

## Science Ethics : a resource for CIG members

This document provides useful links to conceptual and practical information about Research Integrity, in support of the CIG course on Science Ethics.

### 1- General concepts on Science Ethics

#### Codes of Conduct for Scientific Integrity

- UNIL : Directive de la Direction 4.2. *Intégrité scientifique dans le domaine de la recherche et procédure à suivre en cas de manquement d'intégrité* ([Link](#))
- Integrity in Scientific Research: Principles and Procedures, Swiss Academies of Arts and Sciences ([Link](#))
- Singapore Statement on Research Integrity, WCRI ([Link](#))
- The European Code of Conduct for Scientific Integrity, ALLEA ([Link](#))
- Code of ethics of WEF young scientists ([Link](#))

#### Who is responsible for what in the process of data generation and publication

- Code of practice for the doctorate at UNIL ([Link](#)) , found on *Graduate Campus* ([Link](#))

#### Securing and storing primary data

- Open Science at UNIL ([Link](#))
- SNF Data Management Plan ([Link](#))

#### Transparency & accuracy in reporting

- Collecting and presenting data (JBC resources), ([Link](#))
- Improving the reporting of statistics (Gosselin R.-D., *Bioessays*. 2020 Jan;42(1):e1900189)
- Improving the reporting of animal studies: the *ARRIVE* guidelines ([Link](#))
- Authorship in scientific publications (*Swiss Academy of Sciences* recommendations, [Link](#))

#### Plagiarism, self-plagiarism

- Prevention of plagiarism at UNIL ([Link](#))
- UNIL's online plagiarism detection tool ([Link](#)), described here ([Link](#))

#### Minimizing harm : animal studies

- SCNAT Reference website on animal experimentation ([Link](#))
- Animal research (SNF resources, [Link](#))
- 3Rs UK : Reference website and online training ([Link](#))
- Minimizing unnecessary animal studies: the *ARRIVE* guidelines ([Link](#))

#### Avoiding bias

- *How Scientists fool themselves – and how they can stop* (Nature, News feature, [Link](#))

## 2- Ethics at the bench

### Experimental design

- Bioinformatics support, (Scientific Services of CIG) ([Link](#))
- Biostatistics Platform (FBM), Genopode ([Link](#))
- Guidelines on statistics for researchers using lab animals ([Gosselin R.-D., Lab Anim. 2019 Feb;53\(1\):28-42](#))
- Recommendations on experimental design: *Why most published research findings are false.* [J.P.A. Ioannidis PLOS Med PLoS Med. 2005 Aug;2\(8\):e124](#)

### Microscopic imaging

- Training at the Cellular Imaging Facility CIF/FBM ([Link](#))
- *A beginner's guide to rigor and reproducibility in fluorescence imaging experiments.* [Lee J.Y., Kitaoka M. MBoC Vol. 29 No. 13 \(2018\)](#)
- *Avoiding Twisted Pixels: Ethical guidelines for the appropriate use and manipulation of scientific digital images.* [Cromey, D.W., Science & Engineering Ethics 16:639–667 \(2010\)](#)

## 3- Procedures when witnessing scientific misconduct at UNIL

- Current procedure at UNIL\_ *Directive de la Direction 4.2. Intégrité scientifique dans le domaine de la recherche et procédure à suivre en cas de manquement d'intégrité* ([Link](#))
- Ombudsperson and Integrity protection commissioner ([Link](#))

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