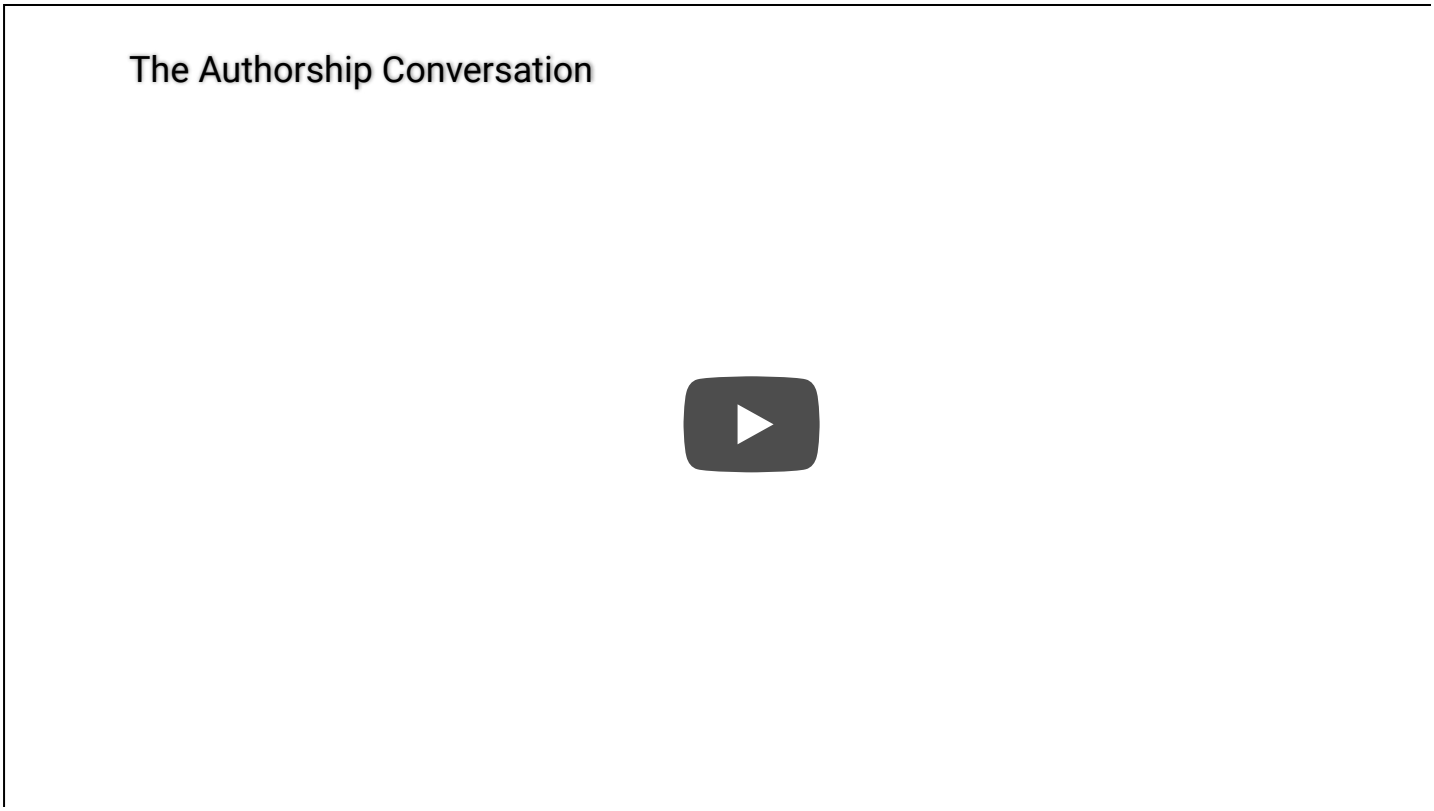
Determining whether you should be an author of a research output is based on the intellectual input that you have made to a finished piece of work.

To be an author, you need to have added substantially to the research output, or undertaken some critical revision of the work that enhances how it is interpreted.

In this short video, Uni researchers discuss their approaches and considerations when determining authorship.

A text transcript is also available below.

Video: 2:09 minutes



Text transcript

Benefits of authorship

Being recognised as the author of research that you have produced reflects the principles of honesty, fairness and transparency, both for you and other co-authors of your research.

It not only provides for formal recognition of your expertise and hard work, but also enhances your status and reputation both within the University but also in your discipline. As a staff member, it could lead to promotion, and as a student it could enhance your thesis.

Authorship also provides a channel for other researchers to recognise the important contribution you make to your field of research. Colleagues may approach you to collaborate on new projects or to ask you for more details about the research.

What is a research output?

A research output is the outcome or findings of your research. A written paper is the most common research output, but there are many ‘non-traditional’ outputs too. Your research output might be…

A journal article or book chapter

A research dataset

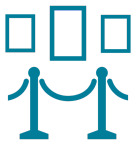
A virtual reality game

A new disease model

A musical composition

An artificial intelligence marketing agent

A conference poster



An exhibition

Who can be an author?

It may be obvious who the authors of a research output are; for example, if you are a PhD student, in some disciplines you may be the sole author, in other disciplines you may be listed as the first author, with your supervisor and co-supervisor as the other authors. In other instances, determining who should be listed as an author will not be as clear.

There are **three criteria that must be met** if you are to be listed as an author of a research output:

You made a significant intellectual or scholarly contribution to the work, and	You have agreed to be listed as an author, and	You have contributed **at least two** other things from the list below.

At least two of the below must be true:

- You had the idea to create or design the research project or work
- You used your judgement, or been involved in planning or design when collecting research data
- You contributed knowledge to the project, including National Indigenous knowledge
- You analysed and interpreted the research data.

Significant intellectual or scholarly contribution

You and any co-authors will need to consider whether you have made a **significant intellectual or scholarly contribution to the work**. Other contribution (e.g. sponsorship, professional services, administrative and technical support) should be acknowledged, but does not require listing as an author.

Think about your role in the work, both at the research planning stage and then as the project develops. The significance of your involvement may be clear, or you may have to discuss it with other authors. This discussion needs to occur before you put in place an Authorship Agreement, which we'll cover later.

Remember, you need to have made a significant intellectual or scholarly contribution *and* done two of those other key tasks to be considered an author.

Research Authorship procedure

If you're not sure whether you should be an author or not, have a closer look at the Research Authorship procedure or speak to your supervisor who can guide you through an assessment of whether you are an author.

Access the Research Authorship procedure

You have some interesting results and your supervisor, Associate Professor Melissa Canning, suggests you publish. This is your first publication, and you are unsure about who should be an author.

The results were obtained by the preparation and characterisation of samples. Professor Ai Zhang is the Head of the Research Centre where you conducted your analysis.

You did the preparations and most of the characterisations, under the guidance of A/Prof Canning and with some advice and assistance on techniques from Dr Rashmi Kumar.

Mr Alan Wilson from the Electron Microscopy Unit produced the images on a fee-for-service basis.

You wrote the manuscript. A/Prof Canning read it and made a lot of comments about its structure, so you had to make a lot of changes before she was satisfied. Dr Kumar also read the manuscript and made a couple of small but useful comments about how to present your data. Your associate supervisor Dr Anthony Irvine said he was too busy to read the manuscript.

This is your first publication, and you are unsure about who should be an author.

Based on the criteria above, which of these people would you suggest naming as authors?

- [ ] Mr Wilson
- [ ] Dr Kumar
- [ ] Dr Irvine
- [ ] Myself
- [ ] Professor Zhang
- [ ] Associate Professor Canning

Submit

Acknowledging other contributions

Even if someone doesn't meet the requirements of being an author, it can be tempting to add them as an author for various reasons.

You might want your research output to be associated with someone with a high-profile reputation, or to say thank you for all the help they gave you. As a supervisor, you may want to support your student by adding their name to the output, even though they didn't do much work. You may also feel obliged to include as an author someone who pays your salary.

However, the Research Authorship procedure prohibits making some people authors, as including them would not be honest or fair. Refer to the **Criteria of authorship** in the procedure for details of when authorship should *not* be attributed.

While not all contributors are authors, all contributions deserve to be recognised. You should consider giving non-authors a different kind of credit: an acknowledgement. This aligns with the principle of fairness.

Activity

Of the people below, which **two** might you acknowledge for their contributions to your research?

- [ ] Mr Wilson
- [ ] Professor Zhang
- [ ] Dr Irvine
- [ ] Dr Kumar

Submit

Responsibilities of authors →

Responsibilities of authors

Being an author of research comes with various responsibilities and expectations. A researcher works within a web of relationships with people, organisations and the global research community.

As an author, you're accountable for the work. You are expected to understand your author role and fulfil your responsibilities.

Before publication

Before you publish, exhibit or perform your research output, you have to check key aspects of your work. You'll need to:

Make sure your own work in the research is accurate, has been done honestly and is of a high quality

Take reasonable steps to make sure that the same is true for other authors' work

Approve the final version of the output once you are happy that your work and that of your co-authors is sound.

Your reputation is at risk if the work isn't good. If possible, you should be able to identify which of your co-authors is responsible for the various sections of the output.

If you have any authorship concerns, make sure you raise them with the other authors, or discuss with your supervisor, before you submit the work for publication, or perform it in public.

Ensuring ethics approval

Where your research requires ethical approval, either for work with human participants, their data or tissues, or the use and care of animals, then you have responsibilities as an author. You have to be satisfied that:

- Ethical approval has been obtained
  The research was conducted according to the minimum National standards of relevant codes.

This applies not only to any research conducted in Nation, but also to research overseas. For example, if your data was provided from overseas by another author, and you simply did the analysis here in Nation, then you still have to be satisfied that all the ethical standards were met. You're responsible for meeting the principle of rigor in research that you conduct.

Activity

Animal research is being conducted in India by a collaborator on your project. You are the lead author, having designed the experimental design, analysed the data, and contributed to writing the manuscript.

You are not involved in performing scientific procedures on the animals, and therefore not listed as an investigator on the Indian Animal Ethics Application.

Because of your involvement, which of the below are your responsibility?

Select all answers that apply.

- [ ] None of these options, because I am not listed on the ethics application
- [ ] I must ensure the research on the animals met the minimum National standards
- [ ] I must obtain animal ethics approval in Nation as well
- [ ] I must ensure that my collaborators obtained animal ethics approval

Submit

After publication

Once your work is published or performed, you must still keep track of your research as your responsibilities are ongoing.

If you or anyone who reviews your research has any doubts about the accuracy or integrity of any part of the output, then you and any co-authors must respond to these concerns. This could involve gathering and providing the research data, analysis or other evidence, and showing how you contributed to the work.

In the rare case where there are errors in the output, then as an author you must ensure that any public record of the work is corrected.

Experienced researchers also have a responsibility to mentor junior researchers and students in having authorship discussions and ensuring standards are maintained.

Corresponding authors

Where your research has more than one author, then one of the team takes on an additional responsibility by becoming the ‘corresponding author’. Their duties are:

- Corresponding with everyone involved with producing a research output
- Ensuring all authors are properly recognised, including students and junior researchers
- Acting as the authorship record keeper: they keep the authorship agreement and authorship statements up to date and secure
- Coordinating written approval for publication
- Communicating with the publisher on behalf of the authorship team.

The corresponding author is the primary contact for a research output. This is an essential role - are you a corresponding author, and do you know what this entails?

Authorship agreements

Authorship agreements are your ticket to a smoother research journey.

Where there is more than one author on your project, meeting with the author team for early and open discussion helps to prevent any unwelcome surprises at the end of the process. Discuss authorship early, work out who will be named as authors and their order on the paper, performance or artwork.

Managing conversations about authorship

Open and early discussions about authorship are essential. These may be initiated by you, your supervisor or a more senior member of the research team.

Honesty and transparency about the planned project are the goals of these conversations. If you feel uncomfortable in asserting yourself and getting the recognition you feel is right, you can seek the support of another member of the research team who you respect, or your supervisor or an independent support person.

Don’t feel pressured into accepting a lesser role, but approach discussions in a professional but supported way.

Once you’ve talked about each person's expected contribution, you then need to complete a written authorship agreement, and plan to review and update it regularly over the duration of the project.

Authorship agreements

An **authorship agreement** is a formal document that ensures that the authorship team discuss, understand and record key information. Uni provides a template, available below, to help you capture all the important detail, including:

- Who are the authors on the research output?
- What contribution will each author make?
- What order will the authors be in?
- Who will be corresponding author?

The agreement is a record based on what you think will happen and how you predict the work will be completed. If circumstances change then the authorship agreement will also need to change. It should be reviewed regularly and updated if required.

✓ Order of authors

Authors must decide on the order in which authors will appear. The process of deciding the order of authors varies according to discipline and your supervisor or academic unit can provide you with advice on this.

Authorship statements

An author must not be included or excluded in the research output without their written consent. Where there is more than one author, an **authorship statement** should be prepared once each research output is complete. Again, a template is available. This statement:

- Represents the actual contribution of each author
- Ensures each author's consent is clearly documented
- Includes a brief description of your contribution to the work.

Authorship disputes

No matter how careful and thorough you are, sometimes there will be disputes over authorship, acknowledgements or order of researcher names. Occasionally, authors or contributors to a research output may disagree about whether they are authors or not, or who should be first, second or third author.

There are ways to resolve these issues and advice is available if you need it.

Authorship dispute resolution

Apply the following steps to resolve disputes. If the first step doesn’t resolve the dispute, try the next.

+ Step 1. Review the authorship agreement or authorship statement.

Good planning pays off. Check what you previously agreed upon to see if you can resolve the issue this way. If not, try the next step.

+ Step 2. Seek advice from one of our specialist Research Integrity Advisers.

If you’re not sure how to resolve a dispute, you can ask for advice from a Research Integrity Adviser.
If you are a junior researcher such as a HDR student or early career researcher and you feel there is a power imbalance between you and other authors, you can also ask for support from another person such as a HDR Coordinator.

— Step 3. Take the problem to the head of your academic unit.

If you’ve tried all these solutions and there’s still a dispute, ask the head of your academic unit (your Head of School, Department or Institute) to decide the matter. They have the authority to decide about what an author has contributed. They can also intervene where an authorship dispute is blocking the progress of a project or output, and where authors or contributors are not co-operating with each other.

Activity

PhD candidate Mary and her HDR Supervisor, Pawel, are finalising a paper exploring teen crime in Boston.

Pawel tells Mary he should be listed as the first author on the paper, as he is the senior researcher on the project.

Mary tells Pawel she is extremely grateful for the expertise he has provided, but she is sure they agreed she would be first author.

Pawel refuses, saying that this was never agreed upon and is not appropriate.

What should Mary do first?

◎ Raise the dispute with the Head of Institute

The first step is to check over the original agreement.

Once Mary reviews her copy of the authorship agreement, she notes it clearly states the intention for her to be first author. However, Pawel sends her a different version of the authorship agreement which supports his claim as first author. Pawel’s version isn’t signed.

Mary decides she’d like to seek further advice on how to approach the conversation with Pawel.

A Research Integrity Adviser

Mary can speak to a Research Integrity Adviser (RIA) from her academic unit. The RIA will be able to advise Mary on how to approach the discussion with Pawel and provide references to the relevant procedures and the Code.

Mary reminds Pawel that consultation with all authors needs to occur before any changes are made to the authorship agreement.

Ultimately, Pawel and Mary agree the original signed authorship agreement applies and Mary should be first author.

Authorship breaches

A very small number of people act without integrity. An agreed first author might try to hold onto their first author position even though they didn't make their agreed contribution. Someone may insist on being given an author credit when they didn't make a significant intellectual or scholarly contribution, or insist on cutting someone out of an acknowledgement they deserve. These issues are considered to be breaches of the standards for authorship at MIT, and also of the *National Code for the Responsible Conduct of Research*.

Breaches are taken very seriously in the research community. Where a potential breach of the Code regarding authorship exists, the matter will be managed in accordance with the Research Integrity Breaches Procedure. If someone has breached MIT's authorship standards, MIT may require them to receive additional training or mentoring. In cases of serious breaches, it could affect someone's career or their student enrolment.

If you have an urgent question about potential breaches, you can contact the head of your academic unit or one of the Research Integrity Advisers.

We will also explore breaches and how to submit a breach allegation in a separate module later.

You've finished **Authorship**! Select the button below to move to the next topic.
You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Research data management

Research data management

Research data is a valuable asset. Producing, generating, or collecting research data comes at a cost to the community, to the University and to you personally as a researcher. However, it also brings with it the potential for significant benefits for all of us. Managing your research data responsibly will maximise those benefits.

By the end of this topic, you will be able to:

- Determine what research data are
- Decide on the appropriate retention period for the research data you will generate
- Identify the data custodian for the project/s you are working on
- Complete a research data management plan.

This topic should take approximately 15 minutes to complete.

What is research data?

Go →

Research Data Management Plans

Go →

Data storage and transfer

Go →

Data reuse, sharing and access

Go →

Data retention and destruction

Go →

What is research data?

Research data is the evidence you need to keep to validate the observations, findings or outcomes of your research. It can include:

- Data, information, records, files
- In print, digital, physical or other forms
- Primary materials and analysed data.

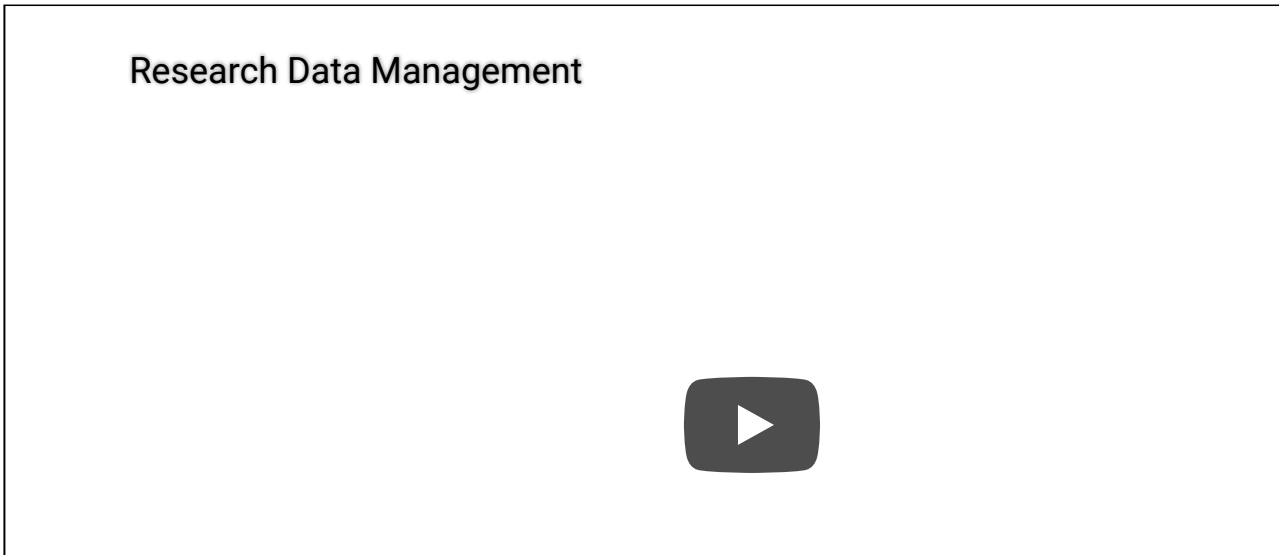
You'll need to consider things that may impact upon the value of the data, such as identifiers, file-naming protocols, metadata, documentation, the way that collections are structured, and the requirements for managing data collected by someone other than yourself.

Read the ANDS guide, What is research data? for a more thorough explanation of what constitutes research data.

In this short video, researchers discuss their approaches to research data management.

A text transcript is also available below.

Video: 1:07 minutes



Text transcript

The principles that govern research data management

The National Code for the Responsible Conduct of Research sets out principles and responsibilities that govern research data management.

P2 Rigour
Research should be characterised by attention to detail and robust methodology and that researchers avoid or acknowledge biases.

P3 Transparency
Researchers should share and communicate research methodology, data and findings openly, responsibly and accurately

P7 Accountability
Research should comply with relevant legislation, policies and guidelines and ensure good stewardship of public resources used to conduct research.

R22 Records
Researchers must retain clear, accurate, secure and complete records of all research including research data and primary materials. Where possible and appropriate, allow access and reference to these by interested parties.

Access now

Please now access the **Research Data Management Procedure** so that you can refer to it during the module. If you have any questions about the procedure, you can contact your local Research Integrity Adviser for assistance.

Access the Research Data Management Procedure

Activity

Marion's research involves conducting qualitative interviews with young artists which she records as audio files. She then transcribes to text and codes it in NVivo. Which of the following is Marion's research data?

Select all answers that apply.

- [ ] The text transcripts
- [ ] The NVivo project file
- [ ] The interview audio files

Submit

Thinking about your own research...
What types of research data will you be working with?

What's next?

Now we'll explore the fundamentals of creating a Research Data Management (RDM) plan.

Research Data Management Plans

To manage your research data, you must create and maintain a Research Data Management (RDM) plan. By planning ahead of time, you will maximise the benefits derived from your work and avoid misunderstandings and disputes.

Your plan will outline how you and any collaborators will manage your data throughout its lifecycle. It should be a living document. This means that you should refer to it throughout your research project and as necessary, update, amend or add to it.

Uni has provided a comprehensive Research Data Management (RDM) planning tool known as the RDM Planner. The planner will guide you through the process of developing an RDM plan.

Bookmark it
The Research Data Management Planning tool

Activity

When should Marion's research team access the RDM plan? Select as many as apply.

- [ ] If something changes in the research project
- [ ] If Marion decides to leave the University
- [ ] At the beginning of the research project
- [ ] After the research project is complete

Submit

Responsibility for the plan

You and every member of your research team are responsible for your RDM plan. You must make sure you are aware of, and in agreement with the plan and that you follow it throughout the research data lifecycle.

In addition, each data set must assign a **Uni data custodian** who is responsible for making sure:

- The RDM plan is regularly reviewed
- The data are stored, and access is provided as described in the RDM plan
- Relevant conditions are adhered to as outlined in approved ethics applications, contracts and confidentiality agreements

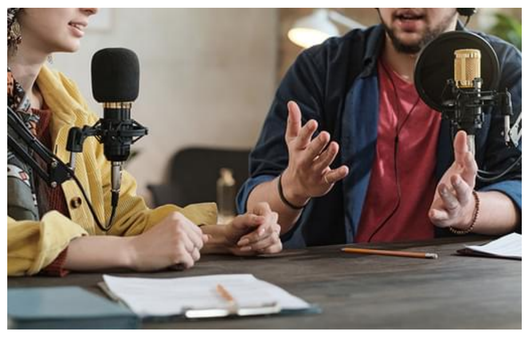
Activity

Marion's research team need to appoint a data custodian. Fyodor, a member of Marion's research team, is a research student at Uni. Can Fyodor be the data custodian?

True or false?

- ◯ Yes
- ◯ No

Submit



Thinking about your own research...
Which person is the most suitable data custodian for your research?

What's next?

The next few pages will help you work through key decisions you need to make about managing your research data, including:

- Managing data storage and transfer
- Data sharing and reuse
- Arranging data access
- Data retention and destruction.

Data storage and transfer

Uni has provided facilities, infrastructure, and platforms to securely store your research data. If you store your data in Uni-provided facilities, you can be confident that:

- Your data will be accessible, secure, stable, backed up, retained and archived
- You can control with whom you share your data and how
- You reduce the risk of data loss, theft, damage, and corruption and the likelihood of breaches of confidentiality, privacy and Intellectual Property requirements
- Your data storage arrangements will meet the requirements of:
  -
  -
  -
  -
  -
  -

Storing research data outside of Uni facilities

You may plan to store data outside of Deakin for some, or all, of your research project. If you plan to collect or store your data on storage facilities provided by a third party, you are responsible for ensuring that:

Your data are at least as secure as they would be at Uni.

At least one copy of the data is stored at Uni.

If you are collecting and storing data outside of a Uni facility for a protracted time period, you should regularly transfer or transport the data, or copies of it, to Deakin. Occasionally, contractual, or other considerations such as respect for cultural ownership may prohibit you from doing so.

Keeping externally-stored data secure

Uni has processes and supports in place to help you meet these obligations. Explore the scenarios below for advice on how to manage specific data storage situations.

I plan to store electronic data using an external platform provided by a partner organisation

eResearch and Cyber Security will need to conduct a risk assessment on the platform you plan to use.

The partner organisation or platform I wish to use does not appear on the list of approved third parties

Lodge a ticket with eSolutions to request a review of a third party platform. Uniwill then work with you to assess the suitability of your storage plans and if appropriate, will add your partner or platform to the list of approved third party storage facilities for the benefit of future researchers.

I am storing physical data in the form of materials and environmental samples

You may wish to seek advice from appropriate experts. For example, professional staff such as laboratory managers, the Biosafety and Biosecurity team or Uni's Information and Records Services may be able to provide advice about how to securely transport and store your data in a Uni facility or at an external location.

More information regarding your obligations when storing and transferring research data can be found in paragraphs 11-18 of the Research Data Management Procedure.

Activity

Jay is an environmental scientist involved in a Uni research project. Jay is based internationally, collecting samples in the field. Jay has analysed the samples and all the data is currently saved on their research drive at the foreign institution where they work. Jay's employer has its own detailed data security protocols.

Which of the following statements are true? Select all that apply.

- [ ] Jay needs to have Uni assess the data security arrangements put in place by their employer
- [ ] Jay should transfer at least a copy of their data to Uni for secure storage if possible
- [ ] Jay doesn't need to transfer their data to Uni, as it is stored in a sufficiently secure location

Submit

Thinking about your own research...
What storage arrangements do you have in mind?
What do you need to check to make sure your plan is suitable?

What's next?

Once you've decided how you will store your data and transfer or transport it, make sure to document your decisions in your RDM plan. If you are collaborating with others on your project, make sure all your collaborators are aware of, and agree to follow the plan.

← Research Data Management Plans

Data reuse, sharing and access →

Data reuse, sharing and access

Data reuse and sharing

The full benefits of research data often won't be obtained until it has been reused, sometimes many times, by many different researchers. When researchers manage their data properly, it's much easier to realise benefits, including:

- Reusing your own data for future research, with or without collaborators
- Sharing your data with other researchers so that they can use it for their research
- Obtaining access to other researchers' data for your future projects

Given the cost of collecting, generating, and producing research data, and the value of the data, it is expected that you will make your data available for future use.

Any limitations to reuse or sharing your data should be fully detailed and justified in your Research Data Management (RDM) plan.

Do I have to share or reuse my data?

There are limited exceptions to the expectation to share your data, including:

- Cultural ownership issues
- Unmanageable risks to the privacy of research participants
- Restrictions imposed by the consent provided by research participants
- Safety considerations (e.g. sharing unstable chemicals or hazardous materials)
- Contractual or other legal obligations

Special requirements

Specific requirements exist for sharing and reusing certain types of data like data related to human research participants, non-human specimens, or imported materials.

More information about these requirements is provided in paragraphs 22-26 of the Research Data Management Procedure.

Once you have decided whether to share or reuse your data, you need to make sure that any collaborators on your project agree with your decisions and that you have documented those decisions in the RDM plan.

Data access

You will need to carefully plan and document what access arrangements are appropriate for your data to facilitate reuse and sharing and ensure data security.

Depending on the nature of your data, access arrangements may be:

Restricted
Very few individuals have access to the data (e.g. the research team only)

Mediated
Conditional access may be granted by the data custodian upon request

Open
The data are published and freely available to anyone

How do I decide what access to grant?

When deciding what access arrangements are best for your data, you should consider any sensitivities or risks associated with sharing your data. You must also ensure you meet applicable ethics, biosafety, contractual, intellectual property, and legal requirements.

What access arrangements are appropriate for your data may also differ throughout the data lifecycle. This may be influenced by things like:

- Whether the data is in its raw, or aggregate form
- Whether the data may identify individual participants, or if the data have been de-identified
- Whether any embargos related to potential commercialisation have been lifted.

How do I provide access to my data?

If you plan to provide restricted access only, storing your data in Uni facilities means you will only share your data with specified individuals.

In contrast, you can provide mediated, or open access to your data by depositing it in a research repository. Uni Research Online (DRO) is Uni's research repository.

Activity: Access arrangements

Jay's research team are collecting samples of soil in several different geographies. Which access arrangement is likely to be best for the soil sample data that Jay is collecting?

Use the dropdown list below to select the most appropriate access arrangement.

Open access

Submit

The soil sample data should probably be open access. It will not contain sensitive or identifying information about people. Jay will still need to ensure that there are no other sensitivities associated with the data before choosing this designation.

Data description

Regardless of what access arrangements you decide are right for your data, your first step is to create a descriptive metadata record.

For other researchers to gain access to your data (whether through mediated or open access arrangements), they will need to be able to discover, or find your data. Publishing a description of your data (known as a metadata record) will allow researchers using search engines like Google Scholar, OIASter, TROVE and other scholarly databases to find your research.

In addition to describing your data, you can also provide instructions about how researchers can request, or obtain a copy of your data, along with any conditions they must meet and/or applicable reuse restrictions.

Even if you plan to restrict access to your data, you should still publish a metadata record for each of your research projects. This helps others understand and have confidence in your research findings, and informs others about the research currently underway.

Data retention and destruction

Minimum retention periods

You must retain and securely store your data for a set time period known as the minimum retention period (i.e. for at least that long). Doing so provides time for:

- You to reuse your data, with or without collaborators
- You to share the data for others to use and
- Others to validate your research findings.

Different categories of research data have different minimum retention periods. To know how long you have to store your data, refer to the **Data Retention Table** in Section 6 of Uni's Research Data Management Procedure.

When does the minimum retention period start?

The minimum retention period commences once both these conditions are met:

- You have finished analysing the data for the current project (i.e. your final research output has been published, or your research findings have been disseminated), and
- You have no further intention of reusing the data for another project or sharing the data so it can be reused by other researchers.

However, if at some point during the minimum retention period, you decide:

- You want to reuse the data yourself, whether for an extension of the same, or a different project, or
- You decide to share it with others so that they can reuse it

Then the minimum retention period resets, either from when you finish analysing the data for the second time, or once you have shared the data.

Exceptions to the rule

There are some exceptions to the minimum retention periods. These are outlined below the table in Section 6 of the Research Data Management Procedure. In summary:

+ Data was obtained from a third party and is subject to licencing or copyright arrangements

You must securely store your data for the retention period specified in the relevant agreement.

— Data was collected for a human research project

You must securely store your data for the retention period specified in your ethics application. You will need to obtain ethics approval if you wish you vary the terms of your ethics application.

+ Data is subject to other relevant laws

You must obey the law.

— Data is subject to safety considerations that make extended storage inappropriate

A shorter retention period may be acceptable, but you must obtain any relevant approval first (e.g. from laboratory managers, or an ethics review body). This might apply to unstable chemical storage or highly sensitive information.

Activity

Marion needs to determine the minimum retention period for her interview data. Several of the young people who are being interviewed for the project are under 18.

According to the data retention table in the Research Data Management procedure, how long is the minimum retention period for the interview data?

✓ 15 years from when the child turns 18

7 years

Must be retained permanently

Marion’s data must be retained for 15 years after the young people reach 18. Marion’s team need to ensure the data are securely stored until that time.

Remember, the minimum retention period won’t commence until after her final research output has been published.

Thinking about your own research...
How long will your research data need to be retained?

Data destruction

Once your data has reached the end of its minimum retention period, if you no longer have any plans to reuse or share it, it is appropriate to securely destroy your data. This prevents any unauthorised access or misuse and frees up limited storage space (whether electronic or physical) that could be used for other data.

Step 1 Step 2 Step 3

Step 3: Record details of destruction
There may be an existing register of data that has been destroyed in your area. If a register exists, you should record details of your data’s destruction there. If not, you

Step 1: Before destroying your data
Consult with Information and Records Services Team.

Step 2: Destroy your data
Destroy your data by one of the recommended processes.

Step 3: Record details of destruction
There may be an existing register of data that has been destroyed in your area. If a register exists, you should record details of your data's destruction there. If not, you should record the details in your Research Data Management (RDM) plan instead.

Leaving Uni

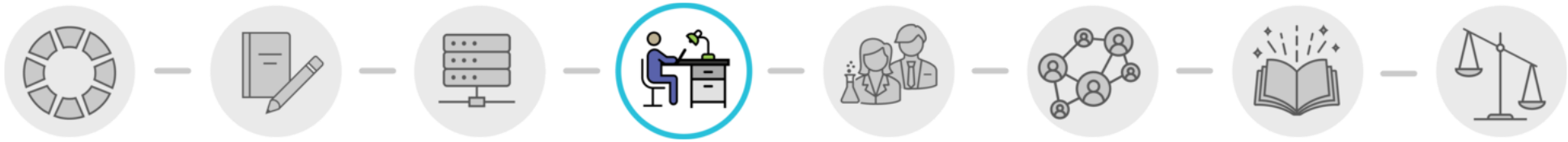
Whether you are a staff member or a research student, there are important steps you need to take prior to leaving Uni.

Hand over RDM plan.
Provide your manager or supervisor with access to your Research Data Management (RDM) plan.

Transfer data custodian duties.
If you are the data custodian, assign another member of the research team at Uni to become the data custodian if possible. If there are no other research team members located at Uni, your Head of Academic Unit will become the new data custodian.

You've finished **Research data management**! Select the button below to move to the next topic.
You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Peer review



Peer review

As a Uni researcher you should participate in the peer review process as part of your academic and scientific endeavour. Peer review is a tool to evaluate and improve your research. It is an expression of academic freedom in which scholars publish and comment on areas of research where they possess demonstrable expertise, in accordance with Uni's commitment to academic freedom.

By the end of this topic, you will be able to:

- Define research peer review
- Explain its importance in your research and the wider research context
- Outline the requirements of responsible peer review.

This topic should take approximately 5 minutes to complete.

The importance of peer review

Go →

Responsibilities of peer reviewers

Go →

The importance of peer review

Peer review provides expert scrutiny of proposed research or research outputs and helps to maintain high standards in research by ensuring that accepted disciplinary standards are met.

Peer review may also draw attention to departures from the principles in the Code, including by identifying plagiarism, duplicative publication, errors and misleading statements.

At its best, peer review contributes to accurate, thorough, and credible reporting of research. It provides for better science.

The principles that govern peer review

The National Code for the Responsible Conduct of Research sets out principles and responsibilities that govern research data management.

P3 Transparency
Includes the responsibility to disclose interests and manage conflicts of interest

P4 Fairness
Requires researchers and others involved in research to be treated fairly and with respect

R28 Peer review
Researchers must participate in peer review in a way that is fair, rigorous and timely and maintains the confidentiality of the content

Responsibilities of peer reviewers

Before agreeing to be a reviewer

- Ensure you are trained or experienced in peer reviewing
- Only agree to peer review manuscripts within your expertise. When you receive an invitation to review, the review criteria or abstract should help you decide whether it's within your area of expertise.
- Declare any conflicts of interest (such as if you are a colleague of the researcher). You should declare the COI at the point of invitation to be a reviewer.

What is considered 'responsible' peer review?

When undertaking a peer review of the work of others, you must conduct yourself responsibly and ethically.

Select the titles below to learn about the standards you must uphold.

✓ Review in accordance with the relevant peer review criteria

Depending on what you are asked to review, there will be different review criteria from either the editors, publishers, or grant providers. Make sure you stay within the scope of the review.

✓ Ensure timely review to avoid unnecessary delays

Carefully analysing and commenting on a manuscript requires a good amount of time. Make sure you are aware of the deadlines and allocate enough time avoid delays.

Ensure objective and impartial review

Do not permit personal prejudices or bias to influence a review.

✓ Apply standards equally to all research under review

Be consistent in your reviews. This includes how your format your commenting.

✓ Give proper consideration to challenging ideas

Give proper consideration to research that challenges or changes accepted ways of thinking, which may include innovative, interdisciplinary or collaborative research.

✓ Be constructive

Maintain professionalism in the tone of your comments and remember you ultimately want to help an author improve their paper, so be as constructive as possible even if you end up rejecting a paper.

✓ Maintain confidentiality

Keep the contents of the review confidential.

✓ Do not delegate your peer review responsibilities

You should not delegate your responsibilities or ask for assistance with a review, unless authorised.

✓ Do not seek personal benefit

You should not take advantage of knowledge or information obtained from the peer review process. This is considered unethical practice.

What if my work is being peer reviewed?

If your own work is undergoing review, you must not seek to influence the process or outcomes.

Activity

Jerome is a Senior Research Fellow specialising in machine learning algorithms. He is asked to review a grant application for a project investigating machine learning applications in healthcare.

When accepting review of the application, Jerome notes one of the applicants was a previous colleague he published with five years ago.

As the deadline approaches, Jerome has been unable to complete the review and delegates the task to a HDR student, telling them it will be valuable learning experience.

Which of Jerome's peer review responsibilities did he *fail* to uphold? Select all that apply.

- [x] Jerome failed to declare his conflict of interest
- [ ] Jerome sought personal benefit
- [x] Jerome delegated his peer review responsibilities
- [ ] Jerome did not peer review within his area of expertise

Submit

Absolutely right. Jerome should have declared a conflict of interest due to his previous professional relationship with the applicant.

Also, he should not have delegated his peer review responsibilities to another person without authorisation. Although peer review is an important research trainee skill, it should not be delegated to another person for the purpose of training.

Further information and training

Uni researchers can access free online masterclasses on peer review from *Nature*. These are aimed at researchers who are new to peer review or wish to refresh their skills.

Learn more about Nature Masterclasses

Wiley has produced a suite of training resources and short videos on peer review. They cover important topics from general principles to step-by-step guides for reviewers.

Explore Wiley's peer review training

A 20-30 minute course covering different types of peer review, research integrity issues, structuring peer review reports, and responding to peer reviewer comments.

An Introduction to Peer Review

You've finished **Peer review**! Select the button below to move to the next topic.
You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Supervision

Supervision

Academic staff have a responsibility to assist research trainees under their supervision, including Early Career Researchers and HDR students, to develop the skills necessary for conducting research responsibly. Whether you are a student or a supervisor, it is important for you to understand the expectations of responsible research supervision.

By the end of this topic, you will be able to:

- Outline the role and responsibilities of a research supervisor
- Establish and maintain a positive relationship with your supervisee.

This topic should take approximately 5 minutes to complete.

Research supervision at Uni

Go →

Supervisor responsibilities

Go →

Positive supervision

Go →

Research supervision at Uni

> “The responsibilities of supervisors are diverse and include maintaining currency in discipline-specific knowledge and practices, as well as setting the highest standards in research design and methodology to assure high quality, reliable, and reproducible research findings.”
> Explanatory Guide on Supervision

Supervisors play a critical role in mentoring and teaching research trainees in responsible research conduct. Research trainees learn all aspects of their research conduct from their supervisors through their honours, masters, PhD and early career, so it’s important for supervisors to always demonstrate best practice.

It is also important to acknowledge that one size does not fit all when it comes to supervising research trainees. Supervisors will need to adapt and tailor their approach for each supervisee. The approach and level of involvement will depend on experience, personality, knowledge and each individual research project.

Activity

Reflect on what the term “supervisor” means to you in your everyday life. List 1-3 words that come to mind. They will be added to the word cloud below.

Note - this is an open activity, so you're sharing with everyone who is doing this training. Your responses are anonymous.

Thank you f

S

Join

244

Have a look at how other Uni researchers have answered this question. Refresh this page to see your words added to the cloud.

The principles that govern research supervision

The National Code for the Responsible Conduct of Research sets out principles and responsibilities that govern research supervision.

others involved in research to be treated fairly and with respect	development, undertaking and reporting of research	and foster a research culture and environment that supports the responsible conduct of research	Researchers must provide guidance and mentorship on responsible research conduct to other researchers or research trainees under their supervision and, where appropriate, monitor their conduct.

Supervisor responsibilities

Supervisors of research trainees are required to have an in-depth and current knowledge of the fields or disciplines relevant to the research of those under their supervision, as well as making original contributions or producing research outputs.

There are also many other often interrelated responsibilities which supervisors must ensure they're aware of.

Be aware of the principles and responsibilities outlined in **the Code** and provide guidance on how they are applied in your specific discipline.

Ensure **occupational health and safety** concerns related to the research are discussed and completion of additional training is undertaken.

Comply with **institutional policies and procedures** that govern research and ensure your research trainees are made aware of them.

Understand **research ethics** requirements and how they relate to each project you're responsible for.

Understand the **research risk** involved in the project and completion of relevant risk assessment/s.

Complete any additional **training** required to use laboratory or fieldwork equipment.

Be across how different **legislation and regulations** may apply to the research. For example, if the project involves genetically modified animals, it will interact with the Gene Technology Act and Regulations. If the research is to be conducted overseas - for example, in Thailand - an understanding and compliance with relevant Thai laws is required.

This is not an exhaustive list. It is your responsibility to review and stay abreast of the requirements of supervision.

Activity

Billie supervises two people: Samera, an early career researcher who is new to Uni; and Louis, an honours student.

Billie sends her supervisees a link to the *National Code for the Responsible Conduct of Research* and asks them to confirm by reply email that they have read the document. Once they reply, she ticks off that she has trained her students in Research Integrity.

What could Billie do to provide further training and support on responsible research conduct?

Select all that apply.

Advise them to contact the Research Integrity Advisers (RIA) for individual training on Research Integrity

✓ Start a Research Data Management Plan together

Discuss Uni's Research Conduct Policy and related procedures and how they relate to their specific project/s ✓

Inform them of the Uni Research Integrity module that they must complete ✓

Hide Answer

A supervisor is responsible for providing training and information on research integrity. An RIA can assist with advice or specific queries or concerns about research integrity but cannot provide individual training to supervisees.

The project Louis is working on for his honours thesis requires a human ethics application to be submitted. Can Louis list himself as the Principal Investigator on this application?

Yes

No

Submit

You're right. Billie must be listed as the Principal Investigator, because a student cannot be the Principal Investigator on an ethics application.

Research supervision at Uni

Positive supervision

Positive supervision

A positive supervisory experience can have a long-term impact on an individual and the career pathways they choose. It will also inevitably inform the kind of supervisor they become.

Uni supervisors were asked what they think about positive supervision. Here are their tips for setting up and maintaining a positive experience for all.

Tips for supervisors

Getting started

Start the supervision relationship with an open conversation about communication preferences and working styles.

Have a conversation early on about whether you need to bring in other researchers to the project with specific expertise.

Don't assume motivation or understanding. Setting work that helps you get a feel for their interests and strengths can be very helpful for scoping the project appropriately.

If you're happy for your supervisee or student to email you in between meetings, tell them it's ok to do, so but be clear about when you will respond.

Discuss long-term plans (even if not fully formed) to tailor the project and the learning to the individual's goals.

Set clear expectations at the start for what you expect and what you can provide.

Managing time and monitoring progress

Make sure you are both clear about timelines and project milestones.

Schedule regular meetings at mutually agreeable times. Take into account what they have on their plate, such as study and work commitments or cultural/religious considerations. Don't assume they will fit in with you.

Ask them to take notes and send around a summary of each meeting. You should draft the summary for the first few meetings, to demonstrate the detail and quality expected and show that the summary is an important part of the meeting.

For honours and HDR supervisors, if you want a timely completion, provide timely feedback. The longer you take, the longer they will take.

Discuss what happens if a part of the project doesn't work out. Is there a plan B?

Encourage a focus on writing and obtaining the necessary technical expertise to do the project. Both depend on previous experience and knowledge.

Build a rewarding relationship

Create a sense of community: welcome new students into your research group and include them in group activities, foster collaboration by partnering new people with more established lab members in a way that both parties benefit from and provide opportunities to get involved in other projects within the group.

The race never ends… once you start on an academic track there is no end goal. Pace yourself and learn to thrive on suggestions rather than be buried in negativity and rejection.

Only supervise topics you have a genuine passion about and expertise in. It is not fair to the student if you are not fully committed to their research.

Don't overextend yourself with HDR supervision. If you can't give a student the time and energy they require, don't agree to supervise them.

If you aren't enjoying the supervisory relationship, take some time to reflect on why and what can be done to improve things. Maybe you're expecting too much and need to adjust your expectations.

Tips for supervisees

Take responsibility for your work.

Communicate regularly with your supervisor and make sure you're clear about what's expected of you.

Discuss concerns you have straight away.

Have a clear plan for your project.

Put in place your own deadlines and timelines to keep to.

Reflect and commit

What are **three actions you will take** to build a positive relationship with your supervisor/supervisee?

You've finished **Supervision**! Select the button below to move to the next topic.
You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Collaboration

Collaborative research

Uni encourages collaborative research between researchers, institutions, industry partners, government and not-for-profit organisations. However, researchers must be aware of the challenges associated with collaborative research, including regulatory, contractual, governance, or funding arrangements, which can become a barrier to successful collaboration if not carefully managed.

By the end of this topic, you will be able to:

- Outline potential and common risks associated with collaborating with individuals or organisations outside Uni
- Complete a due diligence check against all your collaborations
- Identify the criteria for when a formal collaborative agreement is required.

This topic should take approximately 10 minutes to complete.

Collaborative research at Uni

Go →

Collaborative researcher responsibilities

Go →

Collaboration agreements

Go →

Collaborative research at Uni

Collaborative research is considered as any joint activity which uses Uni resources or funding or has potential joint research outputs. Collaborative research may involve two or more:

- National or international researchers National
- or international research institutions Industry
- partners
- Governments
- Not-for-profit organisations

Many of the aforementioned research collaborators have different requirements associated with the conduct of research. As Uni receives public funding, our research must comply with the Code. Collaborations which Uni is involved in must also comply with the Code. This applies to research conducted outside Nation with overseas collaborators when Uni is the lead institution.

Uni researchers with dual roles with industry or in conjoint appointments need to be particularly aware of this and be clear which organisation they are working for when conducting their research. However, aligning your research with the principles of the Code will ensure all your research is conducted responsibly.

The principles that govern collaborative research

The National Code for the Responsible Conduct of Research sets out principles and responsibilities that govern collaborative research.

P4 Fairness
Requires researchers and others involved in research to be treated fairly and with respect

P6 Recognition
Recognition of the right of Aboriginal and Torres Strait Islander peoples to be engaged in research that affects or is of particular significance

P7 Accountability
Accountability for the development, undertaking and reporting of research

P8 Promotion
Researchers must promote and foster a research culture and environment that supports the responsible conduct of research

There is also an NHMRC Explanatory Guide on collaborative research which must be adhered to. Uni must ensure:

- **Research agreements** exist with all project partners
- **Due diligence checks** are performed regarding potential collaborators
- Collaborations align with **laws, policies and regulations** (and the Code)
- Researchers are **aware of their obligations** from the agreement and institutional requirements, including laws, policies and contractual arrangements.

Uni policies and procedures that apply to collaborative research

A number of key policies and procedures apply to collaborative research at Uni. Below is a summary of the most important clauses to be aware of, but be aware that a range of additional policies may apply depending on the nature of the collaboration.

Research Conduct policy

Uni collaborative research must adhere to this policy. Clause 15 notes a requirement to comply with multi-institutional and collaborative research agreements.

Research Authorship procedure

Clause 13 requires that a copy of the authorship agreement and statement is kept by Uni researchers if the corresponding author is not a Uni staff member.

Research Data Management procedure

Clause 9 requires appointment of a dual data custodian where the data custodian is external to Uni. Clause 36 requires the Research Data Management Plan is discussed with all collaborators.

Select each of these titles to find out which policies and procedures apply to particular circumstances.

- Formal relationship between the University and other parties to achieve specified objectives
- Externally funded grants and consultancies
- Domestic or international research students or activities
- An institution or organisation outside of Nation that requires Commonwealth approval

Other procedures to be aware of are the Contracts policy and the Intellectual Property policy.

Benefits and risks of collaborative research

Research collaborations is an important part of your academic career. Although there are many benefits in actively seeking collaborations, researchers must be aware of potential risks associated with collaborations and how to prevent these.

Benefits

There are many benefits for being involved in collaborative research, including:

- Increase research outputs
- Division of tasks and workload
- Building professional relationships
- Sharing of ideas and resources
- Improving funding opportunity
- Elevating research status and recognition.

Risks

If communication and agreements are not in place prior to collaborative research, possible risks or issues may appear, including:

- Disputes relating to publications, authorship, data ownership
- Breakdown in professional relationships
- Delays in research output
- Potential research integrity breaches or breaches of contract or legal requirements.

Collaborative researcher responsibilities

A vital step prior to initiating collaborative research is to ensure you do your due diligence. As a collaborative researcher you must:

- Conduct your own **due diligence** into your research partner and the proposed research
- **Be aware of your obligations** under any agreements and governance framework, including laws, policies and contractual arrangements (particularly those relating to intellectual property, the publication and dissemination of research and the management of research data and primary material).

Due diligence

You must review your research integrity requirements using the Due Diligence tool. It is your responsibility to ensure all approvals (e.g. ethics and biosafety) and agreements (e.g. relating to data management and authorship) from the appropriate Universities, State of Commonwealth authorities are obtained, prior to commencing research.

The Due Diligence Tool

The Research Integrity Requirements checklist is a tool you can use to ensure you seek and obtain all the required approvals. Access the tool now.

Autonomous sanctions

National law implements UNSC sanctions regimes and National autonomous sanctions regimes. Sanctions impose restrictions on activities relating to particular countries in situations of international concern. National sanctions law may impact a range of Uni's activities, including collaboration with a person or entity from a sanctioned country. This includes collaboration with foreign universities.

National sanctions laws may affect your collaborative research activities in a range of ways, including the prohibition of:

Dealing with ‘designated persons or entities’	Supplying export-sanctioned goods to sanctioned countries	Providing technical advice, assistance or training that assists with the manufacture or use of ‘export sanctioned goods’ in a sanctioned country or on behalf of a person or entity in the sanctioned country	Travel to sanctioned countries

As a Uni researcher, you must take reasonable precautions and exercise due diligence, to ensure any collaboration with an international partner does not breach the DFAT Sanctions Regimes listings.

It is your responsibility to check your collaborators by asking:

Is the person/s or entity on the consolidated list?
Refer to the DFAT Consolidated list.

◎ If yes

You are ***not permitted*** to collaborate with this person/entity.

Is the person/s or entity from a sanctioned country?
Refer to the DFAT Sanctions Regimes list.

◎ If yes

You must review your research collaboration activity to ensure you do not breach any sanctions or apply for a permit to authorise an activity that would otherwise contravene a National sanctions law.

Sanctions might control activities such as:

or course.
- Approving research projects or changes to research projects to be undertaken by visiting academics who are not National citizens and may be subject to international sanctions.
- Formal or informal research collaborations (whether funded or not) with academics or organisations if the academics or organisations are not National citizens and are subject to international sanctions.
- Accepting visiting researchers and academics who are from sanctioned countries, are employed by organisations that are subject to sanction or are subject to specific and individual sanctions.
- Technology or material transfers to sanctioned countries or individuals.
- Undertaking consultancies or engaging in private practice for or with sanctioned countries or individuals.

Activity

Haritsa, a research fellow at Uni, has previously collected and analysed data on bird migration from East Asia–Australasia.

Haritsa receives an invitation from researchers from an Indonesian university, to join a collaborative project to investigate the effects of climate change on bird migration. Taking part in the collaboration would involve pooling some of Haritsa's previous postdoctoral research with data from the Indonesian collaborators, in the hope that a new analysis of these data could be published in a high-quality journal.

Which of the below arrangements should Haritsa ensure are in place prior to the collaboration? Select all answers that apply.

✓ Research data management plan

✓ Due diligence regarding foreign interference and autonomous sanctions

Animal ethics approval

Submit

That's right. As the research involves live animals, Haritsa needs to ensure all international and **National animal ethics approvals** are obtained. Because the collaboration is with an international institution, she must also be aware of foreign interference risks and **conduct her due diligence** into the partner.

Decisions on authorship and authorship order should be discussed and written in an **authorship agreement**, and a **data management plan** must be agreed on, especially as data will be collected and stored at many different locations.

Collaboration agreements

When you agree to collaborate with colleagues at other institutions, make sure you go through and come to an agreement on the following items with your collaborators on each project.

You might like to save this checklist to help you prepare for research collaborations in future.

- Roles and responsibilities
- Research data management
- Disclosure and management of conflicts of interest
- Management of confidentiality issues
- Funding arrangements
- Commercialisation of research outputs
- Communication on behalf of the collaboration
- Dispute resolution
- Authorship requirements and acknowledgement of research outputs
- Access to other assets or items that are retained at the end of the project
- Management and investigation of potential Code breaches

Download the Collaboration Agreement Checklist

Formal agreements

You should openly communicate with research partners and ensure agreements are in place, prior to engaging in the research collaboration. This is to avoid misunderstandings and protect yourself and your research if there are potential disputes or breaches. In certain circumstances, it is necessary to draw up a formal agreement for the collaboration.

The **threshold requirement for a formal agreement** usually occurs when the research collaboration involves:

- Shared funding or resources (including grants and consultancies)
- Domestic or international student research
- Formal research partnership between Uni and other parties (that may involve several research projects)
- Institution or organisation outside of Australia
- Multiple institutions

A formal agreement is normally put in place between two organisations. If there is already an agreement in place between Uni and a partner organisation, make sure you still go through the above checklist for each project. If there isn't an agreement in place between two organisations and you plan to work with the organisation on a large project where resources and/or funding is shared, or multiple projects, you should put a formal agreement in place.

Formal agreements are important because they:

- Set expectations regarding roles and responsibilities
- Ensure transparency of funding and assets
- Assist in resolving disputes
- Address issues such as ownership, confidentiality and intellectual property
- Ensure research integrity requirements are addressed (including ethics, data management, authorship, publication, and conflicts of interest)
- Outline governance of the project (such as management and changes to the collaboration)

Researchers should contact the Office of the General Counsel to prepare formal agreements relating to research collaborations.

Activity

Tamara, an MIT researcher, would like to initiate a research collaboration with Aaron from Oxford University. The research will involve surveying Exercise and Nutrition students from both MIT and Oxford as participants.

Tamara and Aaron previously worked together at another university where they co-authored several papers together.

There are no shared funds or resources to be used in this collaboration.

Is it necessary for them to write up a formal agreement for this project?

- ✓ No, but they should work through the checklist
- Yes, a formal agreement is required

Submit

That's right - there does not need to be a formal agreement in this case. This is a one-on-one collaboration between individual researchers from two Universities, and there are no shared funds or resources involved in the collaboration.

However, Tamara is still required to review the due diligence checklist with Aaron and agree on any terms and approvals required in writing (via email). This is important to avoid misunderstandings, ensure their research integrity requirements are addressed. For example, they will need to ensure they obtain human ethics approval and comply with the survey policy of both universities, including the need for organisational consent.

You've finished **Collaboration**! Select the button below to move to the next topic. You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Publication and dissemination

Publication and dissemination

Publication and dissemination of research outcomes is the end point to which all research should aim. Both the Code and Uni University support open communication of research outputs to a wide audience, bearing in mind possible restrictions on publication (for example, intellectual property or commercial-in-confidence matters).

By the end of this topic, you will be able to:

- Outline your responsibilities in regard to responsible publication and dissemination
- Plan ahead for publication and dissemination
- Understand the nature of plagiarism and self-plagiarism
- Recognise when the public record needs to be corrected, and retract research if required.

This topic should take approximately 10 minutes to complete.

Publishing your research

Go →

Checklists for good practice

Go →

Publishing your research

Apart from the recognition of your own work, publishing and disseminating research contributes to the scientific endeavour by passing on the benefits to the public, other researchers, consumers, and policy-makers.

Making your research openly accessible assists in improving researchers' capacity to build on previous results, increases innovation, encourages collaboration, improves community engagement, and allows the benefits of the research to be realised.

Dissemination means making research publicly available via any source of media including journals, books, conference, scholarly communications networks, performances, exhibitions, tv or radio interviews. It does not include research disseminated internally within Uni University.

The principles that govern publication and dissemination

The National Code for the Responsible Conduct of Research sets out principles and responsibilities that govern research publication and dissemination.

P1 Honesty
Researchers must present information truthfully and accurately in proposing, conducting and reporting research.

P2 Rigour
Research should be characterised by attention to detail and robust methodology and that researchers avoid or acknowledge biases.

P3 Transparency
Researchers should share and communicate research methodology, data and findings openly, responsibly and accurately.

P4 Fairness
Researcher and others involved in research should be treated fairly and with respect.

P6 Recognition
Researchers should report to Aboriginal and Torres Strait Islander peoples on the outcomes of research in which they have engaged.

P7 Accountability
Consider the consequences and outcomes of research prior to its communication.

R23 Dissemination
Disseminate research findings responsibly, accurately and broadly. Where necessary, take action to correct the record in a timely manner.

Publication and dissemination planning

It is important that researchers think ahead on how they will publish and disseminate their research. You should have discussions with your Supervisor and Research team and develop a publication and dissemination plan that discusses the following:

Timely publication

Don’t wait five years after completion of your research!

Publishers

Potential publishers or dissemination outlets. You should communicate broadly and to wide audiences.

Risks

Identification of potential misuse or unintended consequences of research findings or outcomes.

Obligations and restrictions

Be aware of any contractual, copyright, intellectual property or funding restrictions.

Ethical or privacy issues

Identify any issues involving participants or the research. This may include the need for consent.

Checklists for good practice

Before disseminating research

Before you publish or disseminate your work, there are a number of things you need to ensure.

- Your research outputs **accurately report** on methodology, data and findings
- You have provided **justified conclusions** based on results, whilst recognising limitations
- The research outputs have been independently **peer reviewed**
- You and any collaborators have disclosed any **conflicts of interest**

You should also:

- Your research outputs **cite all sources** in accordance with the Research Authorship procedure
- You have **acknowledged** host institutions, funding bodies, partner institutions, collaborators and sponsors
- Research outputs include the researcher's **Open Researcher and Contributor ID (ORCID)**
- Your research outputs include **correct affiliation** as a university-authored publication

Where your research affects or is significant to Aboriginal and Torres Strait Islander peoples, make sure the outcomes are presented in a culturally appropriate format.

You are also responsible for ensuring that you do not breach restrictions such as Defence Trade Controls or other embargos on publication.

You can download and save a copy of this checklist for future use.

Download the Research Publication Checklist

Avoiding poor practice

There are a few things that you should watch out for in publishing your research. You must avoid fragmented publication, plagiarism, self-plagiarism and under-reporting of research.

Select each of the terms below for ways to avoid these practices.

Avoiding fragmented publication
The intentional dividing of a coherent research report into smaller, publishable reports to create the (false) impression of extensive productivity.

How to avoid it →

Avoiding fragmented publication
Do not divide and publish your research. You should build and extend, or do comparative analysis on the research, if you wish to produce additional research outputs.

Avoiding plagiarism
Presenting the work or property of another person as one's own, without appropriate acknowledgement of the other person's work.

How to avoid it →

Avoiding plagiarism
Write your own summary of the original writer's research data or conclusions and cite accordingly. Use quotation marks where you directly use text from another person's research.

Self-plagiarism
Presenting or reusing your own previously written work or data, without acknowledging and appropriately citing the previous work.

How to avoid it →

Avoiding self-plagiarism
Make sure you properly cite all your previous work.

You should also:

Avoid making multiple submissions with the same/similar data, unless appropriately cited.

- If you are republishing research findings, get the original publisher's permission.
- If you are sending your work/similar works to more than one publisher at once, inform them.
- Avoid discussing your findings in public until they've been peer reviewed, and let the audience know where the project is up to.

After publication

Once your research is published, there are important record-keeping actions to take:

- Deposit your research outputs in Uni Research Online (DRO), in accordance with the Research Repository procedure.
- Properly store all your research data according to the Research Data Management procedure
- Share the findings with participants, where possible
- Publish or provide access to research data, tools and resources if possible
- Check the public record and DRO for any errors, misleading or inaccurate statements, and correct as required.

Correcting the public record

If you notice errors within your published research output, you should notify the publisher or editor as soon as possible, detailing the error, the correction, and its implications to your work

Updating DRO

To correct the record within DRO, email to advise of any required
changes.

Activity

Chen published a 2019 paper on a new technique to analyse the success of marketing ads on social media websites.

In 2021, he published another paper describing this new technique and how it could be applied to improve sales during COVID pandemic. The 2021 paper did not refer or cite Chen's 2019 paper.

What is the issue with Chen's approach here?

There is no issue

✓ Self-plagiarism

Fragmented publication

Plagiarism

Submit

Activity

Kacey is leading a research project on encapsulating insulin in food. She has been asked to give a presentation on the work at the National Diabetes Conference. The research has only been conducted in her laboratory and she has not prepared a paper for peer review.

What should Kacey do?

Kacey needs to decline the invitation. She should not discuss her research at the conference unless she has published a peer-reviewed paper on it.

Kasey can speak and present on her research, but she should not share any slides with the audience as this would constitute publication.

Kacey can accept the invitation, but she should avoid discussing the findings as they have not been published or reviewed.

✓ When presenting her research to the conference, Kacey must detail the status of the project when discussing the findings of her research.

Kacey can accept the invitation and discuss the findings of her research at the conference, but she must detail the status of the project, acknowledging that the findings have not yet been peer-reviewed or published.

Congratulations!

You have finished **Publication and dissemination**! Select the button below to move to the next topic.
You can also stop here and return to the module again later. Your progress has been saved.

Next topic: Research integrity breaches

Research integrity breaches

uni staff and students who engage in research at the University have a responsibility to know and uphold the Research Conduct Policy and the principles of the *National code for the responsible conduct of research.* On rare occasions, where a researcher does not meet these requirements, it is important that you are aware of your responsibilities and the appropriate procedures to report a research integrity breach.

By the end of this topic, you will be able to:

- Understand the meaning of research integrity breach and the spectrum of severity
- Recognise what is a research integrity breach and what isn't
- Identify your responsibility in reporting a research integrity breach
- Submit an allegation of research integrity breach.

This topic should take approximately 5 minutes to complete.

Research integrity breaches

Go →

Reporting suspected breaches

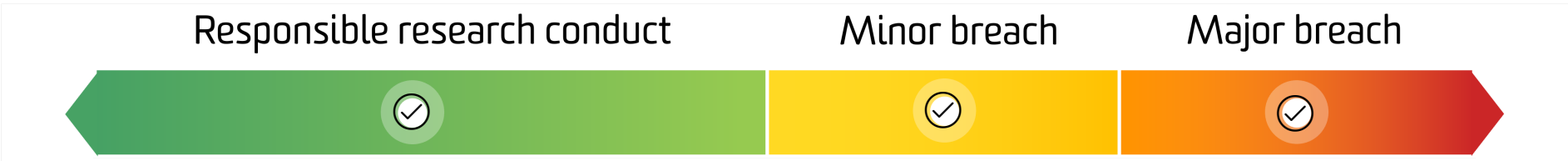
Go →

Research integrity breaches

Research integrity breaches are considered a failure to meet the standards of conduct outlined in the Code, policy and associated procedures we have discussed throughout this training.

Research integrity breaches occur on a spectrum, from minor (less serious) to major (more serious). To determine the seriousness of a breach, a number of factors may be considered as outlined in clause (29) of the Research Integrity Breaches procedure.

To find out how Uni defines research breaches, select each icon below.



Adapted from the NHMRC Guide to Managing and Investigating Potential Breaches of the National Code for Responsible Conduct of Research

Responsible research conduct
Conduct that meets the principles and practices outlined in the Code, policy and associated procedures we have discussed throughout this training.

Research Code breach
Conduct that breaches the Code and is considered less serious. The misconduct may involve minor or technical deviations that are honest or accidental errors.

Serious Research Code breach
More serious or deliberate breach of the Code breach that involves:
Intent or deliberation, recklessness or gross and persistent negligence; and/or
Serious consequences, such as false information on the public record, or adverse effects on research participants, animals or the environment.

Common allegations of research code breaches

Authorship
Failure to properly attribute someone as author

Data management
Failure to retain and appropriately maintain research records, inappropriate destruction or disclosure of research records data or materials

Ethics approval
Failure to obtain or adhere to ethical approval before conducting research or modifying a project

Conflict of interest
Failing to declare conflicts of interest (e.g. potential direct or indirect financial interests in a product or process being researched)

Plagiarism
Plagiarising someone's else's work, concepts or data, including self-plagiarism

What is NOT a research integrity breach?

Select each of the terms below for examples of these types of issues.

Unexpected adverse event
These events are managed by ethics committees in accordance with the unexpected adverse events procedure.

What might this look like? →

Unexpected adverse event
An unexpected death of animal in the wild (during an animal ethics project)
A participant has an unexpected reaction to a trial cream (during a human research ethics project)

Student teaching and coursework breaches
These do not involve research, and are managed via the Student Academic Integrity Procedure.

What might this look like? →

Unexpected adverse event
An unexpected death of animal in the wild (during an animal ethics project)
A participant has an unexpected reaction to a trial cream (during a human research ethics project)

Employment conduct
This is managed via Uni staff or student conduct procedures.

What might this look like? →

Employment conduct
Bullying within a research team
Discrimination over resource allocation

Complaints
These are managed via the complaints process.

What might this look like? →

Employment conduct
Bullying within a research team
Discrimination over resource allocation

However, sometimes when complaints or adverse events are investigated further, they can become research breach allegations.

Research integrity policy and procedure framework

According to the Research Conduct policy, any person who suspects a research code breach or serious research code breach (previously known as "research misconduct") has occurred must report the allegation in a timely manner in accordance with the Research Integrity Breaches procedure.

Research Integrity Breaches procedure
Please take the time to access and review this procedure before continuing. It sets out the procedure for reporting, investigating, making a determination, and possible outcomes of allegations of research code breaches.

Reporting suspected breaches

If you believe a research integrity breach has taken place involving a Uni staff member or student, you have an ethical obligation to report it in a timely manner.

Seeking advice

If you become aware of activities that may be considered a research code breach, or feel uneasy about something research-related, or simply want advice on research integrity matters, you may seek advice from a Research Integrity Adviser.

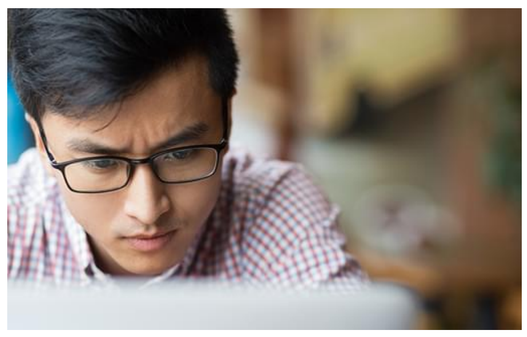
Reporting anonymously

You can advise if you wish to remain anonymous. However, it is important to note that there may be limitations on anonymity due to freedom of information requests or simply because of the nature of the allegations.

Activity

Jacob is a PhD student at MIT. When reviewing papers for his thesis, he notices a large amount of text and images have been plagiarised in a published paper written by his supervisor. What options are available to Jacob?

Select the two options that are open to Jacob.



Nothing - it is not Jacob's responsibility to act on this

Raise the issue with his supervisor

✓ Report the potential breach in accordance with the Research Integrity Breaches procedure

✓ Discuss the matter with a Research Integrity Adviser

Investigate the matter

Submit

That's right. Jacob has a responsibility to report the potential breach, and he can do this anonymously if he wishes. He can also discuss the matter with a Research Integrity Adviser to determine the best steps to take.

Due to their professional relationship, it may be best not to raise the issue directly with his supervisor without first seeking additional advice from an Adviser.

Where to direct the report

Report the allegation/s in writing to the Deputy Vice-Chancellor Research or nominee.

Making an allegation

It is important allegations of research integrity breaches are clearly understood by the research integrity office and the respondents. Natural justice means the respondent must have detailed notice of the allegations, to respond accordingly.

Below is an example template which may assist you in reporting an allegation.

Complainant	Provide complainant details
Respondent	Name of person the allegations refers to (if known)
Allegation	Short summary of the allegation, e.g.: • Failure to obtain human ethics approval • Failure to attribute authorship • Failure to receive participant consent • Misrepresentation of data/results • Plagiarism
Refer to relevant policy, procedure or the Code	Research Authorship procedure, Clause 15: ‘A person who qualifies as an author must not be included or excluded in the research output without their written consent.’
Details of allegation	• **e.g. Authorship** The published paper did not include XX as an author. I contributed significantly to the research, by providing designing a major method of the project, and interpreting the research data. • **e.g. Misrepresentation of data** Figure 4 of paper XX indicates the control and test group results, which suggest the test group lowers cholesterol. In replicating the method, the results indicated that both the control and test group produced the same cholesterol levels, (as indicated in the raw data provided on p 2). • **e.g. Plagiarism** It is alleged the highlighted extract in Paper 1 – Section 3 Discussion has been plagiarised from Paper 2 section 5 p 21.
Publication details	Provide the details of the publication and link (where applicable)
Ethics approvals	Details of any ethics approvals linked to the allegations (where applicable)

Support for Uni staff and students

Making or being subject of an allegation of research code breach may cause concern or distress. The following support services are available to members of the Uni community.

Staff support

- Employee Wellbeing Support (EWS)

Student support

- Counselling and Psychological Support (CAPS)
- Student Complaints