Standard for Research Integrity at UiO

0. Summary:

Research integrity is a central, fundamental objective for UiO. Research integrity can be summarised as reliability, honesty, respect and accountability, and it concerns how "A basic responsibility of the research community is to formulate the principles of research, to define the criteria for proper research behaviour, to maximise the quality and robustness of research, and to respond adequately to threats to, or violations of, research integrity."[1]

Research integrity generally refers to the internal norms of research, and constitutes a key aspect of research ethics. Research ethics also include external norms. These protect research participants through consent, protection of personal information, risk assessments, etc., and ensure that the research makes a positive contribution to society and welfare.

The University of Oslo has established a Standard for Research Integrity to clarify which sets of norms for research integrity are relevant for the university and its employees' activities. In overall terms, the standard expresses what constitutes behaving with integrity within research. This standard must be made generally known, form the basis for training and be adhered to in the planning, performance and completion of research.

On the basis of the standard, the following recommendations are made:

1. Researchers have the right to choose the subject and method for their research. The researcher and the university must protect the freedom and independence of research.
2. Academic freedom is conditional on the integrity of research. The researcher and the university must ensure that the norm of truth is pursued in all research.
3. All research must adhere to good citation practice.
   Training in this is a necessary precondition to avoid all forms of plagiarism.
4. Researchers must assess and disclose conflicts of interest.
5. The Vancouver criteria stipulate the minimum standard for eligible academic authorship for all subject areas.
6. Researchers have the right to publish their results and must ensure that such publication takes place. The relevant research basis must be made available in accordance with good practice in the subject area concerned.
7. Research leaders and supervisors must do their best to create and establish a culture of research integrity and compliance, and be aware of asymmetry in power and position.
8. All research must be assessed on the basis of scientific quality, and not only according to quantitative measures.
9. In the case of research that involves collaboration across disciplines, institutions or countries, cooperation agreements should be entered into that also regulate questions of research integrity.

[1]All European Academies (ALLEA): The European Code of Conduct for Research Integrity. Norwegian translation: *Europeiske retningslinjer for forskningsintegritet*

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1. Introduction

"Research is the quest for knowledge obtained through systematic study and thinking, observation and experimentation."[2]

The University of Oslo (UiO) is a leading university, and one of the goals expressed in Strategy 2030 is to intensify the work on research ethics and research integrity. Knowledge of good research practice is a condition for achieving this goal:

> "A positive and strong research culture based on high academic standards and ideals must form the premise for all research activities. Knowledge and awareness of research ethical norms is something all academic environments and all levels of the organisation must safeguard through systematic training and continuous awareness."

UiO presented an action plan for research ethics in 2007, with the establishment of ten rules for good research practice, as a platform for research ethics. Since then, this area has been developed further, and a number of norms and guidelines for good research ethical practice have been added. In 2017, a statutory duty was introduced for researchers to "act with due care to ensure that research takes place in accordance with recognised research ethical norms", cf. Section 4 of Act no. 23 of 28 April 2017 concerning the organisation of work on ethics and integrity in research (the Norwegian Act on Ethics and Integrity in Research). The institution is also subject to a statutory obligation to ensure that the institution's research is conducted in accordance with recognised research ethical norms. The institution is thereby responsible for ensuring that PhD students and employees receive the necessary training in recognised research ethical norms, and that anyone who conducts or participates in research is familiar with recognised research ethical norms, cf. Section 5 of the Act.

The norms of research ethics are norms that in principle exist independently of the legal system, but which may be included in legal norms. This takes place as references in legislation to research ethical norms, while legislation also includes legal obligations, sanctions or other legal effects concerning compliance with research ethical norms. Research ethical norms may also have points of interaction with legal rules: this applies, for example, to norms for co-authorship that interact with the rules on joint works in Section 8 of Act no. 40 of 15 June 2018 concerning copyright to intellectual property, etc. (the Norwegian Intellectual Property Act), and the norms for good citation practice that interact with the right of citation and the duty to name in the Intellectual Property Act.

Research integrity can be generally defined as the internal norms of research. Research ethics is a wider concept that also includes external norms to protect research participants, such as consent, protection of personal information, risk assessments, etc. Central to this aspect of research ethics are the norms governing medicine and health research, which are based on the Helsinki Declaration. In this standard, research integrity is delineated in relation to this aspect of research ethics. However, UiO has established a quality system for medical and health research, which

[2]All European Academies (ALLEA): The European Code of Conduct for Research Integrity.

facilitates the conduct of medical and health research in accordance with a set of medical ethical norms.

Research integrity concerns the "principles of research, to define the criteria for proper research behaviour, to maximise the quality and robustness of research, and to respond adequately to threats to, or violations of, research integrity."[3]

The norms for research integrity are primarily drawn up by the research community, and will be common to all academic subject areas. Together, these norms constitute a joint professional standard for all researchers at UiO within the area of research integrity.

The subject-specific research ethical norms also apply within the individual disciplines.

Within *science* and *technology*, the subject-specific norms are included in the Norwegian National Research Ethics Committees: Guidelines for Research Ethics in Science and Technology. These guidelines include general norms concerning research integrity, and also subject-specific norms.

Within *social sciences, humanities, law* and *theology*, the subject-specific norms are included in the Norwegian National Research Ethics Committees: Guidelines for Research Ethics in the Social Sciences, Humanities, Law and Theology from 2016. These guidelines include general norms concerning research integrity, and also subject-specific norms. The guidelines are subject to revision, and draft revised guidelines have been submitted for consultation.

Within *medicine and health sciences*, the subject-specific norms are primarily set out in the Helsinki Declaration, the Oviedo Convention and the Norwegian Health Research Act. Furthermore, a number of subject-specific norms for medicine and health research have been laid down by the Norwegian National Research Ethics Committee for Medical and Health Research. These norms have not been made part of the Standard for Research Integrity, as these subject-specific norms concern *external norms*, and are thus part of the wider concept of research ethics. Concerning medical and health research, it is of the utmost importance to apply the subject-specific norms in research.

In addition, a number of sets of norms have been laid down that are not referred to here, as they address subject-specific issues and include general norms for research integrity only to a limited extent.

Via the standard, UiO undertakes particular responsibility for ensuring that the norms included in this standard are known and form the basis for research at UiO. The purpose of the standard is to create a common understanding of which sets of norms are "recognised research ethical norms" to which everyone at UiO should adhere. A written basis for which sets of norms everyone should follow will ensure that good research cultures are created at UiO, and thereby research of higher

[3]All European Academies (ALLEA): The European Code of Conduct for Research Integrity.

quality. UiO's Standard for Research Integrity will include anyone who conducts or participates in research at UiO.

2. References to norms included in Acts and sets of norms for research integrity included in UiO's Standard for Research Integrity

2.1 Introduction

The research community has a longstanding tradition for self-regulation of research activity through written and unwritten norms for good scientific practice. The Norwegian Act on Ethics and Integrity in Research and its preparatory work, Prop. 158 L (2015-2016) Act concerning the organisation of work on ethics and integrity in research (the Norwegian Act on Ethics and Integrity in Research) solely refers to how researchers must adhere to recognised research ethical norms.

Research ethical guidelines that may form the basis for recognised research ethical norms will be general and subject-specific guidelines from the Norwegian National Research Ethics Committees (NEM, NESH and NENT). They might also be the Vancouver Recommendations and other key international guidelines. The content of the norms is developed primarily by the research community itself and may change over time. After the Act on Ethics and Integrity in Research came into force on 1 May 2017, several sets of norms for research integrity have also appeared.

To the extent that norms for research integrity are regulated by law, a mandatory order to observe the norm will be laid down in the Act in which it is included. Norwegian Acts which affect norms for research integrity include the University and University Colleges Act, the Health Research Act, the Intellectual Property Act, the Public Administration Act and the Act on Ethics and Integrity in Research. In some cases, these Acts also determine the content of certain norms that should be known. A case in point is the rules in the Intellectual Property Act concerning the legal use of other entities' intellectual property, and the terms for such use. Furthermore, the provision of the Public Administration Act concerning impartiality is a central aspect. This provision is supplemented by the ethical norms concerning conflicts of interest. Knowledge of these Acts and the relevant regulation is therefore required when research is to take place within the framework of these Acts. In cases where this is relevant to understanding the content of the norm, this will be mentioned below in section 3.

Below, a review is given of norms included in the Act on Ethics and Integrity in Research, the University and University Colleges Act and the Public Administration Act concerning research integrity, and of various sets of norms for *research integrity* that should be included in a Standard for Research Integrity for researchers at UiO. The review is given in order to shed light on the content of the norms for research integrity. When a Standard for Research Integrity is drawn up, this can be regularly updated if new guidelines that are central to research integrity are created.

Acts containing norms for research integrity that are included in the standard for research integrity at UiO are the following:

- Act no. 23 of 28 April 2017 concerning the organisation of work on ethics and integrity in research (the Norwegian Act on Ethics and Integrity in Research)

- Act no. 15 of 1 April 2005 concerning universities and university colleges (the Norwegian University and University Colleges Act)
- Act of 10 February 1967 relating to procedure in cases concerning the public administration (the Norwegian Public Administration Act)

Sets of norms included in the Standard for Research Integrity at UiO are the following:

- The Norwegian National Research Ethics Committees (NREC): General Guidelines for Research Ethics (2014)
- The National Committee for Research Ethics in Science and Technology (NENT): Guidelines for Research Ethics in Science and Technology (2015)
- National Committee for Research Ethics in the Social Sciences and the Humanities (NESH): Guidelines for Research Ethics in the Social Sciences, Humanities, Law and Theology (2016)
- Ministry of Education and Research: National goals and guidelines for open access to academic articles
- All European Academies (ALLEA): European Code of Conduct for Research Integrity
- World Conference on Research Integrity (WCRI) (2010). Singapore Statement on Research Integrity.
- World Conference on Research Integrity (WCRI) (2013). Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations.
- International Committee of Medical Journal Editors. Defining the Role of Authors and Contributors (the Vancouver Recommendations).

Much of the research carried out at UiO receives external funding. The funder may set various requirements for funding to be granted, including ethical requirements. Recipients of funding must assess the requirements set by the funder on the basis of UiO's Standard for Research Integrity, before accepting the offer of funding. Ethical requirements that are included as standard terms and conditions from the funder are not an integral aspect of the Standard for Research Integrity, however. The institution is a party to agreements with external funders and may accept the requirements.

3. Review of key norms within research integrity

3.1 Introduction

The review and discussion of which norms are included in Acts and which sets of norms are to be included in UiO's Standard for Research Integrity under section 2 are intended to contribute to clarifying the content of what are considered to be ""recognised research ethical norms" in the Norwegian Act on Ethics and Integrity in Research. These norms and sets of norms should also be included in research integrity training at all levels at UiO.

Below is a more detailed account of some key norms to which particular attention should be paid in training and on the performance of a research project.

3.2 Academic freedom

Section 1-5 of the Norwegian Act on Universities and University Colleges (the Norwegian University and University Colleges Act) sets out the principle of academic freedom. The institution must promote and protect academic freedom. The institution has academic autonomy, and the researcher has individual freedom to choose the subject and method for their research or development work. This is a fundamental principle for the organisation and performance of research at UiO. Academic freedom entails both rights and obligations. Among other things, these rights concern the freedom to choose research topic, method, and means of publication. These rights are contingent on integrity and honesty, including the duty to respect scientific norms and ethics.[4]

3.3 Researchers must act with integrity and are obliged to adhere to recognised research ethical norms

The Norwegian Act on Ethics and Integrity in Research is primarily an Act concerning the organisation of research ethical work. However, the Act does include several norms for research integrity. This applies to the provision in Section 4 of the Act that researchers must ensure that all research takes place in accordance with recognised research ethical norms. The provision imposes a statutory duty to comply with research ethical norms in research. Section 5 of the Act stipulates that the institution is responsible for the necessary training of PhD candidates. The Act on Ethics and Integrity in Research also requires research institutions to establish a system for enforcing inadequate compliance with research ethical norms pursuant to the Act. Section 6 of the Act requires research institutions to deal with cases concerning possible infringements of recognised research ethical norms, and Section 8 stipulates requirements concerning the content of statements from research institutions that are issued in connection with the consideration of cases of misconduct pursuant to Section 6, and includes a definition of the concept of scientific misconduct.

The fundamental norm for all research is the norm of truth. Exhibiting integrity in research entails showing respect for the norm of truth in the planning, execution and publication of research. Scientific misconduct is the most obvious infringement of the norm of truth, but pursuing integrity in research requires more than avoiding misconduct. It entails actively promoting openness, accountability and fairness in research activities.

Academic misconduct is defined as "forgery, fabrication, plagiarism and other serious infringement of recognised research ethical norms that are committed intentionally or through gross negligence in the planning, performance or reporting of research", cf. Section 8(2) of the Norwegian Act on Ethics and Integrity in Research.

The concept of forgery is defined more specifically in the preparatory work to the Act, Prop. 158 L (2015-2016) Act concerning the organisation of work on ethics and integrity in research (the

[4]NOU 2020:3 New Norwegian Act concerning Universities and University Colleges (the Norwegian University and University Colleges Act).

Norwegian Act on Ethics and Integrity in Research), under section 5.2.2.3. Forgery means, among other things, “manipulation of research material, equipment, methods or processes and changing or omitting data, descriptions, information and results without academic justification”. An example is a change or adjustment of observations and data, so that the result is changed.

Fabrication “includes the construction of data, descriptions, information and results”. For example, by giving the impression that investigations or experiments have been conducted, without this being the case.

Other serious infringements are not specified in further detail.

3.4 Concerning plagiarism, citation and good citation practice

Plagiarism is the most frequent form of *scientific misconduct*. Plagiarism in the context of research ethics means “the use of other people’s wordings, figures, tables, results, ideas, methods, processes and the like, without this being specified and without disclosing the source", cf. Prop. 158 L (2015-2016) Act concerning the organisation of work on ethics and integrity in research (the Norwegian Act on Ethics and Integrity in Research), under section 5.2.2.3.

Plagiarism may arise when other people’s material is presented as one’s own. Plagiarism can occur in various forms: the most serious form is actual transcript, but plagiarism in the research ethical sense may also take other forms, such as the use of other people's ideas, hypotheses, concepts, theories, interpretations, designs and illustrations, etc. Making reference to someone else’s work early in one’s own text, and then making extensive use of the work without subsequent reference, may also be plagiarism, cf. *NESH*, section 28.

Plagiarism in the research ethical sense occurs when the actual author or originator of the material used is not credited. Plagiarism is also an infringement of the research commitment to truth, and is considered to be serious in the research ethical context. In “God skikk. Om bruk av litteratur og kilder i allmenne, historiske framstillinger” (Good practice. On the use of literature in general historical presentations), Rognstad et al., plagiarism is described in further detail in section 5.4: “Actual transcript without any reference is easiest to see and reject as academic misconduct, while the other variants may be somewhat more difficult to identify, or it may be somewhat more difficult to see where the boundary lies between one’s own work and the work of others. In an adapted transcript, the language may have been translated, the verb tenses changed, or other minor revisions made, while otherwise closely adhering to the original text. If no reference is given, any such minor adaptations will also be classed as plagiarism. With regard to ideas, hypotheses, interpretations, designs, etc. it can be difficult to see where the boundary lies between one's own work and the work of others, or where the boundary lies in relation to what can be deemed to be in the public domain. In such contexts, it may be necessary to exercise discretion, and individual researchers must observe the requirements of honesty and sincerity, so as to raise awareness that other people’s ideas and findings should not be presented as though they are one’s own. In their book, *Forskningsetikk i forskerhverdag* (Research ethics in the researcher’s everyday work), Bente Alver and Ørjan Øyer give the advice to be generous with references and professional credit to many types of contributions from other parties. In the committee’s view, this is advice that both researchers and research disseminators should endeavour to follow. The right way to copy someone else's text is to mark it as a *citation*.”

Research is a dynamic process in which new academic findings are constantly being added to existing knowledge, thereby driving science forward. Using other people's data, methods or research results is therefore a legitimate and fundamental aspect of research. However, presentation in a research article, book or conference paper must adhere to the norms for *good citation practice,* so as to make clear who has done what. This is also in harmony with the principle in the Norwegian Intellectual Property Act that the originator should be named, in accordance with good practice.

The good practice requirements for citation of literary sources are described in *NESH*, section 26 and in *NENT*, section 4. The references must clearly show how a researcher is using sources, in a way that makes the research verifiable. The formal rules for citing references may vary between subject areas. It is also emphasised that generous use of citation is not the only way to prevent plagiarism. Often, extensive use of citation of journals is criticised as "a contribution that does not say anything new". For this reason, the reproduction of content (paraphrases) with references may be more appropriate.

On using *unpublished material*, the researcher must pay particular attention to ensuring correct use, before making reference to the source in the usual way.

3.5 Impartiality and conflicts of interest

Section 6 of the Norwegian Public Administration Act contains a provision on impartiality. The fact that a person is "disqualified" implies that there are circumstances that might undermine confidence in the person's impartiality.[5] A person who is disqualified may not participate in the consideration of or decision in a case.

The provision of Section 6 of the Public Administration Act reads:

"A public official shall be disqualified from preparing the basis for a decision or from making any decision in an administrative case

a) if he himself is a party to the case;

b) if he is related by blood or by marriage to a party in direct line of ascent or descent, or collaterally as close as a sibling;

c) if he is or has been married or is engaged to a party, or is the foster parent or foster child of a party;

d) if he is the guardian or agent of a party to the case or has been the guardian or agent of a party after the case began;

e) if he is the head of, or holds a senior position in, or is a member of the board of directors or the corporate assembly of

1. a cooperative company, or an association, savings bank or foundation that is a party to the case, or

2. a company which is a party to the case. Nevertheless, this does not apply to a person who performs services or work for a company that is wholly-owned by the State and/or a

[5] Eckhoff/Smith: *Forvaltningsrett* (Administrative Law) 10th edition

> municipality, and such company, either alone or together with other similar companies or the State and/or a municipality, wholly owns the company that is a party to the case.
>
> He is similarly disqualified if there are any other special circumstances which are apt to impair confidence in his impartiality; due regard shall inter alia be paid to whether the decision in the case may entail any special advantage, loss or inconvenience for him personally or for anyone with whom he has a close personal association. Due regard shall also be paid to whether any objection to the official's impartiality has been raised by one of the parties."

The provision applies to research at public research institutions, and consequently to employees of UiO. Legal theory emphasises that "the general rules concerning impartiality reflect important ethical requirements for those acting on behalf of the public administration". In general terms, personal interests and affiliations in a case might lead to disqualification. The impartiality rules are intended to ensure that the administration is not biased in its execution and to create confidence that the administration will act impartially, including in the conduct of public research.

A conflict of interest is a situation where financial or other interests have the potential to influence professional assessments[6]. ("A conflict of interest is a situation in which financial or other interests have the potential to compromise or bias professional judgement.")

In many cases, the regulation of conflicts of interest will correspond to the rules concerning impartiality, but such conflicts may extend beyond the impartiality requirements under the Public Administration Act. In the event of conflicts of interest, the norms laid down by the National Research Ethics Committees will therefore supplement the rules in the Public Administration Act with regard to assessment and handling.

In section 6 of the General Guidelines for Research Ethics, "Impartiality", researchers are encouraged to show openness about relevant roles and relationships in which researchers are engaged. However, there is no prohibition concerning conflicts of interest. The requirement concerns transparency and providing information on any possible conflicts of interest.

Section 30 of *NESH,* "Impartiality", points out that the requirement to disclose and assess conflicts of interest in research extends beyond the impartiality requirements of the Public Administration Act. The reason is that the rules concerning openness about conflicts of interest apply not only to the credibility of research, but also to the requirement for research to be objective. In *NENT* section 18, "Research institutions and the individual researcher must ensure openness about possible conflicts of interest", it is stated which factors might constitute conflicts of interest, and about which there should be openness concerning: relevant economic relations, relevant positions and other work in political, religious, or other value-based associations that could potentially influence their research, and in the event of a potential conflict between different roles, a researcher must make it clear whether he or she is speaking as a researcher or in a different capacity.

[6]Danish code of conduct, clause 6. Conflicts of interest

The ethical requirement set out is generally that the researcher and research institution must reveal and display openness about possible conflicts of interest related to the conduct of the research.

3.6 Authorship and co-authorship

Authorship is a key aspect of the practice of research, and is of particular importance for merit, but also has academic and financial consequences. Authorship also entails being held responsible and accountable for the content and execution of the research in the scientific article[7]. For many publications, there is only one author.

When several parties have contributed to a scientific article, a need arises for terms of crediting through co-authorship: it is desirable for others to have information about what the contribution of the individual co-author consists in and it is desirable for the contributor to have predictability regarding what is required for the contribution to be credited through co-authorship, given the significance of authorship.

The terms of authorship under the Vancouver Recommendations originally applied to the terms for co-authorship of scientific articles to be published in medical journals. As the terms are worded, they are based on which contributions ought naturally to be recognized as meriting credit through co-authorship within *medical research*. From the Vancouver Recommendations' section 2 Who Is an Author[8]:

"In principle, four criteria define rightful authorship. They must all be met, as stated in the recommendations of the International Committee of Medical Journal Editors (ICMJE):

1. The researcher must have made a substantial contribution to the conception and design *or* the data acquisition *or* the data analysis and interpretation; *and*
2. the researcher must have contributed to drafting the manuscript *or* critical revision of the intellectual content of the publication; *and*
3. the researcher must have approved the final version before publication; *and*
4. the researcher must be able to accept responsibility for *and* be accountable for the work as a whole (albeit not necessarily all technical details) unless otherwise specified."

The four criteria for authorship are now widely recognised by the research community and have evolved into a *common standard* for co-authorship across disciplines. The terms of authorship are included in *ALLEA: The European Code of Conduct for Research Integrity* under section 2.7, and in the national guidelines published by the Norwegian National Research Ethics Committees (NREC). In the *Guidelines for Research Ethics in Science and Technology*, the four terms are included directly in section 5 Researchers must respect the contributions of other researchers and observe standards of authorship and cooperation.

It must be stated that it may be acceptable to set out additional terms or make exceptions in specific subject areas.

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[7]See the Vancouver Recommendations, section II Roles and Responsibilities of Authors, Contributors, Reviewers, Editors, Publishers, and Owners.

[8]The text is taken from NESH, section 25, Co-authorship, where the four terms are included in a Norwegian version.

In the *Guidelines for Research Ethics in the Social Sciences, Humanities, Law and Theology,* the terms are included in section 25, Co-authorship. In these guidelines, however, an *additional condition* for crediting as a co-author is set out:

> "It is common practice in the humanities and social sciences to require that co-authors have actually helped write and complete the manuscript. *Only* those who have actually contributed to the analysis and *writing* of a scientific work may be credited as co-authors." (our emphasis)

Within subject areas such as physics and medicine (sometimes with thousands of co-authors), *exceptions* from the minimum standard can be made if the criteria for authorship have been clarified and recognised by the institution and subject area. It must be assessed, however, whether highly specialised contributions should be recognised under Acknowledgements, as prescribed by the Vancouver Recommendations.

The research institution's responsibility is related to the training of all research participants in the guidelines to be used to credit authorship and co-authorship. It is recommended in the guidelines that, early in the process, particularly for large and for interdisciplinary research projects, the researchers agree on the basis for authorship, and on who is planned to co-author, and in which sequence. Such preliminary authorship agreements should also be open, in the sense that it must be possible to reassess and adjust them on any changes in the conditions for authorship. The conditions for co-authorship and the possibility of changes should be stated explicitly and be part of the actual agreement.

In the event of any dispute concerning authorship, it will also be an institutional responsibility to ensure that there are dispute resolution mechanisms. At UiO, the Academic Ombudsman has a mandate to mediate such disputes (before a manuscript is published). Complex disputes concerning authorship may be presented to the Research Ethics Committee for assessment, which will be particularly relevant in cases where the article has been published. The research institution is responsible for ensuring compliance with recognised research ethical norms, pursuant to Section 5 of the Norwegian Act on Ethics and Integrity in Research, and is responsible for considering this as a case of possible breach of recognised research ethical norms pursuant to Section 6 of the Act on Ethics and Integrity in Research.

3.7 Researchers have the right to publish their results and must ensure that such publication takes place

For Norwegian researchers, the Norwegian University and University Colleges Act requires researchers to publish research results. Transparency concerning research results increases the credibility of research, and transparency concerning the basis for research makes it possible to verify the research. Transparency is therefore important for society's confidence in research.

Requiring researchers to ensure that research is published or disclosed is also a recurring norm in the various sets of norms included in UiO's Standard for Research Integrity, cf. section 2. In *ALLEA: European Code of Conduct for Research Integrity* the guideline concerning publication is worded as follows: "Authors ensure that their work is made available to colleagues in a timely, open, transparent, and accurate manner, unless otherwise agreed, and are honest in their communication to the general public and in traditional and social media."

The publication guideline is not worded as an obligation, but as a recommendation to ensure that publication or public availability is ensured. In *NESH,* section 40, Right and duty to publish, the guideline is seen in connection with the possibility of verification results. The verification of results will contribute to the quality assurance of the research results. The publication guideline must be viewed in the context of the responsibility for disseminating research results: the duty of dissemination includes the publication of knowledge and research results.

Authors are in principle free to determine where a scientific work is to be published or made available. However, the Research Council of Norway and the EU require that publications that report research results for which they have provided funding be published in open channels.

Section 1-5 of the University and University Colleges Act states that "the relevant research basis must be made available in accordance with good practice in the relevant subject area." ALLEA, section 2.5 includes norms for data practices and management, for which the significant aspect is to ensure access to data that is as open as possible and as closed as necessary. Research data must be retained for a reasonable period of time.

In exceptional cases, research results are not published or made available, when publication might be in conflict with the need to protect personal information. In other cases, there may be *deferred publication,* due to the wish to patent research results before they are published or made available; or national security considerations or an embargo may apply[9].

In particular about Guidelines prepared by the Ministry of Education and Research concerning Open Access

By 2024, the Norwegian Government aims to ensure open access to all publicly funded Norwegian research articles and the Ministry of Education and Research has laid down "National goals and guidelines for open access to research articles". For researchers, the guidelines entail that they must "examine the possibilities for publishing their articles in open access journals and choose open access journals where academically acceptable" and that the articles must be deposited in a suitable academic repository by no later than the date of publication. At UiO, the articles can be deposited and may be made available via the DUO knowledge archive.

3.8 Research management, including supervision

Under the Norwegian Act on Ethics and Integrity in Research, it is researchers' responsibility to ensure that all research takes place in accordance with statutory recognised research ethical norms. Research presupposes that the individual researcher takes independent responsibility for the research ethical challenges related to their own and/or the research group's research work.

How *research leaders* and *supervisors* act and conduct research sets the standard for research culture and ethics for both students and other researchers. That research leaders and supervisors themselves exercise integrity and ethical discretion in their professional work is therefore a condition for developing ethical awareness and a culture for research integrity at UiO. Research leaders and supervisors must know their special responsibility as supervisors and role models for young researchers, be aware of asymmetry in power and position and of the obligation to exemplify

[9]Embargo: time limit set by the publisher for how much time must pass before the article can be made available in a knowledge archive, cf. the University Library's explanation of key concepts related to self-archiving at UiO.

ethical standards in their professional conduct as researchers. Ethical research practices will often be characterised by dilemmas, doubts and uncertainty about what is the most ethical course of action. The individual researcher has an independent responsibility to manage the research ethical scope for action and find and be able to defend the choices and solutions created in the research work.

The project manager and supervisor's responsibility is primarily the responsibility for ensuring that "senior researchers, research leaders and supervisors mentor their team members and offer specific guidance and training to properly develop, design and structure their research activity and to foster a culture of research integrity", cf. *ALLEA: The European Code of Conduct for Research Integrity*, section 2.2. In section 33 of *NESH* concerning the responsibilities of supervisors and project managers it is specified that this applies to the achievement of the project, as well as co-responsibility for dissemination and responsibility for clarifying research ethical challenges.

New research fields and issues and new research methods are created through research and require deliberate, responsible innovative thinking concerning how research ethics should be practised. In this respect, too, research leaders and supervisors will need to exercise discretion and take responsibility for showing the way.

At UiO, the Code of Conduct for supervisors also sets expectations for how the role of supervisor is to be exercised, but the guidelines are clearly based on the relationship between supervisor and PhD student, without any clear focus on research integrity. The guidelines do, however, point to one research ethical issue of which it is important to be particularly aware, and this concerns instances where the supervisor wishes to use the PhD student's data material in their own publications. In such cases, it is particularly important to adhere to the specified research integrity guidelines.

3.9 Quality assessments

Quality assessments concern the parameters for the assessment of research results. In *ALLEA,* it is assumed that quality assessments should take place on the appointment and promotion of researchers, cf. *ALLEA,* section 2.1. This entails that the journal's influence factor should not be the sole basis used. Quality assessments will thereby contribute to promoting research integrity at the institution.

3.10 Project collaboration, including agreements

A large proportion of today's research takes place as research collaboration between research institutions, and often across national borders. To an increasing extent, research collaboration is interdisciplinary.

A common understanding of and approach to the ethical, legal and economic aspects of the collaboration should be established before commencement. If the research collaboration receives external funding, agreements will be drawn up in connection with the allocation of funding. Research collaboration that does not receive joint external funding, or that starts up before funding has been clarified, will still require an agreement to be entered into concerning the performance of the project. Furthermore, not all agreement templates related to external funding include regulation of issues related to research integrity that might arise during the project, and it is

therefore recommended that a collaboration agreement be established on the commencement of the project.

Research collaboration is dynamic, and an agreement entered into at the start of the project will need to be changed as changes occur in the project. There may be changes in the parties to the project, or the scope of the project may be expanded or changed, etc. In such cases, an addendum to the agreement must be drawn up, or if there are significant changes, a new agreement may need to be entered into.

All parties to the research collaboration are responsible for the integrity of the research. The agreement should therefore define a common set of norms for research integrity that will apply to the project, e.g. *ALLEA: Code of Conduct*, if there are mainly European participants, or the *Singapore Statement on Research Integrity*, if there are participants from Asia or America.

A collaboration agreement should furthermore include regulation of, among other things, the following factors: the purpose of the research, the framework legislation and any institutional guidelines that apply, how revenue and costs in the project will be distributed, protection of intellectual property rights, including research results, publication and authorship, and procedures for handling conflicts and possible cases of academic misconduct.

Appendix 1:
Acts which include norms for research integrity
Act no. 23 of 28 April 2017 23 concerning the organisation of work on ethics and integrity in research (the Norwegian Act on Ethics and Integrity in Research)
https://lovdata.no/dokument/NL/lov/2017-04-28-23?q=forskningsetikkloven

Act no.15 of 1 April 2005 concerning Universities and University Colleges (the Norwegian University and University Colleges Act)
https://lovdata.no/dokument/NL/lov/2005-04-01-15?q=universitets- og høyskoleloven

Act of 2 October 1967 relating to procedure in cases concerning the public administration (the Norwegian Public Administration Act)
https://lovdata.no/dokument/NL/lov/1967-02-10?q=forvaltningslov

Sets of norms concerning research integrity
Norwegian Ministry of Education and Research: National objectives and guidelines for open access to academic articles
https://www.regjeringen.no/contentassets/ae7f1c4b97d34806b37dc767be1fce76/nasjonale-mal-og-retningslinjer-for-apen-tilgang-til-vitenskapelige-artikler.pdf

The Norwegian National Research Ethics Committees (NREC): General Guidelines for Research Ethics (2014)
https://www.etikkom.no/globalassets/documents/publikasjoner-som-pdf/fek_generelle_retningslinjer.pdf

Norwegian National Committee for Research Ethics in Science and Technology: Guidelines for Research Ethics in Science and Technology (2015)
https://www.etikkom.no/globalassets/documents/publikasjoner-som-pdf/60124_fek_retningslinjer_nent_digital.pdf

Norwegian National Committee for Research Ethics in the Social Sciences and the Humanities: Guidelines for Research Ethics in the Social Sciences, Humanities, Law and Theology (2017)
https://www.etikkom.no/globalassets/documents/publikasjoner-som-pdf/60125_fek_retningslinjer_nesh_digital.pdf

ALLEA (All European Academies): The European Code of Conduct for Research Integrity (2017)
https://www.allea.org/wp-content/uploads/2019/01/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2019_Norwegian.pdf

International Committee of Medical Journal Editors. Defining the Role of Authors and Contributors. http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html

World Conference on Research Integrity WCRI (2013). Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations. https://wcrif.org/documents/354-montreal-statement-english/file

World Conference on Research Integrity WCRI (2010). Singapore Statement on Research Integrity. https://wcrif.org/documents/327-singapore-statement-a4size/file