Integrity in practice toolkit

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Integrity in practice toolkit

Integrity is an essential part of good research; it includes a multitude of things, such as adhering to institutional policies and protocols, using honest and verifiable methods in all stages of research and reporting findings clearly and transparently.

Research integrity is undeniably important – it gives confidence to others, including the public, that the findings and results of scientific research are reliable and trustworthy.

Integrity in practice is a toolkit for those who want to continue to support and improve research integrity and culture in their organisation. It is a joint project from the Royal Society, as part of its Research Culture Programme, and the UK Research Integrity Office (UKRIO), as part of their ongoing work programme in support of research integrity.

The aim of the toolkit is to inspire creative thinking in this area. It features a variety of new ideas from across the UK and the rest of the world, which require minimal to major resource support and can be led by individuals as well as institutions. The toolkit contains within it seven ways that could help individuals and institutions bring life to the codes, concordats and pledges to improve research integrity and culture that they have signed up to. The areas are:

1. **Creating informal channels to openly discuss research integrity**
2. **Creating a dialogue around research integrity and culture**
3. **Agreeing shared expectations**
4. **Constructing an environment that nurtures training**
5. **Developing a research environment to be proud of**
6. **Embedding research integrity into institutional culture**
7. **Fostering community ownership of research integrity**

The toolkit has been developed with the input of members of the research community. Examples have been tested with a broad range of stakeholders for their usefulness and replicability in different contexts. Stakeholders were also given the opportunity to suggest their own ideas of interventions that could achieve similar outcomes, some of these have also been included in the toolkit.

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1 Creating informal channels to openly discuss research integrity

Example

Research Integrity Champions and Advisers, University of Glasgow, United Kingdom.

Description and Background

To tackle barriers to communication and reduce the stigma often associated with reporting and discussing integrity concerns, Research Integrity Champions and Advisers offer an informal opportunity to discuss concerns staff and students have about research integrity. The Advisers offer advice about good research practice, research integrity and the implications of making an allegation of a breach of code or policy. These volunteers also liaise with Research Integrity Champions and university officials to resolve integrity concerns.

As well as offering support to staff, the champions help the University of Glasgow continually develop and improve its own processes with relation to research integrity. They do this by monitoring the types of issues that are arising and alerting the administration of changes that need to be made to policies and advice based on this. Champions receive training each year, meet regularly and contribute to research integrity and ethics curriculum development and case studies. The role of a Champion is publicised via inductions, research integrity training and an annual digital media campaign.

Benefits

- Provides a friendly face to those with concerns about research integrity.
- Raises the profile of research integrity across the university.
- Helps to embed research integrity policies into everyday practice.
- Helps to improve research integrity policies and training across the university.
- Gives official recognition to the individuals working to improve research integrity in the university and the research community.

"Performing the role of Research Integrity Champion for the College of Arts has helped me and the School Advisers to raise visibility and embed research integrity policies in Glasgow's distinct Arts and Humanities research community...responses to date have been extremely positive."

Professor Nigel Leask, Research Integrity Champion, College of Arts, University of Glasgow.

Learn more

gla.ac.uk/myglasgow/ris/researchpolicies/researchintegrity/advisers/

Other ideas

Reporting hotline and hypothetical questions

Establish and promote means of raising concerns and hypothetical questions in a secure way. This could be via a confidential telephone line or an online form with questions submitted anonymously. These could then be addressed by the faculty or research integrity staff on the research integrity website or blog.

Example:
Harvard University Medical School, U.S.A, Anonymous Online Reporting Form,
ari.hms.harvard.edu

Lunch chats or coffee hour

Senior administrators and research integrity staff can set aside time on a regular basis, no appointment needed, for candid discussion of real or hypothetical questions in an informal setting. This can also be offered by respected research integrity advisers and faculty members in different departments.

Example:
University of Sydney Nano Institute, Australia,
eventbrite.com.au/e/research-integrity-lunch-learn-workshop-tickets-46966794948

Drop-in training sessions and away days

Support brief training sessions in departmental meetings and postgraduate workshops focusing on research ethics and integrity. These can include collaboration with course leaders to deliver programme specific workshops for multi-professional staff and students as well as sessions on research integrity as part of away days.

Example:
University of Bristol, England,
bristol.ac.uk/red/research-governance/researchintegrity.html

Open office hours and hot desking for research integrity officers

Increase the profile of research integrity staff by offering set office hours for individuals to informally visit them and by encouraging hot desking around the building. This allows departmental staff to get to know research integrity staff in a more informal environment.

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2 Creating a dialogue around research integrity and culture

Example

The ConScience App, dramatic play about research integrity
Het Acteursgenootschap (The Actors Society theatre group), The Netherlands.

Description and Background

The ConScience App is a theatre piece designed to move the debate on scientific knowledge from the headlines to the daily work of academic researchers. The play sheds light on challenging scenarios in a light-hearted manner, aiming to start discussions amongst colleagues around common research integrity and culture dilemmas and experiences. For instance, 'what is the policy on mentioning co-authors?' and 'how do individuals balance mentoring others and maintaining the quality of research?'.

The ConScience App was developed based on ideas from members of the Young Academy of the Royal Dutch Academy of Sciences and supported in part by a grant from the Dutch government. It has been performed at the opening session to the 5th World Conference on Research Integrity in Amsterdam in 2017 and at various venues, including universities, research institutes, and conferences in the Netherlands, France, and Norway. The performance is typically followed by 30-60 minutes of discussion around themes raised in the script, with an instruction manual to facilitate discussions.

Benefits

- Directly addresses the ambitions, passions, envies, angers and frustrations around high intellectual ideals.
- Uses humour and music to engage the audience.
- Creates a memorable experience that attendees will be able to refer back to when addressing issues around culture and integrity.
- Helps to start conversations about tackling 'grey areas' in science ethics and integrity.
- Serves as a springboard for discussions after the play about how to improve practice.

"*The ConScience App* is a wonderful short play that makes you laugh and makes you think. A PhD student, a postdoc and their professor show how perverse incentives may lead to questionable research practices or worse. Preferably the play is followed by a group discussion on research integrity and fostering responsible research practices"

Dr Lex Bouter, Professor of Methodology & Integrity, Vrije Universiteit Medical Center, Chair of the 5th World Conference on Research Integrity, Amsterdam.

Learn more

hetacteursgenootschap.nl/productiesyoutu.be/Ex43u3PoALI

Increase public engagement in research culture and integrity

Use art, film, poetry, and other genres to enhance public engagement and increase awareness of research culture. Use creative storytelling to showcase contributions from history and highlight current examples of innovation and collaboration.

Examples:

Artists in Residence Programme, Centre for Research in Medical Devices, Ireland,
curamdevices.ie/curam/public-engagement/artists-in-residence/

UK Government Science and Engineering Story,
gov.uk/government/news/the-story-of-government-science-and-engineering

Embarrassing questions box

Those offering integrity training or serving as research leaders can establish an informal communication channel through an 'embarrassing questions box'. This encourages students and research staff to submit anonymous questions in a discreet manner that reduces anxiety, with responses benefiting the entire group.

Examples:

Medium, U.S.A,
medium.com/marketing-and-entrepreneurship/what-are-your-employees-thinking-a-ridiculously-simple-way-to-find-out-f24b1789bd25

Study.com, U.S.A,
study.com/blog/why-i-always-keep-an-anonymous-question-box-in-my-classroom.html

Research culture cafes and university integrity exchange

Set up research integrity cafes to support cross-sector, cross-institution and cross-department discussions about research integrity and culture. Support staff and researchers can convene and exchange ideas, improving efficiency of procedures for the sector as a whole.

Examples:

Barcelona Biomedical Research Park, Spain; World Café, Publication Integrity in the PRBB and beyond,
prbbgoodpractice.wordpress.com/activities/world-cafe-publication-integrity-in-the-prbb-and-beyond

Flemish Commission for Academic Integrity, Belgium, Meeting Days and Interuniversity Symposium,
vcwi.be/ontmoetingsdagen#2017

Share information and insights

Research integrity staff can, as appropriate, publicise data and insights gleaned from handling breaches of integrity and promoting responsible practice, such as trends related to queries and allegations, and procedural adjustments made based on experience.

Example:

Imperial College London, UK, Annual Research Misconduct Report,
imperial.ac.uk/research-and-innovation/about-imperial-research/research-integrity/misconduct

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3 Agreeing shared expectations

Example

Developing a code of ethics, World Economic Forum Young Scientists Community, Switzerland.

Description and Background

The World Economic Forum Young Scientists Community (a group of leading researchers under the age of 40 from diverse fields and all regions of the world), came together to identify and reflect on the cross-cutting ethical issues they are faced within a modern research environment. The universal Code of Ethics is the result of their extensive reflections and consultations with researchers and ethicists. It serves as a tool to nurture a positive change of culture in the research world by not only guiding and shaping the behaviour of individuals, but also the processes of the scientific institutions that are to facilitate this cultural shift.

Benefits

- Captures universal issues faced in diverse disciplines and cultural contexts.
- Serves as a tool to nurture positive change by shaping individual and institutional behaviour.
- Ensures staff are working towards the same principles.
- Comes alive through stories and quotes relating to each principle.
- Encourages informal discussions by those who read it.

"For me the code is a handle. It helps me to stop and take stock on aspects of the scientific endeavour that are often glossed over. My volunteering [to develop] the code was very instinctive: it felt like a great opportunity to think about the very privileged and complex position we as scientists are in, the pressure we are under, but also our duty to society. I think the code encompasses all these aspect of our work."

Dr Sander van Kasteren, member of the Young Scientists Community and based at Leiden University, The Netherlands.

Learn more

widgets.weforum.org/coe/

Design a group standard for research practice

Research leaders can facilitate discussion to develop consensus around personal and team standards of integrity. Research team members can be encouraged to scrutinise existing guidelines together and add specifics that make the guidelines their own, increasing accountability on a personal and group level.

Examples:

Dr Lennart Martens Ghent University, Belgium, vib.be/en/research/scientists/Pages/Lennart-Martens-Lab.aspx

Barcelona Biomedical Research Park Code of Good Scientific Practice, prbbgoodpractice.wordpress.com/the-code

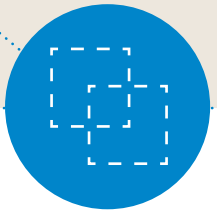
Support visibility of all staff

Those skilled in specific areas affiliated with research, such as technical experts, can contribute to increasing visibility of their role. Institutions can pledge to support visibility, recognition, career development, and sustainability for their technical staff.

Examples:

UK Research Software Engineers, rse.ac.uk

Technician Commitment of the Science Council, UK, technicians.org.uk/techniciancommitment



Develop self-reflection questions

In contrast to checklists, develop self-reflection questions to be posed throughout the process of a research project. Encourage researchers to ask themselves - am I respecting the rights and interests of all involved with my project? Am I acknowledging all contributors and resources for my project? Am I disclosing all real or perceived conflicts of interest with this project? Host Innovation Challenges inviting researchers to brainstorm solutions to research integrity challenges.

Example:

RMIT University, Melbourne, Australia, rmit.edu.au/engagingforimpact2018.com.au/2018-program

Promote transparency across public-private sectors

Host online or face-to-face meetings with diverse representatives to improve communication across sectors and encourage consensus related to disclosure of research results.

Example:

Open Pharma Group, openpharma.blog

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4 Constructing an environment that nurtures training

Example

Research Integrity Training Framework,
University College London (UCL), United Kingdom.

Description and Background

The UCL Research Integrity Training Framework supports a culture of integrity by confronting the issue of a 'one size fits all' approach to training and instead offers researchers tailored training pathways relevant to their career stage and discipline. It is based around what would be required for a research project to have integrity, and therefore the knowledge and skills researchers would need to have to ensure the research has integrity (e.g. appropriate research methods, thorough research data management, consideration of ethical issues etc.). It is applicable to all researchers (staff and students) across all disciplines and can be used to assist researchers throughout the research lifecycle, in ensuring their research has integrity; and as a training tool for researchers to assess their training needs, according to the research they are undertaking.

Benefits

- Increases awareness of the different elements of integrity needed for research projects (e.g. ethical review).
- Introduces individuals to the policies, procedures and other essential information relevant to their research and role.
- Emphasises the importance of training in a range of skills and competencies.
- Raises the profile of research integrity across the organisation.
- Sends signals about the importance of research integrity across the organisation.
- Is flexible enough to support individuals at a range of different levels.

"UCL's new Research Integrity Training Framework is really helping to focus the minds of researchers at all levels on the principles and the nuances of working with integrity in research. It is vital for the reputation and operation of research across all sectors of society that all our researchers are making rational and careful judgements about the way we undertake and communicate our research".

Dr David Bogle, Pro-Vice-Provost of the Doctoral School.

Learn more

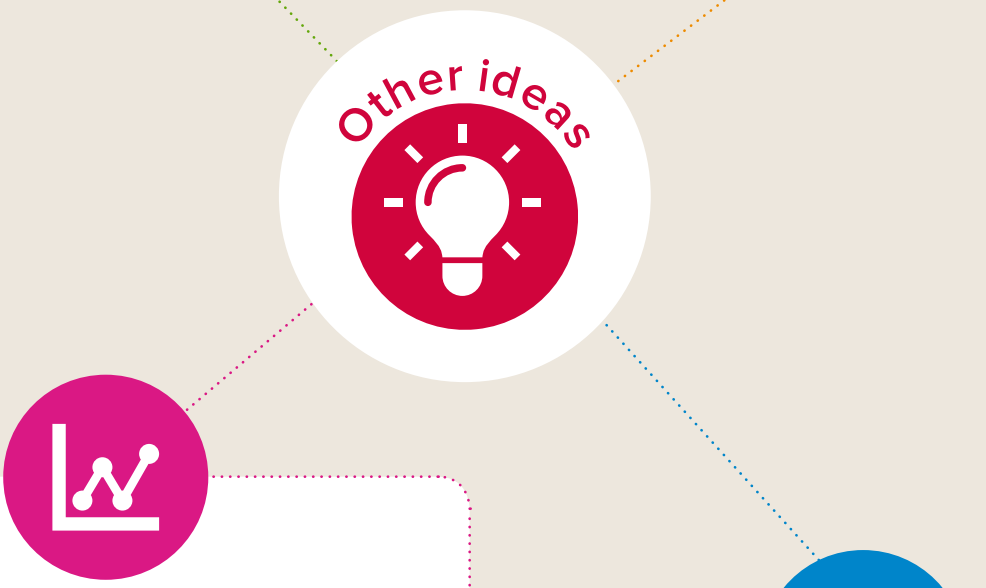
ucl.ac.uk/research/integrity/research-integrity-training-framework

Make research integrity part of an induction and orientation programme

Incorporate information about Research Integrity support services, training and policies as part of induction materials disseminated to new students, faculty, staff, and visitors.

Senior administrators and research leaders lead by example

Encourage senior leaders to undertake research integrity training and become “certified” along with other members of the university community. Also encourage them to take part in research integrity events, education and training, as discussion facilitators and members of small groups deliberating moral dilemmas.



Teach basic data literacy

Draw upon experts in other fields to strengthen researchers’ basic skills. Lessons can be developed collaboratively around basic concepts, skills and tools for working with data in the research context. Those skilled in specific areas affiliated with research, such as technical experts, can also contribute to increasing awareness of their role in the research enterprise.

Examples:

Software Carpentry and Data Carpentry, San Francisco, U.S.A,
software-carpentry.org
datacarpentry.org
UK Research Software Engineers,
rse.ac.uk

Identify gap areas and offer training where needed

Principal investigators and mentors monitor their research group, ensuring that each member possesses basic skills in computing, statistics, writing, accounting for research funds and human resources management etc. as needed for their role. Universities can offer courses or workshops across disciplines through integrated programmes.

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5 Developing a research environment to be proud of

Example

Strong mentoring and creating team spirit, Tobacco and Alcohol Research Group, led by Professor Marcus Munafò, Dr Angela Attwood and Dr Olivia Maynard, University of Bristol, United Kingdom.

Description and Background

The Tobacco and Alcohol Research Group always had a culture of being open about successes and failures. However, it was noted that discussions often only occurred between those who sat nearby. Slack channels were introduced to allow the team to celebrate successes and talk about lessons learnt as a group, encouraging open discussion to reduce vulnerabilities and problems. Slack is an online instant messaging service that allows teams to create multiple channels to have conversations about different issues or projects. The team have a range of different channels to support their work, with one focused specifically on 'Triumph and disaster'. Using this channel the team can rally around to talk openly, give encouragement, support and advice about how to turn things around. The group share a whole range of matters, from paper and grant rejections, errors they've made in their analyses and difficulties they're having with writing.

Benefits

- Nurtures the team spirit.
- Harnesses open discussion.
- Allows senior members of the team to exemplify open and positive attitudes towards 'failure'.
- Individuals access support and advice from all team members.
- Creates a 'safe-space' for individuals to discuss concerns around their work.

"I think fostering the kind of culture where we are open about these perceived failures is important, particularly for those earlier on in their careers, who have excelled through school and university and had limited experience of failure. There can be the perception that those more senior academics must have gone from success to success to get where they are – our Slack channel demonstrates that this certainly is not the case."

Dr Olivia Maynard, ESRC Fellow, University of Bristol

Learn more

c.ymcdn.com/sites/www.srnt.org/resource/resmgr/networks/trainee/Fall_2017_Newsletter_-_Olivi.pdf

Openly discussing errors and vulnerabilities

Principal investigators and mentors can convene informal monthly gatherings, during which they openly talk about their mistakes and vulnerabilities with those within and outside their research groups. Others might be encouraged to acknowledge similar vulnerabilities and explore alternative courses of action that could be taken at certain points to alleviate pressures.

Reducing competition among the research team

Facilitate interactions that stimulate respect. Support informal activities to increase trust between mentors, mentees and among the research team to foster trust and increase willingness of mentees to be honest with their mentor and each other.

Establishing support systems

To help reduce stress and time pressures, counselling, coaching and neutral support can be offered to researchers who are struggling to meet deadlines and manage other pressures. This can also help the Research Integrity Office connect researchers to other services and resources, such as assistance with forms for deadline extensions, assistance programs for harassment, discrimination and language barriers. Information should be disseminated to students, faculty and staff to ensure they are aware of the existence of support services

Examples:

Counselling and mental health and wellbeing services, Middlesex University, UK,
unihub.mdx.ac.uk/your-support-services/counselling-and-mental-health

Career Counselling for Scientists; Fred Hutch at Hutchinson Center, Seattle, U.S.A.,
fredhutch.org/en/education-training/oscd/career-counselling.html

Demonstrate the many ways researchers can achieve success

Provide opportunities for researchers to meet and find out about individuals from across the research landscape and beyond. Use this to encourage them to think differently about what success looks like and challenge ideas about what skills and achievements should be valued.

Examples:

Where will your career take you? case studies,
royalsociety.org/topics-policy/projects/research-culture/changing-expectations/career-case-studies/

Parent Carer Scientist,
royalsociety.org/topics-policy/diversity-in-science/parent-carer-scientist/

Industry and innovation,
royalsociety.org/topics-policy/industry-innovation/case-studies/

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6 Embedding research integrity into institutional culture

Example

Ignite Integrity Week, University of Nevada, Reno U.S.A.

Description and Background

The University of Nevada, Reno's Research Integrity, University Libraries and Graduate School collaborated to organise the first Ignite Integrity Week in 2017, to encourage open discussion and share ways of addressing research integrity issues. The week featured workshops, presentations and panel discussions on a range of research integrity issues. A movie night and a trivia night were also organised.

Benefits

- Encourages engagement from people at a range of levels across the university by ensuring speakers of various seniority.
- Engages staff across the organisation to promote the event.
- Raises the profile of research integrity staff across the organisation.
- Sends a signal of the importance the organisation places on research integrity.

"The focus on Integrity Week sends the strong message to all members of the university community that they must act with integrity in all walks of life: as a learner, an academic, a researcher and a professional."

Dr Tamara Valentine, Director of the University's Honors Program, University of Nevada.

Learn more

University of Nevada,
unr.edu/research-integrity/research-integrity/ignite-integrity/week

See also:

Utrecht University Scientific Integrity Week,
uu.nl/agenda/scientific-integrity-week

University of California San Diego, Integrity Awareness Week and Awards for Campus Champions of Integrity,
academicintegrity.ucsd.edu/events/Integrity%20Awareness%20Week.html
ucsdnews.ucsd.edu/pressrelease/uc_san_diego_awards_campus_champions_of_integrity1

Assess researchers differently

Beyond traditional criteria such as quantity of publications, evaluation of researchers can be considered based upon broader criteria such as mentoring capacity, value of past contributions and potential to contribute to, and benefit from, the university's research environment. Universities can develop common standards for interview and assessment criteria such as biosketches and disseminating standards across campus.

Examples:

Dr Sandra Schmid, University of Texas Southwestern Medical Center, U.S.A,
molbiolcell.org/doi/abs/10.1091/mbc.e17-08-0534
ncbi.nlm.nih.gov/pmc/articles/PMC5662254/#B16
Moher D, et al (2018) Assessing scientists for hiring, promotion, and tenure. PLoS Biol 16(3): e 2004089,
doi.org/10.1371/journal.pbio.2004089

Create Networks

Regional, national and international networks can be formed around research integrity and culture. These networks, via regular events and online platforms, can provide a forum for exchange of knowledge and resources

Examples:

European Network of Research Integrity Offices,
enrio.eu
Netherlands Research Integrity Network,
nrin.nl

Research Integrity Poster Contest and Campaign

Establish competitions to create visual images that effectively promote a call to action, such as open discussion of research integrity and related concerns. Offer acknowledgement of departments, colleges or research teams that have posted their policies for authorship, data management, and research integrity.

Openly publishing research results

Provide resources, such as library staff and tools, for finding discipline-specific guidelines, standards for reporting methods and venues for openly publishing research results. Disseminate across campus as a 'research byte' newsflash.

Example: **University of Minnesota, Biomedical Library,**
continuum.umn.edu/2018/01/research-byte-research-reproducibility

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7 Fostering community ownership of research integrity

Example

Faculty Funding Schemes for Research Integrity, Hong Kong University, Hong Kong.

Description and Background

The Hong Kong University administration provides research integrity grant awards each year (around £5,000 per award) for education and training programmes designed to foster a positive research environment. Members of the university research staff are encouraged to submit proposals and projects are reviewed on anticipated impact of the proposed activities in fostering a responsible research environment.

Since 2012 the scheme has funded 23 awards. This includes a project which developed student and tutor case study booklets on Research Integrity, developed jointly by the Faculties of Medicine, Dentistry and Social Science, and were made available as hard copies and online as part of the 'Responsible Conduct of Research' course.

Benefits

- Encourages the community to think about the interventions they would like to address research integrity.
- Enables different communities to develop discipline-specific and university-wide interventions.
- Raises the profile of research integrity across the organisation.
- Encourages informal discussions about research integrity as proposals are developed.
- Sends signals of the importance the institution places on research integrity.

"As a recipient of the RI Funding Scheme, I had organised a faculty retreat and invited experts to share the best practice in upholding research integrity principles. The event has offered a platform for colleagues to deliberate on "things they always wanted to know but were afraid to ask."

Dr Roger CK Chan, Research Integrity Funding Scheme 2013 – 14 Awardee, Associate Professor, Faculty of Architecture.

Learn more

law.hku.hk/researchintegrity

Promoting research integrity

Professional organisations can address sector specific research integrity issues by hosting research integrity workshops and identifying structures needed to foster good practice.

Example:

European Molecular Biology Organisation,
embo.org/news/articles/2017/embo-introduces-research-integrity-workshops

Additional mechanisms for establishing rigour and reproducibility

An individual or group within an institution can be designated to serve as an added layer of verification, improving manuscript and grant application quality by reading and checking for accuracy prior to submission. Institutional funds could also be designated for internal and external validation of experimental results, and replication studies can be rewarded with cash incentives as well as via hiring and promotion criteria.

Examples:

Cancer Research UK Beatson Institute in Glasgow, Scotland,
nature.com/articles/d41586-018-05140-x
beatson.gla.ac.uk/
European College of Neuropsychopharmacology,
humanbrainmapping.org/i4a/pages/index.cfm?pageid=3731
Nature news,
nature.com/news/faculty-promotion-must-assess-reproducibility-1.22596

Encourage use of study protocols and pre-registration where appropriate

By ensuring rigorous peer review of the protocol before a study begins and again after results have been collected, registered reports can prevent various forms of researcher bias and questionable research practices. However, this should only be used where appropriate for certain studies.

Examples:

Professor Chris Chambers et al.
Cardiff University,
orca.cf.ac.uk/59475/1/AN2.pdf
Center for Open Science,
cos.io/rr
The Royal Society,
rsos.royalsocietypublishing.org/registered-reports

Tailor research integrity training

Tailor training to specific disciplines and offer courses that involve interaction, such as role play, case studies, journaling and short videos, providing examples of stories that can occur in daily practice and are relevant to distinct disciplines. Use research integrity staff or senior researchers to facilitate discussion groups to discuss issues related to projects. Conversations should address concerns around protocols or producing experimental results, rather than discussing breaches of integrity and use realistic issues to encourage critical thinking and discussion.

Example:

Erasmus University Rotterdam,
eur.nl/sites/corporate/files/24708_integriteitsspel_interactief_2016.pdf

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The Royal Society

The Royal Society is a self-governing Fellowship of many of the world's most distinguished scientists drawn from all areas of science, engineering, and medicine. The Society's fundamental purpose, as it has been since its foundation in 1660, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity.

The Society's strategic priorities emphasise its commitment to the highest quality science, to curiosity-driven research, and to the development and use of science for the benefit of society. These priorities are:

- Promoting excellence in science
- Supporting international collaboration
- Demonstrating the importance of science to everyone

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The UK Research Integrity Office (UKRIO)

UKRIO is an independent advisory body, offering support to the public, researchers and organisations to further good practice in academic, scientific and medical research. We promote integrity and high ethical standards in research, as well as robust and fair methods to address poor practice and misconduct.

We pursue these aims through our publications on research practice, specialised support for research organisations, our education and training activities, and by providing expert guidance in response to requests for assistance.

Since 2006, UKRIO has provided independent, expert and confidential support across all disciplines of research, from the arts and humanities to the life sciences. We cover all research sectors: higher education, the NHS, private sector organisations and charities - wherever the research affects the public good.

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