Guidelines Scientific Integrity HIMS

The range of ethical issues in research is very wide, ranging from a minor deviation in following proper protocols to full-blown fraud, from unintended but nevertheless selective reporting to manipulation of results to please the money provider, from being inspired by someone's ideas to stealing or scooping. Often the underlying reason for scientific integrity issues is provoked by the culture within the group or institute. The ideal culture to avoid issues is difficult –if not impossible- to describe in guidelines, but avoiding subtle things that create work- or performance pressure, from above or from peers could improve safe working environment.

Rule one for all people involved is in all cases: **address any potential ethical issue as soon as it is encountered**. In cases of severe misconduct it became apparent afterwards that there were observations and even suspicions at least by some people that were not communicated or picked up. The guidelines below attempt to discuss a number of issues and suggest best practices and actions to take. It is a concise overview, not meant to be a comprehensive account, and focused on scientific issues and not general ethical aspects (like stealing money, or intimidation) or student-related issues (exam fraud, etc).

It is highly recommended that these ethical issues are openly discussed, in particular with new employees and (guest) co-workers, and providing this text can assist to start or streamline a discussion. In addition to these guidelines there are a number of actions implemented or planned by the faculty, more information can be found elsewhere:

- Training/awareness on ethics – courses are offered for staff members and PhD students
- Data policies: this is in development
- Internal/external audits: also in development

As a general rule any potential ethical issue encountered requires action: looking away is not an option. A first step could be to check with colleagues to see if your views or observations are shared or not, but either way the organisation should know about any potential issue. This can start with talking to your own superiors, and if needed can be escalated to a complaint issued to the University Ethics Committee.

The following escalation ladder is suggested as a guideline for actions:

1. Contact your own superior and discuss the issue and decide on which further action to take.
2. If the outcome is not satisfactory (for instance the problem is down-played), or if this is too problematic (for instance because he/she is involved), contact the director of HIMS.
3. If this is not satisfactory, or too problematic, or if you prefer absolute confidentiality contact one of the "Vertrouwenspersonen" (*Persons of Trust*) to discuss the issue. Although they are not specifically appointed to deal with integrity issues, they can give you advice on a next step. They treat cases confidentially, and action is taken after mutual agreement.
4. You can submit a formal complaint to the University Ethics Committee, through its chairperson, or alternatively to the Rector Magnificus of the University.

For student/education related issues Dr. S.S. (Sape) Kinderman (s.s.kinderman@uva.nl) would be the first to contact. For these situations the "Onderwijs- en Examenregeling (de OER)" monitored by the "Examencommissie" apply.

University of Amsterdam Ethics Committee (AIEC):
dr. N. (Niek) Brunsveld (secretariate)
T: 020 525 8768
N.Brunsveld@uva.nl

Vertrouwenspersonen:
"Persons of Trust" (also for issues of harassment, stealing, intimidation, etc) working at the Faculty of Science (note that you are free to contact someone working at another faculty also - see http://medewerker.uva.nl/extranet/az/content/vertrouwenspersoon/ for the complete list.

For employees:
Dhr. dr. A.J.P. (André) Heck
T: 020 525 8486
E: A.J.P.Heck@uva.nl

Dhr.prof.dr. M. (Martijn) Rep
T: 020 525 7764
E: M.Rep@uva.nl

Mw. L. (Lydia) Sprenger M.Sc.
T: 020 525 5612 E:
L.Sprenger
@uva.nl

For students:
M.D. (Marly) van den Boom
T: 020 525 5864
E: M.D.vandenBoom @uva.nl

Person of trust for Scientific Integrity at Amsterdam Science Park,
prof. dr. J.A.E.F. (Jeroen) van Dongen (IoP)
J.A.E.F.vanDongen@uva.nl
T: 020 525 5739

Experts that may be consulted for specific matters for advice:

Faculty legal expert:
Mw. mr. drs. E. (Eveline) Hollink
Academic Affairs Faculty of Science
T: 020 525 7826
E.Hollink@uva.nl

Animal testing expert:
Mw. dr. M. (Miriam) van der Meer
SILS M.vanderMeer@uva.nl

Medical testing expert:
Contact the AMC representative.

Technology Transfer Office expert (e.g. on consortium agreements):
Mw. mr. M. (Marion) Leenen
T: 020 525 2759
M.C.L.Leenen@uva.nl

1. Ethical aspects of reporting results, fraud and plagiarism

1.1 Independence of reporting from provider of funding

Research is paid by public funding, but increasingly also contracted by private or semiprivate organisations. In some cases organisations may only want to hear their preferred outcome, and may exert pressure to present the results in a particular way, or omit certain aspects. Conversely, a researcher might want to give in to please a money provider, in order not to risk future funding. Clearly the integrity of scientific work needs to ensure independent reporting and accountability for all results. Research is almost always teamwork in which the responsibilities are shared. This is a great asset, as checks and balances can be implemented to ensure accountability for the entire chain.

Best practices: In contracts the principle of independent reporting must be clearly specified, and while the funding organisation can request clarification of the results, pressure to modify any findings is never permissible.
In the same way, agreements on the (delay in) timing of publications can be part of a contract (so always in advance), but prevention of publication is not acceptable.
Requests from a contractor to modify reports, as well as other influences on conducting the research should always be communicated to the research team, not only to the principal author or investigator, so that they can be openly discussed in the team. It is recommended to install an advisory committee that is independent of contractor and scientists, with its tasks specified in the contract.

1.2 Authenticity of primary data

Key to all scientific work is proper reporting, to ensure accountability for all results. Some of the most extreme cases of fraud in science involved the fabrication of fake data, with huge implications. Research is almost always team-work in which the responsibilities are shared, which reduces the risks, and make that checks and balances can be implemented to ensure accountability for the entire chain.

Best practices: For all experiments and observations a scientist must be assigned with the responsibility for maintaining accurate logbook and securing the safe and un-manipulated storage of the raw, primary data. This is done adhering to commonly accepted protocols for the discipline, and with an amount of detail that allows reconstruction of the followed methods to obtain the data. This scientist can delegate part of the work to others (for instance a lab technician), in which case the scientist should regularly inspect logbooks and ascertain the correctness and completeness of the data. Likewise, the project leader or supervisor of the assigned scientist regularly checks the accuracy of reporting and storage of un-manipulated results: "*Can you show me the logbook and the raw data?*". Colleagues (for instance working in the same lab) should aware that they should report if they have doubts on the way data are collected by a co-worker, difficult as this might be. Doubts should be reported in all cases.

1.3 Transparency of workflows for data mining and data manipulation

Raw data are often need to be processed to get publishable results, which may include procedures to remove outliers, transformation and aggregation of data and combining with data from other sources. Any such action is prone to unintentional human mistakes, as well as, in extreme cases, malicious manipulation.

Best practices: This step is just as important as maintaining logbooks and storing primary data. For all experiments and observations a scientist must be assigned with the responsibility for maintaining accurate log of workflow from primary to processed data, preferably based on procedures that can be repeated later and by others, so with sufficient detail (e.g. version of the program used for each step of a work flow, parameter settings, input/output files). This scientist can delegate part of the work to others (for instance a lab technician), in which case the scientist should regularly inspect the correct implementation of workflows.
Working with data is often largely a process executed by a single person behind his/her computer, so that behaviour is probably not easily picked up by colleagues other than the direct coworkers/supervisor.
The project leader or supervisor of the assigned scientist should regularly check the followed procedures ("*Can you show me how you obtained this table/graph?*").
If intentional manipulation is suspected it should be reported immediately.

1.4 Storage of data, statistical analyses and workflows, audits

For scientific research it is essential that results can be checked (by colleagues, co-authors, audits), and therefore the raw data, workflows, input/output files, programs (versions) used need to be archived in a suitable form for later inspection.

Best practices: While the scientist is responsible for the accuracy of the archive, the organisational unit of the scientist is responsible for making it possible that this information is safely stored, and available for regular audits to see if the policies are properly implemented.
In case the primary data is too unwieldy to store ("Big Data"), appropriate procedures are described and implemented, for instance, by describing exactly the flow from raw to archived data, a subset of raw data plus the work flow, to be able to reconstruct the correctness later.
HIMS developed a research data management (RDM) policy that is currently being implemented, with the help of the faculty. For further reading the following documents are recommended:
On Being A Scientist_Responsible Conduct in Research.pdf , ACIE2013_52_118.pdf

1.5 Duplicated reporting in abstracts, symposium talks, peer-reviewed papers

Science is continuous work-in-progress, and preliminary results might be published in a symposium abstract, or results from contract research might be first in the form of a report, and later as a peer-reviewed publication. How often can the same materials be presented before 'self-plagiarism' applies?

Best practices: Results submitted to peer-reviewed journals should be original and new, unless clearly labelled as a review, or with an explicit reference of some parts to earlier work ('copied from source x", or "adapted from x").
If the results are already published as a report ('grey' literature) this should also be mentioned, and provided (as copy, or as link) at the time of submission, with an explanation to the editor, so that he/she can decide to accept the submission or not.
Referencing partial findings of earlier work of yourself and with (partly) the same authors should adhere to the normal rules for proper citations of any work, see next paragraph.

1.6 Proper citations

Proper citations are part of a rigorous scientific method, showing how new results relate to older findings. The definition of what 'proper citations' are is not so easy though, for instance it is not always possible to reconstruct the origins of an idea, so that the right people get the

credit they deserve. Moreover, not citing certain colleagues (intentional or not) can create feuds that might be harmful to science as well as (young!) careers. Likewise for citations that are put in the wrong context.

Best practices: Although it is hard to define strict guidelines, and journals have their own policies, there are some general principles that may help:
Verbatim text from other sources should always be presented in quotes (or italics), with the exact reference. At least two (co-)authors should explicitly check the correctness of citations in a paper. Computer programs can be used for automated comparison of texts with already published materials. Undiscriminatory self-citations should be avoided.
More senior scientists can help when in doubt about the origins of an idea and what is normally done in the field (no need to cite Darwin or Watson and Crick in every paper).
If there are certain competing 'schools' of thought in a particular area, in particular young scientists should be made aware of the background and the sensitivities that may arise. Having said that – scientific discussion of dissenting opinions is key to progress (but selective citing is not the way to achieve this).

2. Ethical aspects and conflicts of interest in research evaluations

2.1 Reviewing papers

Independent peer review of papers before publication is considered to be one of the cornerstones of rigorous scientific practices in almost all disciplines. In many cases this is done anonymously to the authors, which is both a virtue (only the strength of the arguments counts) and a danger (nasty things can be said without being held accountable). Rejecting a good paper but using the information or ideas for your own benefit is clearly considered very unethical.

Best practices: Usually this concerns individual activities, but you can consult a colleague you trust when in doubt, to explain the case and your doubts, without giving details that would breach confidentiality.
As (associated) editor of a journal, check its policies them before accepting the job.
Select reviewers carefully, be aware of hot debates and potential mud-throwing.
If authors suggest not to ask certain people as reviewer this should be either granted, or the authors should be informed that honouring such requests is not part of the policy of the journal, in which case the authors could decide to withdraw the submission.
If your role is as reviewer, objectivity and confidentiality is essential. This holds in particular if the topic of a study overlaps with your own interest. Consider not to accept reviewing papers that are too close, or from a direct colleague.
Also, repeatedly reviewing the same people and/or the same results should be prevented: let others also decide on the fate of a publication, and inform the editor of your considerations.
As author, if you suspect a very opinionated reviewer has scorched your submission, you can politely inform the deciding editor of your thoughts. Requests to reconsider the submission with another reviewer are rarely honoured, but at least the editor then knows about the issue.

2.2 Reviewing research proposals

Peer review of proposals is a key step to obtain funding for research, and can make or break careers. Given the extreme competition it is very easy as reviewer to kill a proposal, by giving it a low mark (anything below 'excellent' in fact). Likewise, panels members can have conflicting interests, leading to unfair outcomes.

Best practices: Many of the same principles of independence and objectivity as for reviewing papers apply to reviewing research proposals. As reviewer, decline to review if you are in doubt and suspect that conflicts of interests may arise. Make sure that your review in text corresponds to the final mark you give.

Only accept membership of a panel in which a common opinion has to be reached if you feel the panel as a whole has the expertise, independence and reputation to do this well.
If you have your own interests in a particular proposal (or for instance a close colleague) make this explicitly clear and do not take part in this part of the discussion (e.g. leave the room).

2.3 Quality assessments of institutes / programs

In the constant quest for excellence of all research institutions, peer review of research is a big responsibility (as well as a huge task), as the future of people and entire research groups may depend on the outcome of the review.

Best practices: Many of the same principles of independence and objectivity as in the previous sections also apply here. Again, this is a group process which helps to reach a balanced judgement. In addition, some principles for reviewing: If you are in a panel make sure that you are aware of how your judgement will be used by the organisation. Ask for the Terms of Reference.
If you feel that some panel members have too much influence and too big an impact on outcome address the issue openly in the group. Likewise, listen to others and attempt to reach consensus, but claim a dissenting opinion if you have sufficient grounds not to accept a certain conclusion.

3. Ethical aspects of collaboration in research

3.1 Co-authorship of papers

Practices on (co-)authorship differ in the various disciplines, but is a topic that can cause major discussions at the stage of publication that are preferably to be prevented.

Best practices:
Authorship in collaborative work is discussed at the start of a project. This not necessarily entails who will be co-author, but the criteria that will be used to determine if a co-authorship is warranted or not, and what the procedure will be to decide on the first authorship (if relevant for the discipline). The starting point will always be that individuals who have made a significant contribution to the described research will be co-author of the publication. The description of the contribution of all authors to a published work is publicly available, also for journal articles that do not require this information. The order in which the authors are listed will be determined by their individual contribution to / commitments to research. All co-authors must approve the submission of a paper, and fully endorse the conclusions of the work.

3.2 'Ownership' of ideas, originality

Scientific discussion is essential for research and takes place at the work floor, at meetings, e-mail interchanges etc. It is sometimes difficult to trace back the origins of an idea, and the lines between a fruitful open exchange of ideas, scooping results or stealing ideas is not always clear.

Best practices:

Openness and reciprocity is the ideal (but also idealistic or sometimes naive) way to operate. This can entail informing the people that you have discussed something with about your plans (at least globally) in advance, and asking if they foresee any overlap with their own plans, or if they wish to collaborate. In cases where research (topics, experiments, techniques) is highly competitive and scooping or stealing ideas is a real issue, there should be written agreements with all (including temporary) people working on the project, specifying the accepted rules of conduct for disclosure of information. This may include a clause on what is allowed when people leave an institution. Contact the faculty legal officer for advice, or for setting up an agreement among co-workers. The legal expert at the Technology Transfer Office can assist in setting up a consortium agreement. The aim should always be to have the scientific discussions as open as possible.

3.3 Hierarchical relationships among researchers, e.g. professor and PhD student, and peer pressure

In an ideal scientific world all scientists are independent and each other's peers: the scientific input is what counts, not rank, seniority or prestige of a researcher. However, hierarchical relationships and group processes may create situations in which the independence or equality is under pressure.

Best practices:

A supervisor must leave ample room for dissenting scientific opinions of people under his/her supervision andshould never abuse his/her power and apply pressure to force his/her opinion or preference in a scientific discussion. This should avoid a situation in which a junior researcher stresses not to bend due to perceived pressure, for instance in representing the results in a way the junior researchers is not comfortable with. This can be a delicate problem, and problems should preferably be discussed openly, for instance with an independent colleague present as mediator. If this is too problematic or does not solve the issue one of the "Vertrouwenspersonen" can be contacted.

4. Ethical aspects of the research topic and/or its methodologies

4.1 Potential unintended misuse of results

Scientific research can sometimes deliver knowledge that can be used for unintended purposes, even for illegal activities (e.g., bioterrorism), or societal/ethically disputable applications.

Best practices: During hiring the issue is addressed and discussed in interviews with candidates. Open discussions within the research team to raise awareness, and reporting transparently in project communication (for instance website). In some cases researchers may decide to withdraw pivotal details from the publication. Reporting potential misconduct within a team is vital: suspicious behaviour concerning misuse must be reported.

4.2 Use of individuals as subjects in medical experiments.

(Bio-)medical research often necessitates the use of individual subjects. This is strictly regulated (Wet medisch-wetenschappelijk onderzoek met mensen, WMO). Only a brief summary is presented here, as this will be rare for HIMS. But note that it also may apply to the use of students taking samples of their own body (e.g. saliva, blood) in lab practicals. The basis of any medical experiment involving volunteers is informed consent.

Best practices: Planning: Permission is needed from the relevant authorities at all times. There is special contact person at the AMC for dealing with this, who can advise on proper procedures needed to get the required permissions from the authorized ethical committee. Control: researchers must adhere to the approved, strict protocols and log all performed experiments. Potential cases of misconduct or deviations from the planning must be reported immediately, for instance to the assigned medical testing officer.

4.3 Miscellaneous

If there are cases this document does not provides for HIMS employees shall act according to the code of conduct of colleague institutes of FNWI. For example the code of the Institute for Biodiversity and Ecosystem Dynamics (IBED) for issues related to Use of animals in experiments or Observing humans.

References

The University has a page with its rules and regulations in Dutch:
http://www.uva.nl/over-de-uva/uva-profiel/regelingen-enreglementen/onderzoek/onderzoek.html
This also includes links to the information of the federation of universities (VSNU) on the general code of conduct on integrity issues, as well as specific codes for animal testing and the use of personal data.

Less information is available in English at:
http://www.uva.nl/en/about-the-uva/uva-profile/rules-andregulations/research/research.html

Legislation:
See www.overheid.nl for all Dutch laws and bylaws.

This document is based upon the Guidelines Scientific Integrity of the Institute for Biodiversity and Ecosystem Dynamics (IBED), University of Amsterdam, 2014.