PAUL SCHERRER INSTITUT

PSI

Louis Tiefenauer :: Research Integrity Consultant :: Paul Scherrer Institut

Rafael Abela :: Ombudsperson :: Paul Scherrer Institut

Research Integrity for PhD students at PSI

June *19th 2018; 15:00 – 17:00*

Outline Face-to-Face Course 931

Introduction to Research Integrity at PSI

Consultant Research Integrity: L. Tiefenauer 15 min

Guideline Research Integrity at PSI. Practical 75 min

Ombudsperson: Rafael Abela

Course 931 concept: Research Integrity for PhD students

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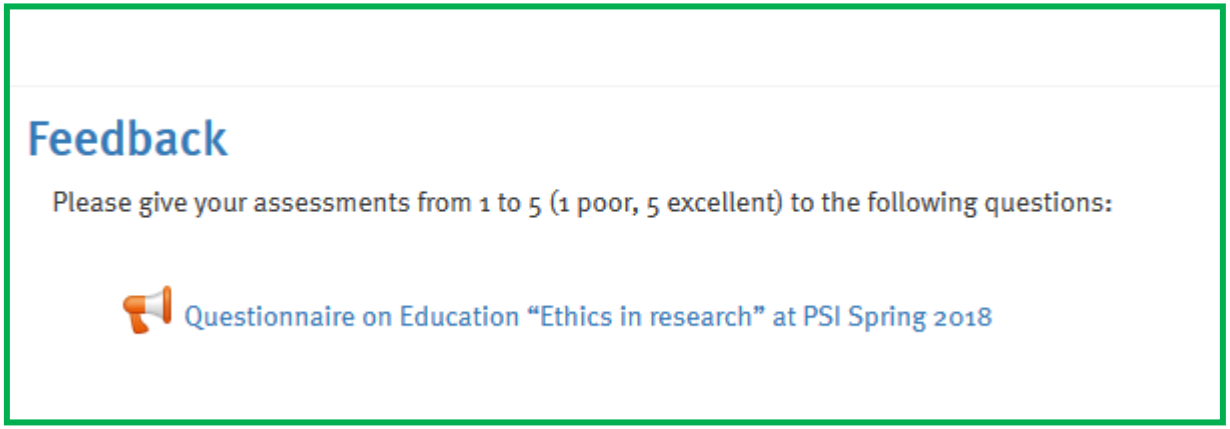


Moodle Page

(1) Webcourse "Ethics in Research"

Please complete this online-training "Ethics in research"

Online Training: Webcourse "Ethics in research"

(2) Face-toFace Course

Eingeschränkt Nicht verfügbar, es sei denn: Die Aktivität **Online Training: Webcourse "Ethics in research"** ist als abgeschlossen markiert

(3) Test "Ethics in Research"

In the Rollout phace 2018 you have to complied Test 1 *and* Test 2

Test 1

Test 2

Feedback

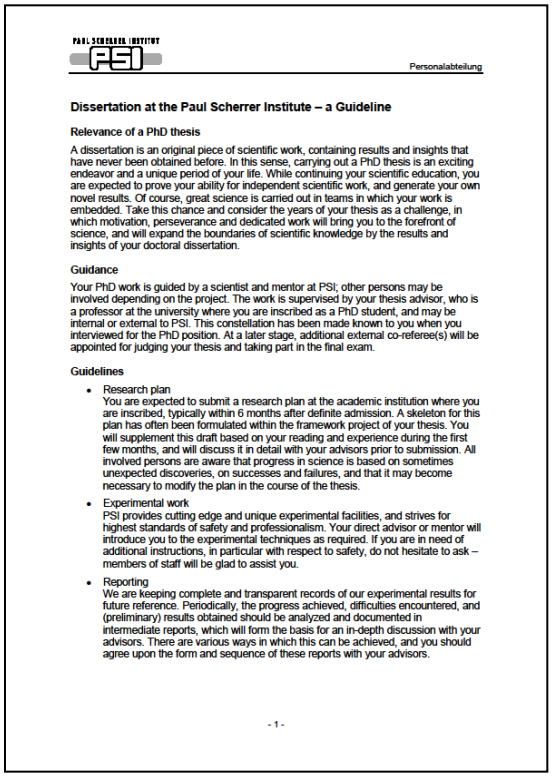
Please give your assessments from 1 to 5 (1 poor, 5 excellent) to the following questions:

Questionnaire on Education "Ethics in research" at PSI Spring 2018

PhD students at PSI - a Guideline

Guidelines content

- Research plan
- Experimental work
- Reporting
- *Ethical guidelines*
- Publication
- Duration



Personalabteilung

Dissertation at the Paul Scherrer Institute – a Guideline

Relevance of a PhD thesis

A dissertation is an original piece of scientific work, containing results and insights that have never been obtained before. In this sense, carrying out a PhD thesis is an exciting endeavor and a unique period of your life. While continuing your scientific education, you are expected to prove your ability for independent scientific work, and generate your own novel results. Of course, great science is carried out in teams in which your work is embedded. Take this chance and consider the years of your thesis as a challenge, in which motivation, perseverance and dedicated work will bring you to the forefront of science, and will expand the boundaries of scientific knowledge by the results and insights of your doctoral dissertation.

Guidance

Your PhD work is guided by a scientist and mentor at PSI; other persons may be involved depending on the project. The work is supervised by your thesis advisor, who is a professor at the university where you are inscribed as a PhD student, and may be internal or external to PSI. This constellation has been made known to you when you interviewed for the PhD position. At a later stage, additional external co-referee(s) will be appointed for judging your thesis and taking part in the final exam.

Guidelines

- Research plan
  You are expected to submit a research plan at the academic institution where you are inscribed, typically within 6 months after definite admission. A skeleton for this plan has often been formulated within the framework project of your thesis. You will supplement this draft based on your reading and experience during the first few months, and will discuss it in detail with your advisors prior to submission. All involved persons are aware that progress in science is based on sometimes unexpected discoveries, on successes and failures, and that it may become necessary to modify the plan in the course of the thesis.
- Experimental work
  PSI provides cutting edge and unique experimental facilities, and strives for highest standards of safety and professionalism. Your direct advisor or mentor will introduce you to the experimental techniques as required. If you are in need of additional instructions, in particular with respect to safety, do not hesitate to ask – members of staff will be glad to assist you.
- Reporting
  We are keeping complete and transparent records of our experimental results for future reference. Periodically, the progress achieved, difficulties encountered, and (preliminary) results obtained should be analyzed and documented in intermediate reports, which will form the basis for an in-depth discussion with your advisors. There are various ways in which this can be achieved, and you should agree upon the form and sequence of these reports with your advisors.

- 1 -

Personalabteilung

- Ethical guidelines
  Scientific integrity is one of the highest assets in academic research. Corresponding guidelines are available at PSI, based on international and national recommendations. You must consult these guidelines and consider them carefully in your daily work.

HR Homepage

Personalmanagement

Intranet » Personalmanagement » Prozesse » PhD Students / Postdocs

You are signed in as
Louis Tiefenauer
My Favorites
My Notes

Personalmanagement

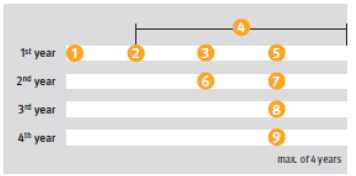
- Das Personalmanagement
- Berufsbildung
- PSI Bildungszentrum
- Mitarbeitende / Kontakt
- Personalbewegungen / Mutationen
- Prozesse
  - Arbeiten am PSI
  - Arbeitszeit / Absenzen
  - Führung
  - Honorierung
  - Versicherungen / Vorsorge
  - Personalentwicklung
  - Beratung
  - Austritt
  - Praktikum / Externe
  - **PhD Students / Postdocs**
  - Alles auf einen Blick (A-Z)
- Mitteilungen des Personalmanagements

PhD Students / Postdocs

Information for PhD Stundents and Postdocs at PSI (in English only)

Prozesse

Employment cycle for PhD students – key milestones



Information for PhD students and postdocs

The brochure contains an overview of the employment cycle for PhD students and postdocs at PSI with key milestones.

Leaflet PhD-Postdoc.pdf

Darstellung als einzelne Seite: InformationPhDstudentsPostdocs

Table of contents

Professional Development Support

Guideline for line managers and supervisors showing the main milestones in the employment cycle of PhD Students

Guideline for line managers and supervisors

- Guidline Professional Development Support

Form "Annual Progres Review"

- Annual progress review_PhD_Postdoc
- Annual progress review_PhD_Postdoc_Exemplar

Darstellung als einzelne Seite: PhDProfessionalDevelopmentSupport

Research Integrity

Honesty, openness, self-criticism, reliability and fairness are the basis for credibility and acceptance in science.

Research Plan

Within six to twelve months, a PhD student needs to prepare a research plan in line with the rules of the university.

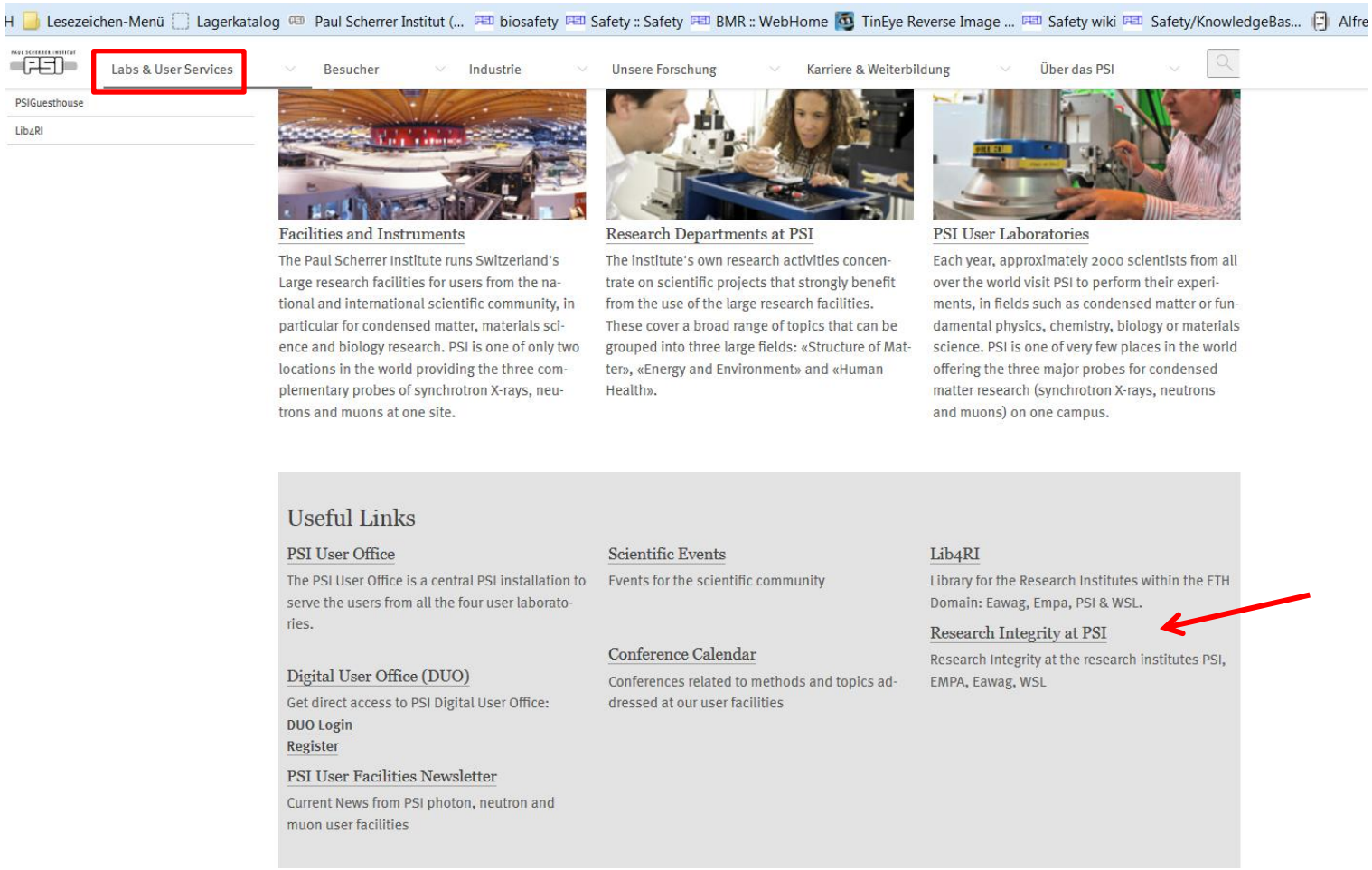
Research Integrity

Values & virtues

Honesty, openness, self-criticism, reliability and fairness are the basis for credibility and **acceptance in science.** Researches at PSI are committed to these values and to the guidelines which derive from them.

Content

Research Integrity Internet Homepage I



or intranet, search: integrity

Homepage Internet

PAUL SCHERRER INSTITUT

DE EN FR

Personen, Inhalte...

Labs & User Services | Besucher | Industrie | Unsere Forschung | Karriere & Weiterbildung | Über das PSI

PSI Home > Research Integrity

- Research Integrity
- Ombudspersonen
- Veranstaltungen
- Dokumente
- Plagiate
- Kontakt

Integrität in der Forschung Intranet PSI

Integrität in der Forschung an den Forschungsanstalten PSI, EMPA, Eawag, WSL

Wahrhaftigkeit, Offenheit, Selbstkritik, Verlässlichkeit und Fairness sind die Grundlage für die Glaubwürdigkeit und Akzeptanz der Wissenschaft.
Wir Forschende sind diesen Werten verpflichtet und halten uns an die daraus abgeleiteten Richtlinien.

News

Kontakt

Integrität in der Forschung
Louis Tiefenauer

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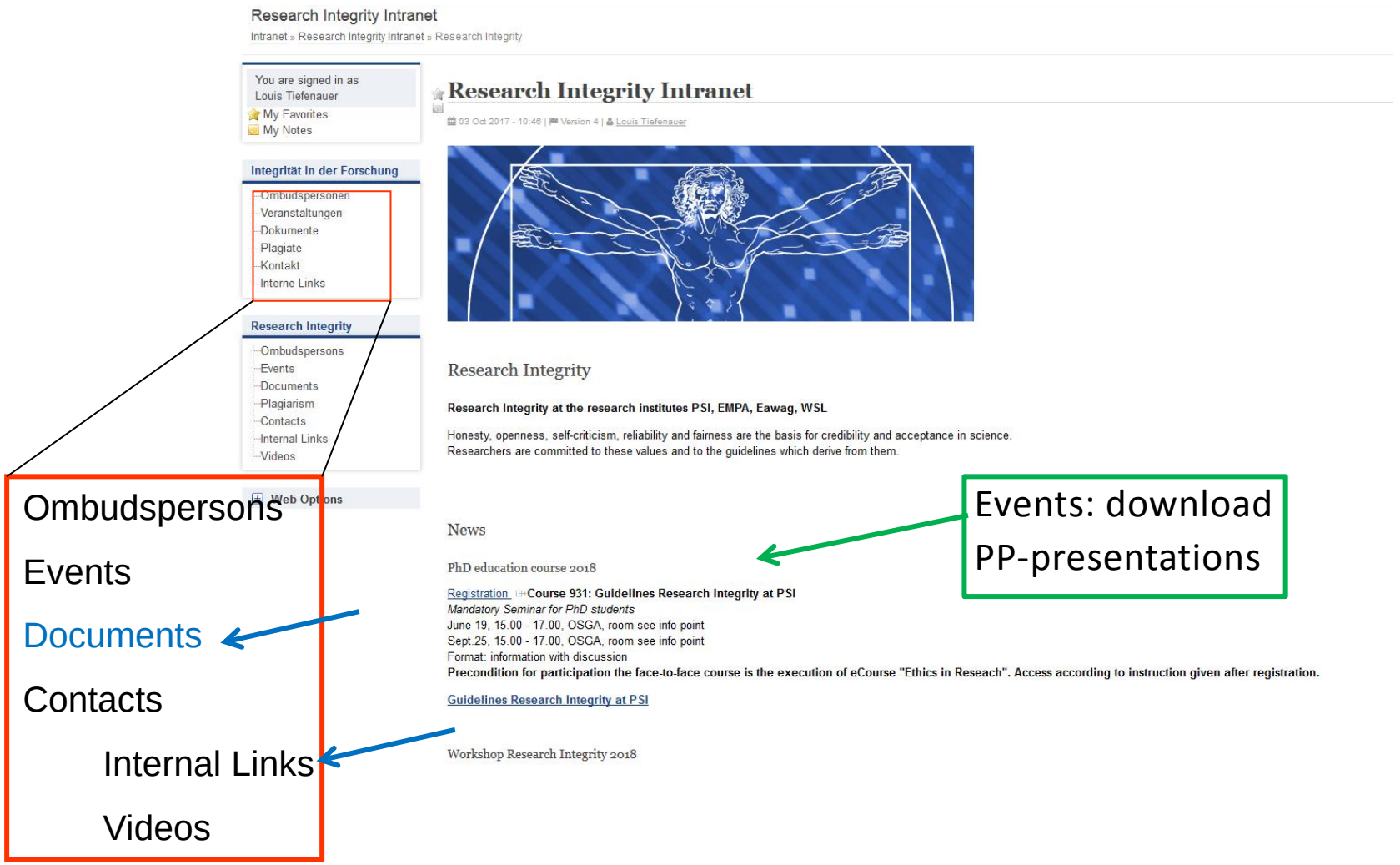
E-Mail: Louis.Tiefenauer@psi.ch

ETH-Bereich

Das Paul Scherrer Institut gehört zum **ETH-Bereich**.
Weitere Mitglieder sind:
ETH Zürich
EPF Lausanne
EMPA
WSL
Eawag

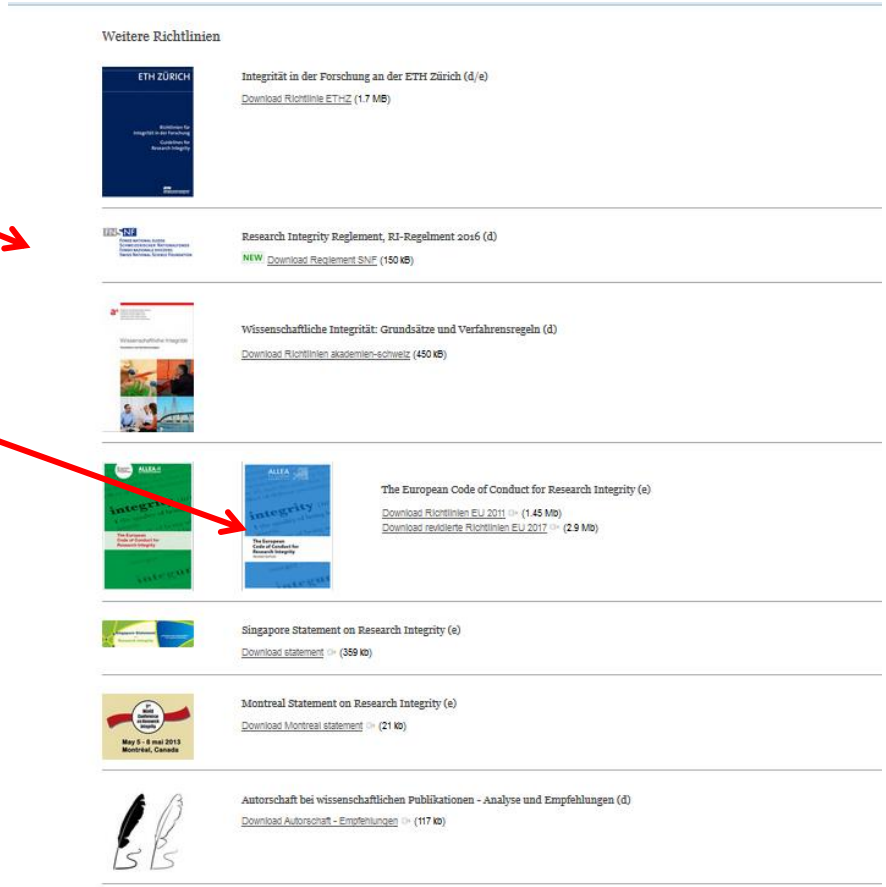
Research Integrity Intranet Homepage II

Search: integrity



Research Integrity Homepage III

Documents



Research Integrity, Regulation SNF 2016

Scientific misconduct definition (e): rules

Annex I

1. Constellations of scientific misconduct[4]

a. Drafting research results and insights gained by third parties under one's own name (plagiarism), cf. no. 2 below;
b. Incorrect information regarding the authorship of publications, cf. no. 3 below;
c. Invention of research results;
d. Manipulation of data;

FPP

e. Incorrect or embellished representation of research results;
f. Arbitrary emphases of data;
g. Concealment of the sources of data;
h. Copying of data without the permission of the responsible person for purposes not related to the project;
i. Damaging and obstructing the research work of others, within or outside one's own research group;
j. Violating duties of confidentiality;
k. Neglecting duties of supervision;
l. Eliminating data and materials before expiry of the statutory period of retention of records;
m. Claiming authorship without making a significant contribution to the research work;
n. Deliberately making no mention of participants who have made significant contributions to a project; intentionally naming as co-author a person who has not made any significant contribution;
o. Misquoting existing or alleged works of others;
p. Providing incorrect information on the publication status of one's own work (e.g. "publication in press" when the manuscript has not yet been accepted).

2. Plagiarism

[1] The following activities, among others, can be deemed to constitute plagiarism (non-exhaustive list):

a. Submitting the work of others under one's own name;
b. Translating foreign-language texts without indicating the source;
c. Copying passages from the work of others without citing the source. This includes downloading and using passages from the internet or from previous applications without citing the source;
d. Copying passages from the work(s) of others with minor textual adjustments or changes, but without citing the source;
e. Copying passages from the work of others and naming the source only at the end of one's text rather than directly in the context of the copied passage(s).

[2] Plagiarism can be deemed to have occurred regardless of whether it was wilful or due to negligence.

FNSNF
SWISS NATIONAL SCIENCE FOUNDATION

www.snsf.ch
Wildhainweg 3, Postfach, CH-3001 Berne

National Research Council

English is not an official language of Switzerland. This translation is provided for information purposes only and has no legal force.

Regulations on scientific misconduct (Research Integrity Regulations, RI Regulations)

of 12 July 2016

[3] Plagiarism can be deemed to have occurred regardless of whether the copied research results and insights are protected by copyright.

[4] A trivial case can be deemed to have occurred if

a. only a few citations are missing;
b. only a small amount of text is uncited compared to the entire text; or
c. the content of the uncited text is of a general nature or concerns the state of research.

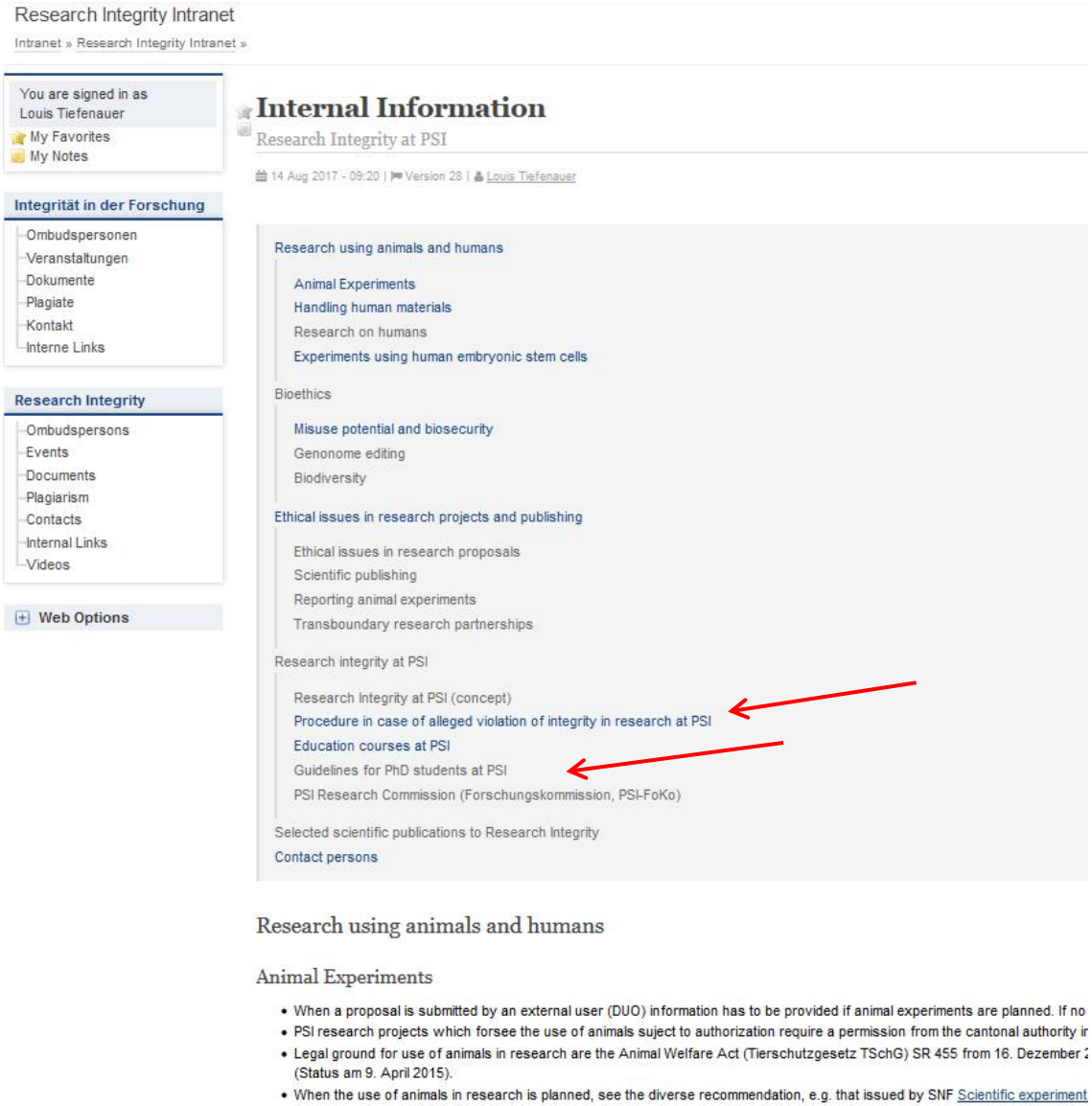
3. Incorrect information in the publication list

[1] The publication list can be deemed to contain incorrect information if

a. the order of authorship in the publication list is not identical with the order of authorship in the publication;
b. authors mentioned in the publication are omitted in the publication list;
c. information on collaboration of equal value by other authors included in the publication is omitted in the publication list;
d. the publication list includes publications of which the applicant is neither the author nor a co-author.

[2] Incorrect data in the publication list can be deemed trivial if it is isolated and insignificant.

Research Integrity Intranet II



Research Integrity education

Workshops courses # 930

Authorship	2011
Avoiding plagiarism	2012
Data management	2013
Collaborative Research	2014
Mentorship	2015
Scientific Reviewing	2016
Big Data ethics	2017
RI @ PSI (internal) Summary	2018

Presentations available as pdf-files

Ethical issues in Research

Authorship / Publishing

Avoiding plagiarism

Data management

Collaborative Sciences

Mentorship

Conflict of interest

Research on humans

Animal experiments

Ethical issues and topics

New concept 2019

- **eCourses**
  - **Ethics in research**
  - Publishing
- Case studies
- **RI 4 PhD @ PSI**

Old Course # 932

RI in a nutshell for Advanced researcher

eCourse Questions

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Research Integrity education

P: policy (guidelines RI)

D: external directives

PSI activities 2011 -2018

	Topic	Keywords	Year	Stud.	Post doc	PI	Trainers Scientif.	Trainers HR/Admin	Direct.
							Mentors Seniors	Consultants Ombuds X.	
1	Basics RI	principles, virtues, values, rules	Pilot 2018	x	x	x	x	x	P
2	Guidelines on RI	How to *teach* contents ?	2x/year		o	x	o	x	P
3	Data Management/ big data	Generate, storage, ownerschip	2013/2017	x	x	x	x	x	P
4	Authorship	Order, eligibility	2011	x	x	x	x	X o	P
5	Plagiarism	Publication, proposal, sanctions	2012/2017	x	x	x	x	X x	P
6	Fabrication, falsification	Fraud vs. honest error, retraction		x	x	x	x	x	P.
7	Conflict of interest	reviewing, Tech-transfer, fairness			x	x	x	X o	P
8	Scientific mentors	Responsibiltoies, organization, HR	2015	x	o	x	x	x	P
9	Research on humans	Legal directives & procedures	On demand		o	o	o	o	(P) D
10	Research on animals	Legal directives & procedures	On demand		o	o	o	o	(P) D
11	Collaborative Research	Fairness, openness, organization	2014		x	x	x	X x	P
12	Reviewing, Audits	Independency and confidentiality	2016		x	x	x	x	(P) D
13	Conflict management	Whistle blowing, ombudsperson		x	o	x	x	X x	(P) D
14	Relation to the public	Accountability, debates, reports			x	x	x	x	(P) D
15	Research topics	freedom, evaluation, bibliometry			x	x	x	x	(P) D
	N topics			7	11+ 5	13 + 2	12 + 3	10 + 5	15 + 6

Workshops

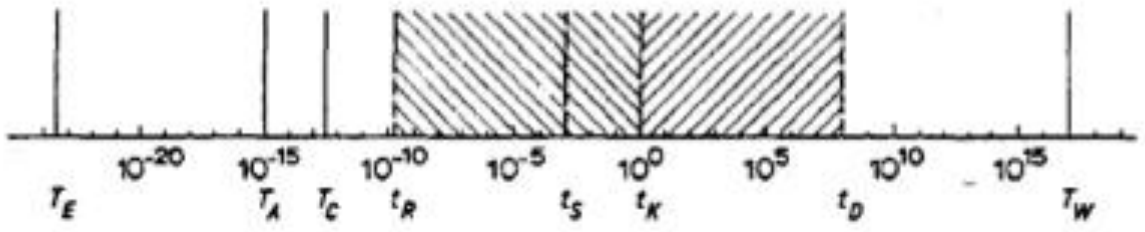
E-learning course 2018

PhD student course 931

Outline practical part

1967: M. Eigen, Nobel Price Chemistry

Immeasurably Fast Reactions



Outline practical part

Introduction

a) Lab-protocols & data management
b) Scientific writing and submission of manuscripts
c) Authorship
d) Plagiarism and scientific misconduct
e) Ownership of scientific results
f) Possible areas of conflict: PSI ↔ University
g) Duties of supervising persons (professor, scientific mentors@PSI)

Discussions after topics c), e) and g)

Tasks of the Ombudsperson(s)

Lab-protocols & data management

- Recent Ph.D. studies as well as papers to be submitted and even published work were subjected to criticism (plagiarism, falsification, misconduct).
- In all these cases: evaluation of the criticism decisively depends on the quality of lab-protocols and data management.
- Lab-protocols are a fundamental ingredient of the research work
- The whole „value chain“ has to be documented
- PSI has now a data policy that will be implemented in steps in the near future. There are also general statements in Research Integrity at PSI Guidelines.
- Be aware upon leaving PSI: PSI is owner of your lab protocols etc.

Scientific writing and submission of manuscripts

- Decide in discussions with the PI and the group whether the manuscript should be a communication, a letter or a full manuscript. Carefully read instructions of the journal prior to writing!

- Describe your results and conclusion as precise as possible. Avoid duplicating statements.
- Introduction (status of research in the field with fair citing of references),
- Experimental Description,
- Results, Discussion,
- Conclusion. (Avoid „floppy“ statements).
- Do not forget acknowledgements and supporting agencies.

Scientific writing and submission of manuscripts

- PSI is the authority allowing submission of manuscripts.
  In reality this duty is delegated to the division head, who in many cases delegates to lower levels (e.g. lab head, group leader), depending on division!
- A submitted manuscript can not be used in a Ph.D. thesis as a publication. This is possible only after the manuscript has been accepted for publication.

Scientific writing and submission of manuscripts

- For a Ph.D. thesis:
  - Best case: collect published manuscripts and add introduction and conclusion.
  - Usual case: Write manuscript along the guidelines of a scientific full paper (much work).

Authorship

- *Reputation* is the most valuable asset of every researcher. The assessment of the *performance and the quality* of a researcher is primarily based on his or her *publications and their impact*. A fair publication practice is therefore of central importance for all researchers.

- A person is considered as an author of a scientific publication who fulfills *all* of the following criteria:
  a) Personally providing either a significant contribution to the planning, to the execution, to the supervision or to the interpretation of a piece of research,
  b) participating in the drafting of the manuscript, and
  c) approving the final version of the manuscript.

Authorship

- Rules for authorships should be decided as close as possible to the beginning the project and be re-evaluated during it, if needed
- Usually the person writing a manuscript is the first author.
- After first author there are several „rules“ (depending on discipline):
  - alphabetically
  - most important scientists on position two, three etc.
  - leader of the project at the end

  - Exception: Experimental particle physics which list authors alphabetically.

Authorship

- Often the corresponding author is the leader of the project (e.g. group leader).
- Ph.D. students should not act as corresponding author, because they may have left PSI while there is still ongoing correspondance with the journal.
- Some journals do not accept technicians as authors. Do not list „honoris-causa“ authors. But be aware that sometimes scientists (e.g. professors) want to be listed because they initiated the project and perhaps organized funding of the project. All authors must approve the final version.

Discussion of practical aspects

Discussion, part 1

Plagiarism and scientific misconduct

- Plagiarism: Theft of intellectual property, e.g. by copying parts of a manuscript from literature without reference.
- Self-plagiarism: copying parts of an own manuscript published previously.
- Be aware: SNF, Universities, Scientific journals have implemented commercial software to check submitted projects/manuscripts for plagiarism! PSI offers a plagiarism check tool (iThenticate) too.
- **Plagiarism is a very serious misconduct which may lead to the loss of the doctoral degree!**

Plagiarism and scientific misconduct

- Scientific misconduct means that a scientist actively modified the data or the analysis of data to reach a given goal!

  Many example from well known institutions.

- Presentation of results without written approval by all members of the collaboration, misuse of preliminary results in conferences, posters, new proposals

- Publication misconduct: Go public (e.g. Press release) prior to scientific publication. Happens unfortunately quite often!

  Example: observation that neutrino velocity is faster than velocity of light!

Plagiarism and scientific misconduct

BUT, be aware!

There is also:

- Honest error & scientific disagreement

These two cases are not subject to misconduct in sciences

Ownership of scientific results

- „Who pays owns the product“: Open Access
- The institution at which the scientific work has been conducted is the legal „owner“ of the results! (PSI Data Management Policy)
- Consequence: when you move to another institute/University you have no right to sell your PSI results as product of the new employer.
- Suggestion: when you still publish „PSI“ results, list your name under PSI but label your name with an additional sign which refers to the actual employer.

- The merits of any scientific result, however, go always to the persons involved. (Data: “public”; Ideas: “private”)

Discussion of practical aspects

Discussion, part 2

Introduction (I)

- „Main goal“ of a Research Institute is:

  Scientific Output for the Benefit of the Society.

  Publications, reviews, technical descriptions

  New technologies, instruments, patents

- A scientific project is finished only after:
  - publication or
  - transfer to another organisation or
  - a patent

Sometimes conflict with Ph.D. thesis: final goal of a thesis is to receive doctoral degree!

Introduction (II)

- Every organisation such as PSI is routinely evaluated by peers.
- The output is measured among many aspects in terms of scientific papers qualified by impact factors:

  Journal impact factor (*e.g. Chem. Rev. 47.928; NATURE: 40.137*).

  Citation index

  h-factor; among others

- Causes sometimes problems concerning acceptance of research fields in highly specialized areas

  (e.g. Instrumentation, Cultural Heritage or „niche areas“)!

Possible areas of conflict (I)

- Final authority to accept a Ph.D. thesis is the University or ETH, based upon recommendation of the responsible Professor (usually supported by external reviewers).
- Supervisor of Ph.D. student at PSI is responsible against PSI, third party organisations (e.g. SNF), Professor.
- PSI is owner of scientific results achieved from experimental / theoretical research.
- Caveat: data produced by the PhD and the results of the evaluation can only be presented or used by other members of the group with the explicitely agreement of the author.

Possible areas of conflict (II)

- Graduate programs at Universities (compulsory for all Ph.D. students independent of the financial support)
- Some examples:
  - A) Participation in research-group weekly seminars
  - B) Attendance of seminars (several seminars / semester)
  - C) Attendance of summer schools / conferences etc.
  - D) Teaching obligations at BS/MS level (BS:german/MS:english).

Duties of supervising persons (Professor, Scientific mentors@PSI)

Two situations:

- professor has initiated Ph.D. thesis (e.g. via SNF) and delegates supervision to a PSI staff scientist,
- or PSI staff scientist has initiated Ph.D. thesis and then searched for a professor willing to accept Ph.D. student.

- Be aware that at the end only the professor can write the recommendation to the University or ETH to accept the research work as been sufficient for a doctoral degree.

Duties of supervising persons (Professor, Scientific mentors@PSI)

- It is important to monitor the progress: reason for request to write *progress reports* (not requested by every professor).
- Please accept that supervising scientist at PSI has to optimize his scientific output to be supported also in future by PSI (or third party organisations like the SNF or EU Programms)!
- *This should not imply a misuse of your work and time!*

Discussion of practical aspects

Discussion, part 3

Tasks of the Ombudsperson

- Contact the ombudsperson:

  in all cases where you feel a deplorable state of behavior relevant to one of the topics discussed under „practical aspects“

- This also holds in cases you feel to be scientifically mobbed:
  - you feel to have substantially contributed to a project but your work is not accordingly acknowledged or
  - the entire group of scientists involved in the project does not follow the ethical rules of science (e.g. the group copy‘s the idea of a foreign group (scientist) without referring to it).

  - If you feel personally mobbed, please contact the responsible person in HR department or P. Smith etc. (see PSI web-page)

Tasks of the Ombudsperson

- The Ombudsperson is fully independent. He has not to report individual cases to any PSI authority. Therefore, all discussions with the Ombudsperson are strictly confidential.
- You are allowed to contact any Ombudsperson of the ETH Domain
- You can find the actual Ombudspersons on the PSI web page:

Internet: https://www.psi.ch/integrity/research-integrity

Intranet https://intranet.psi.ch/Research_Integrity/WebHome