Mastering the Publication Process
to Promote
Your Scientific Career

Advanced PhD Course notes

CUSO session, June 2015

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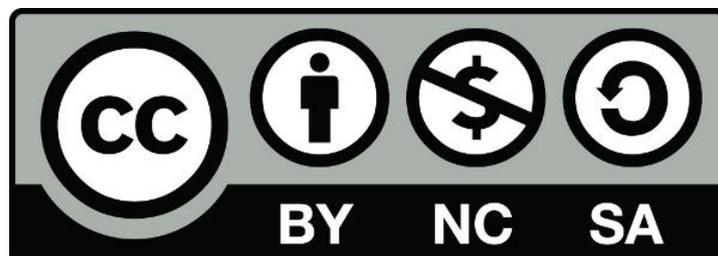
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Output for the participant

The adage "publish or perish" is no longer up to date. The explosion of the number of scientific publications leads to difficulties in finding relevant information and problems in the visibility of publications written by young researchers. New modes of publication of scientific information are on the rise.

Researchers today need to select different strategies for their professional careers, or the position of their laboratory and/or institution, or scientific ethics, elements that are sometimes contradictory.

This workshop seeks to open the question of new modes of publication on digital media, in term of writing modalities, but also in term of new scientific and business models. What is possible today? Where are the limits?

The workshop will help the doctoral candidate to ask the right questions about publications, in order to make conscious choices that correspond to his/her personal goals.

At the end of the workshop, participant:

- Can perform thoughtful choices for publication in order to enhance their scientific career
- Knows how to apply Open guidelines of the Swiss and/or European funding agencies
- Better understands issues of Open Scientific Information issues: Open Access, Open Research Data, Post-reviewing, Creative Commons.

9h00	9h10	**Welcome**	Welcome and Seminar program
9h10	9h25	**Assessment**	Expectations
9h25	9h40	**Introduction**	Impact and ethical issues of scholar publication wheel
09h40	10h40	**Part 1**	**What's up in scientific publication?** 1. The participant is aware that scientific publication is driven by **economy** 2. The participant is aware that scientific publication is more and more driven by **funding agencies** compliance 3. The participant is aware of surrounding emerging tools around scientific articles (**researcher ID**, **social media**, **open and post-reviewing**)
10h40	11h	**Break**	
11h	12h	**Part 2**	**Discerning choices for scientific publication** Group 1: **How to choose a journal?** 1. The participant takes into account **indexation** of the journal by search tools 2. The participant takes into account **publisher embargo** period 3. The participant takes into account **Impact Factor value** of a journal 4. The participant takes into account article **journal access** Group 2 **How to enhance reproducibility?** 1. The participant is aware of reporting check-lists 2. The participant is aware of Open Research Data bases Group 3 **Who should be author?** The participant makes a clear difference between **authors** who share responsibilities for any paper they co-author and **acknowledges** individuals who have partially contributed to the study. Group 4 **How to comply with SNSF OA guidelines?** 1. The participant **applies SNSF Open Access guidelines** 2. The participant uses **institutional** and/or **disciplinary Open Access repositories** for Self-Archiving besides personal website or social media
12h	12h15	**Part 2**	**Discerning choices for scientific publication** Groups 1: 5' presentation + 10'discussion per group
12h30	13h30	**Lunch**	
13h30	14h30	**Part 2**	**Discerning choices for scientific publication** Groups 2-4: 5' presentation + 10'discussion per group
14h45	15h00	**Break**	
15h	15h30	**Part 3**	**Work on your publication with the publication check-list** The participant applies the check-list to build his publication
15h30	16h30	**Part 4**	**Scientific information controversies** The participant is given some tools to develop his **own opinion** about new modes of publication
16h30	17h00	**Assessment**	Seminar evaluation, check expectations, discussion

## *Introduction: Impact and ethical issues of scholar publication*

This is a challenge to summarize 7 hours course in 3 min. But some PhD students do present their thesis in 3 minutes, with only one slide and eyes contact with public to explain a complex intellectual idea. Originally organized by the University of Queensland (UQ) in Australia in 2008, 3MT[1] contests and inspired projects are today spread all over the world.
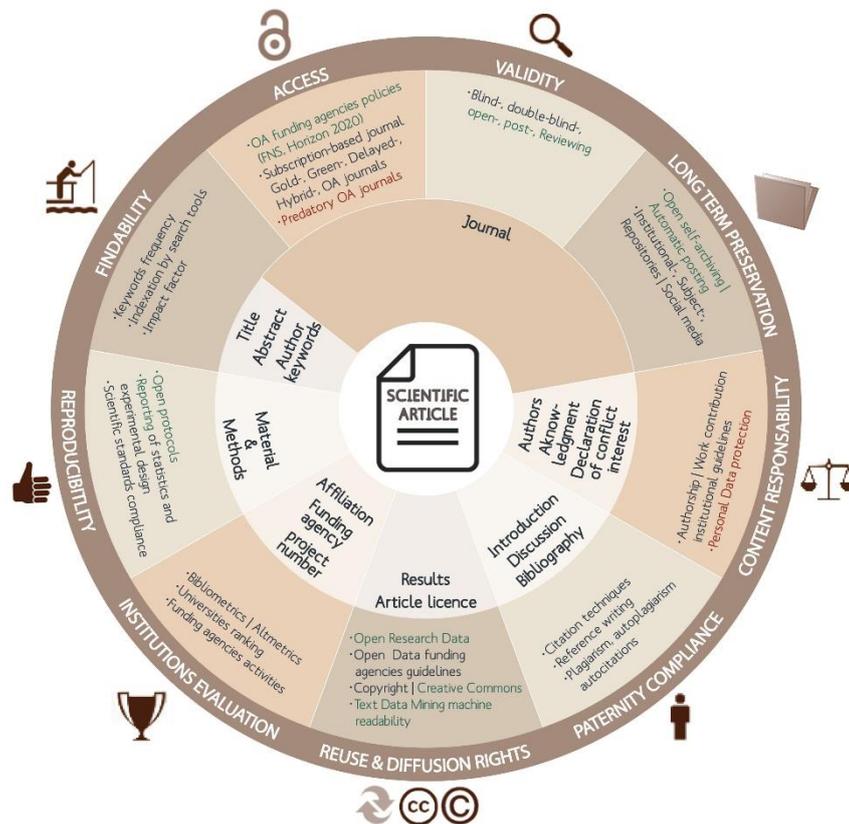
Open Science issues and pitfalls

Martin Vetterli video at Open Research Data Day @ EPFL 2014 is a good summary on Open Access, Open Research Data, Reproducibility, Reuse of Scientific Information, and Open Science issues and pitfalls. Problem of science validity: 8'50" to 12'31"Open Access and SNSF guidelines: 19'20" to 24' 29")

Prof. Martin Vetterli is president of the SFNF since 2012. Mr Vetterli and his laboratory follow the Reproducible Research philosophy for 10 years, thus all papers, books, source code and data are made publically available to anyone. Following Vetterli on Twitter may allow researchers to update on trends, issues, and pitfalls of Open Science.

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[1] http://threeminutethesis.org/

Part 1 What's up in scientific publication? 10h15-11h15

Funding agencies Open Access policies and guidelines
"He who pays the piper calls the tune" is also valuable in the research business (yes, it's a business!). Funding agencies are no exceptions. Besides their influence on research by accepting or declining projects, funding agencies have nowadays guidelines about how research results must be made accessible. Convinced that freely available publications promote the forthcoming of research, and aware of the fact that the money accorded to research projects is paid by public institutions, most funding agencies urge that results of the founded projects project are published under Open Access conditions permitting free and unlimited access for everyone. Some persons claim that free and unlimited access to research result should enhance its visibility and accelerate the dissemination of knowledge. Open Access should also improve the transparency of research and make plagiarism detectable earlier. Moreover it is regarded by fervent partisans as the right solution to resolve the problem of still increasing prizes of scholarly journals that make them unaffordable for many libraries, called "Serial Crisis".

Whether they are partisans of Open Access or not, it is important for researchers funded by public agencies to know about Open Access guidelines and policies before they decide where and how to publish their works.

Sherpa/Romeo (http://www.sherpa.ac.uk/romeo) helps authors to identify the Open Access compliance of scholarly journals and publishers if they want to follow the Green Road of Open Access (Self-Archiving the article after publication). The DOAJ (Directory of Open Access Journals, www.doaj.org) lists the Open Access Journals where the articles are freely downloadable (Gold Road). These "gold" journals ask generally an author's processing charge (APC) for the publication of accepted articles ranging from 100 to 6000 USD

So called "hybrid journals" have to be distinguished from the Open Access journals. Hybrid Journals ask supplementary charges to make an article accessible for free. This practice is called "double dipping" because the publisher receives extra money whereas the prize for the journal subscription remains the same. Free accessible articles in hybrid journals are normally not tolerated as Open Access publication.

Swiss National Science Foundation (SNSF)
See http://www.snf.ch/en/theSNSF/research-policies/open-access/Pages/default.aspx

Journal articles and books that result from funded projects must be accessible according to Green or Golden Road principles. Green Open Access can be realized by pre- and post-prints[2]. The latter must be accessible within 6 months after their publication. By 31 December 2016, the costs of publication (called author processing charges, APCs) in a Gold Open Access journal with an academically acknowledged level of quality can be claimed from the agreed project funding, up to a limit of CHF 3000 per publication. Hybrid Open Access is tolerated but not funded. Book publications resulting from funded projects must be freely available within 24 months after publication. Publication grants for books are possible, even if they are not related to a funded project.

Horizon 2020
See http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

Peer reviewed publications related to the funded projects must be published Open Access. Green Open Access must be fulfilled within 6 months for biomedical, natural and exact sciences, and 12 months in the social sciences and humanities. Gold and hybrid Open Access journals are allowed but both publication types must be deposit in an OA-repository. During the duration of the project, APCs are eligible for reimbursement. This applies also for books. The use of the Creative Common Licenses and of unique identifiers such as ORCID is recommended. If a funded project is part of the *Open Research Data Pilot,* the research data has to be deposit into a research data repository that is accessible for third parties. Information about tools and instruments for result validation should also be provided. Free access to the tools and instruments themselves is recommended.

OA and monographs
Especially in the humanities, publications in printed book form have still great value for scientific communities. In this field of knowledge, the obligation to publish Open Access books encountered and still

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2 [see PhD beginners course] Post-print = post-referee version = author manuscript after acceptance of article without publisher layout. Pre-Print= pre-referee version = author manuscript before peer-reviewing of article

encounters lot of resistance by researchers, and publishers, especially by those who limit their business to print books that are completely formatted and corrected by the authors themselves. In this later case, Open Access is clearly a threat to their business.

There are different ways to publish books book and to comply with Open Access book policy by SNSF:

- Authors can publish an online book nearly for free by formatting, correcting manuscript and checking Copyright compliance themselves, and deposit it in an institutional or subject repository, allowing immediate Open Access.

- Authors can publish an online and/or printed book on self-publishing platform to be sold to readers. But caution should be observed in this case, because the author bears all economic risk and the publisher or platform owner none. After 24 months, an Open Access version of the book should be available in an institutional or subject repository

- Authors can choose a publisher with a real formatting and correction manuscript service for the publication of online and/or printed book to be sold to readers. This is why the SNSF now offers special funding for this type of book publication. After 24 months, an Open Access version of the book should be available in an institutional or subject repository. As the publisher has economic interests in selling books, promotion of the publications and its authors is provided.

- Authors can choose a publisher with a real formatting and correction manuscript service for the publication of a free online book for reader and printed book to be sold to him (hybrid model). This is why the SNSF now offers special funding for this type of book publication. As the publisher has economic interests in selling books, promotion of the document and authors is provided.

In this latter case, this is a Gold OA business model of monograph publication. APCs have to be paid by authors, themselves relying on SNSF special funding. As a consequence, the publisher has to be chosen carefully. There are traditional or renowned publishers with Open Access series and new publishers with new offers; but Gold OA book publishers can be simply predatory, trying to make immediate money with APCs, without real formatting and correcting service, or simply trying to increase their scientific portfolio titles to increase their renown. By the way this could also be the case with a non OA book publisher.

Although the Swiss Science Foundation may fund the publication of monographic theses, authors must first comply with the guidelines of their institutions. An Open Access publication of the theses after its publication by a publisher is often not possible. On the other way, a publisher probably will decline the publication of a thesis already accessible in a repository. If a publisher contacts the author of an already accessible thesis, it is probably a predatory publisher. Thus it is important to know first the guidelines and to look then for a solution that is acceptable for the institution and for the publisher before publishing or depositing the thesis in a repository.

Predatory OA journals
There not only pitfalls in the choice of a publisher for books (Open Access or not). Similar problems exist in the choice of publishers of so called predatory Open Access journals. They accept articles without control (even nonsense articles), inform about article fees only after paper acceptance, give misleading information about editorial board and impact factor, and aggressively campaign for article submission. Therefore, besides use of Sherpa/Romeo and DOAJ tools, the use of Beall's list of Predatory Open Access journals (http://scholarlyoa.com/publishers) may be a good completion information to avoid predatory journals, together with careful use of bibliometrics information about a journal.

Mega-journals
Mega-journals[3] are issued from Open Access movement. They are changing scholarly communication which was for a long time dominated by specialization: every field of research had its own specialized journals. Mega-journals such as PLOS one (http://www.plosone.org) have a wide scope and publish a lot of articles that are not selected regarding a special research field or originality of results for putative scientific impact. Peer review examines only the technical quality of an article. The importance of these Open Access journals resides in their huge number of published articles. Their business structure is relatively simple in comparison to publishers with hundreds or thousands of journals they have to manage. As mega-journals are only interested in technical quality they encourage interdisciplinary research and allow the readers to decide on the importance of an article. Because of this interdisciplinarity and the free access to the articles, mega-journals can finally also increase the impact of scholarly publications. On the other side, mega-journals are criticized for the huge number of published articles (10 to 40'000 per year) that contributes to infobesity. Some big publishers use mega-journals to publish articles rejected by their top level subscription

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[3] See Claire Creaser: The rise of mega-journal. School of Business and Economics. Research Blog, 5.5.2014 (http://blog.lboro.ac.uk/sbe/centre-for-information-management/the-rise-of-the-mega-journal)

journals. In this case, the publisher profits from the already done peer review and the large number of APCs paid for the publication in the Mega-journal.

Open Research Data (ORD)
As stated in the Horizon 2020 Open Access policy, research data should also be made publicly available. Advantages are transparency and reproducibility of the research, visibility of the work done by researchers, and possible reuse of the data for other purposes. Researchers who want to or have to make their research data available should think about how to realize ORD at the early stage of design experiment. Data have to be intelligible for others, authors of the data records must be named, etc. For further information see http://opencontext.org/about/publishing.

Researcher ID: Thomson Reuters ResearcherID, ORCID
In the time of search engines and automatic data mining it is not only difficult to find all articles written by a certain John Smith. But machines have problems to identify persons with common names. Different bibliographic styles use different name formats, so it is difficult to identify the author even by humans. "J. Smith" is just too ambiguous! To solve this problem, Thomson Reuters proposed in 2008 the unique ResearcherID (www.researcherid.com). ResearcherID is a free unique Identifier for researchers that resolves the ambiguity problems and is readable by machines. ResearcherID facilitates the automatic look up for publication written by the same person and is directly linked to Thomson Reuters Products such as Web of Science. As the Researcher ID is a proprietary product its success was not tremendous, event it was a good idea.

This is why in 2012 ORCID (Open Researcher and Contributor ID, www.orcid.org) was launched. ORCID is a nonproprietary unique identifier for researchers. Many institutions are member of ORCID and the Swiss universities will follow soon. ORCID is just at the beginning of its success and the number of European researchers with ORCID will overwhelm the Americans in the next months.

- ORCID has the form of an URI (e.g. http://orcid.org/0000-0001-5882-6823) that makes it very easy to use.

- ORCID is designed as an interface to link researchers, publishers, search tools, and ORD repositories.

- The researcher decides on the publicly accessible information about him on www.orcid.org profile.

- It is possible to import automatically bibliography citations from other databases (e.g. Web of Science, Scopus), and to link ORCID to an existing other ResearcherID (Thomson and/or Scopus)

- Researchers can also link ORCID to institutions, facilitating bibliometrics and/or altmetrics for universities ranking.

- When a researcher changes institution, no need to change the ORCID. Researcher just updates his ORCID profile.

- According to an Editorial in Nature (Credit where credit is due, Nature 464, p. 825, 17 December 2009, doi:10.1038/462825a), unique identifiers for researchers will make it easy to identify also « minor » research contributions (e.g. drafts, blog posts, wikipedia entries).

Bibliometrics and Altmetrics
Bibliometrics is not only a highly controversial tool to evaluate researchers and universities. Used with skill and caution, bibliometrics is very useful to identify hot topics, so important for researchers and journals. Researchers should not only observe the development of their own bibliographic indicators, but they can use bibliometric information to develop their publication strategy. For example, Impact Factor (IF) of journal mentioned in the JCR (Journal Citation Report, part of Web of Science) helps to identify important journals in a certain field of knowledge.

Classic bibliometrics normally analyzes only traditional scientific publications, especially (peer reviewed) journal articles. New communication channels like blogs, social media platforms, etc. are not taken into account. Altmetrics tries to fill this gap by analyzing citations of scientific publications on the Internet, but also views and downloads. Altmetrics is interesting for observing reactions produced by publications (usage, discussion, controversies, highlights). It also permits to have a look beyond the borders of the academic world to identify what research is discussed and where in press media, political and citizen groups. Less intended as a tool for quality measurement Altmetrics helps also to identify persons who post-review publications.

Different projects and companies are computing altmetrics: Altmetric (http://www.altmetric.com), ImpactStory (https://impactstory.org), Plum Analytics (http://www.plumanalytics.com). There are also publishers who are adding altmetrics to their published articles (e.g. PLOS one: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0119470). Altmetric proposes an interesting

bookmarklet (http://www.altmetric.com/bookmarklet.php) that is able to indicate altmetrics for the currently viewed article.

New tendencies in peer review

Whereas biblio- and altmetrics are quantitative approaches to scientific publication evaluation that are mostly reliable on a macro level, peer review is the qualitative approach that is more meaningful in single cases. Unfortunately classic peer review has also its deficits: It is expensive in money (at least for the publisher) and time, less and less people like to do review work because it is not rewarded by the scientific community, and it can be very subjective (if done by the "old boys"). These are maybe some of the reasons why computed bibliometrics and altmetrics gains nowadays importance over careful review quality of publications for scientific impact of a researcher or institution.

Today, different form of peer-review co-exists as attempts to improve peer-review system:

- In the double-blind review the identity of the author(s) is unknown to the reviewer and vice versa. But in small research areas, the reviewer can identify the author by his approach, methods and style even if his name is not known.

- Post publication peer review is a practiced in the social sciences and the humanities at least as of the 18th century for books (e.g. *Göttingische gelehrte Anzeigen* first published in 1739). In this case, reviews written by different peers are published in different journals after the publication of the book.

- Since the beginning of the 21st century, post publication reviews are used by some scientific journals that should be in fact called comments. There are online platforms for reviewing and discussing academic publications like Publons (https://publons.com), PubPeer (https://pubpeer.com), Journal review (https://www.journalreview.org), or PubmedCommons (http://www.ncbi.nlm.nih.gov/pubmedcommons). Different models of post-review platforms exist: everybody can leave a comment or only peers (e.g. only researchers with indexed articles in Pubmed can leave comments on PubmedCommons); comments are signed or anonymized (PubPeers). PubPeers anonymized comments are under controversy: a reputation can be heavily damaged if allegations are not true, because of rapid spreading on the Internet. On the other hand, PubPeers allows simple students to address validity concerns about a publication of a famous professor.

- Some of Journal websites offer comments options

- An alternative to traditional peer review is the open peer review.[4] The referee reports are normally only visible to the editor and the author. In the open peer review, the report and the author's answers are published with the article. This makes the review process more transparent and the scientific community can take advantages from published comments. Furthermore, review work is credited as it is the case in the humanities and social sciences where reviews are considered as publication types.

- Some publishers use even multiple peer review types. E. g. F1000 (Faculty of 1000: www.f1000.com) has several services: In F1000Prime, about 1000 acknowledged researchers rate the articles which results in a mixture of peer review (only peers are rating) and bibliometrics (the number of positive ratings). F1000Research is an Open Access Journal with post publication peer review.

Social Media

Review platforms offer chance to discuss research by Internet. Discussions also take place in social networks, where it is possible to exchange full text of publication also. Beside LinkedIn (www.linkedin.com), which is a social network for professionals, there are also platforms dedicated for researchers like ResearchGate (www.researchgate.net) where researchers can maintain their profile page and contact colleagues (like Facebook friends) and exchange papers. Academia.edu (www.academia.edu) is ReserchGate competitor that emphasizes more repository aspect, whereas Mendeley (www.mendeley.com) belonging to Elsevier, is a reference management system that integrated social network. Presence on these platforms may boost the notoriety of researchers in certain circles.

But one must be aware that although being Open Access for researchers, these platforms are not Open Access for the public without any account, .as it is the case for Academia.edu. As a consequence, altmetrics cannot take into account information on these platforms for its calculations, since it is not publicly accessible. In consequence, researchers have to carefully choose where they want to be active. They should not only publish on social platforms own by profit companies, but also on personal websites, subject and institutional repositories that can be crawled by altmetrics computers.

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[4] See Eva Amsen: What is open peer review, 21.5.2014 (http://blog.f1000research.com/2014/05/21/what-is-open-peer-review).

Part 2 Discerning choices for scientific publication *11h30-12h30*

Study Case

Professor David Horisbergers advised his PhD Colin to publish in **Alzheimer's & Dementia (Elsevier)** his new method for Alzheimer disease study in rats, originally developed for Huntington disease study. Before answering him, the student considered other publication possibilities. He decided to reject his professor recommendation. He selected 3 other journal candidates.

Some key questions

- Is it better to choose multidisciplinary or specialized journals?
- Is it better to choose a subscription based-journals versus a Gold-OA journal?
- Is it better to choose a subscription based journal with high IF or Gold-OA journal with lower IF to get more cited?

Task

Prepare a 5 min presentation

Demo 1
Show participant how you completed the yellow points of Alzheimer's and Dementia journal (website journal, SherpaRomeo, and JCR)

Slide 1
Show and comment the completed table (yellow underlined objects) to make participants understand Colin rejection reasons or what could be selection or balance criteria that he used for 3 journals?

Material to use

- Journal websites
- Romeo/Sherpa Publisher Copyright policies & Self-Archiving
- Thomson Journal Citation Report (JCR) on WOS
- Scopus and specialized list of indexed journal

	Subject	Publication model	Manuscript Embargo period	Probable acceptance	Search tool indexation
Nature	Multidisciplinary	Subscription based	Post referee /6 months		Pubmed: yes WoS: 42.5 (IF) Scopus: yes Google scholar : yes
Nature communications	Multidisciplinary	Gold OA	Publisher pdf /none	Possible	Pubmed: yes WoS: 10.7 (IF) Scopus: yes Google Scholar: yes
Nature Methods	Multidisciplinary	Subscription based journal	Post referee / 6 months	Less possible	Pubmed: yes WoS: 25 (IF) Scopus: yes Google Scholar: yes
Methods (Elsevier)	Multidisciplinary			Possible	Pubmed: WoS: (IF) Scopus: yes Google Scholar: yes
Alzheimer's & Dementia (Elsevier)	Specialized			Possible	Pubmed: yes WoS: (IF) Scopus: yes Google Scholar: yes
Plos One	Multidisciplinary	Gold OA	Publisher pdf /none	Possible	Pubmed: yes WoS: 3.5 (IF) Scopus: yes Google Scholar: yes
Alzheimer's disease research journal (Nova)	Specialized		Post-referee / none	Possible	Pubmed: WoS: Scopus: yes Google Scholar: yes

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	Subject	Publication model	Manuscript Embargo period	Probable acceptance	Search tool indexation
Nature	Multidisciplinary	Subscription based	Post referee /6 months	Low	Pubmed: yes WoS: 42.5 (IF) Scopus: yes Google scholar : yes
Nature communications	Multidisciplinary	Gold OA	Publisher pdf /none	Possible	Pubmed: yes WoS: 10.7 (IF) Scopus: yes Google Scholar: yes
Nature Methods	Multidisciplinary	Subscription based journal	Post referee / 6 months	Less possible	Pubmed: yes WoS: 25 (IF) Scopus: yes Google Scholar: yes
Methods (Elsevier)	Multidisciplinary	Subscription based	Post-referee 12 months to 48 months	Possible	Pubmed: no WoS: 3.2 (IF) Scopus: yes Google Scholar: yes
Alzheimer's & Dementia (Elsevier)	Specialized	Hybrid	Post-referee 12 months to 48 months	Possible	Pubmed: yes WoS: no Scopus: yes Google Scholar: yes
Plos One	Multidisciplinary	Gold OA	Publisher pdf /none	Possible	Pubmed: yes WoS: 3.5 (IF) Scopus: yes Google Scholar: yes
Alzheimer's disease research journal (Nova)	Specialized	Subscription based	Post-referee / none	Possible	Pubmed: no WoS: no Scopus: yes Google Scholar: yes

If Open Science is important for you

- Choose "Open Science Journals" to favor and experience new ways of publishing, but avoid predatory journals
- Avoid journals not complying with SNSF Green-OA guidelines (6 months), even if journal embargo period negotiation is possible with the publisher before the contract

If career and prestige are important for you

- Select a journal that is indexed by WOS to improve your Thomson h-index
- Select a journal with the highest IF allowing probable acceptance within a specific domain (use JCR for having idea of domain IF ranking of journals)

… but be careful with IF interpretation [in PhD beginners course]

- IF is changing every two years
- IF value can be an anomaly because of: only one annual published reference statistics article, - new method article, - retracted article, - controversy article, - that can suddenly increase IF of a journal
- IF can be interpreted as the probable citations that will get an article in a journal. But IF is using average for the calculation. In real statistics rules, average should only be used when values are around a target. Which is not the case of article citations in a journal, with a very long tail distribution. Most articles in Nature journal are never cited
- IF is not necessarily reflecting the real value of a scientific journal, since Thomson journal selection real criteria are unknown
- IF has always to be compared with highest IF in a field. IF comparison between disciplines should never be performed

If visibility is important for you

- Avoid journals that are not indexed at minimum by citing BDB WOS or Scopus, and a subject specific BDB [examples from PhD beginners course]: Avery index, Iconda, International Bibliography of Arts (Architecture, Arts); Medline, Pubmed, Embase (biomedical); Scifinder (Chemistry); Transport (Civil Engineering); Geobase, Georef (Environment); Business Source Premier, EconLit, WRDS (Econonimcs & Management); ERIC, FIS Bildung

(Education), Historical Abstracts, Brepolis Mediaval Bibliographies (History), MLA International Bibliography ((Modern) Languages and Literatures); MathsciNet, ZentralBlatt (Maths), Proquest Material Database (Materials); Philosopher's Index (Philosophy); Worlwide Political Sciences Abstracts (Political Sciences); PsychINFO, PSYINDES (Psychology); Sociological Abstracts, International Bibliography of the Social Sciences (Social Sciences); Urbadoc (Urbanism) etc.

- Do not forget that most of BDB are citation Data bases, namely indexing title abstract and author keywords of publication (like WOS and Scopus). Findability or visibility not only rely on selected journal, but also rely on the chosen keywords for information retrieval

If citizen access and reuse of scientific results is important for you

- Adopt SNSF policy concerning avoidance of hybrid journal publication to avoid double dipping
- Avoid very closed journals: subscription journals with long embargo period on pre or post prints self-archiving, and full Copyright transfer
- Avoid Gold-OA journals charging more than 3000 frs/publication APCs, as fixed by SNSF.

Final advice

A journal choice is personal. Avoid to publish *only* in experimental Open Access journals as a young researcher. Avoid to rely *only* IF journals, providing that Open Access could insure you also an interesting visibility, therefore citations and altmetrics. Once your scientific carrier is well established, try to find new way of publishing allowing the development of sustainable Open Science.

Study Case

You finished the writing of an article. According to the selected journal, it is required that authors make all data underlying the findings described in their manuscript fully available without restriction (with rare exception, for privacy protection or sensitive data). "The Data Policy states also that the minimal dataset consists "of the dataset used to reach the conclusions drawn in the manuscript with related metadata and methods, and any additional data required to replicate the reported study findings in their entirety".

Which Open Research Data repository do you choose to link to your Research paper?

Some key questions

- What kind of ORD repositories to select: multidisciplinary or subject?
- Who is funding the Open Data repository?
- Where to report how raw and calculated data were obtained?

Task

Prepare a 5 min presentation

Slide 1
Present to the participants some differences and similarities between Dryad, Zenodo, Figshare, Open Data Pilot Elsevier and Qualitative data Repository

Slide 2
Present to participants what are possibilities to report how raw and calculated data were obtained?

Material to use

DataCite
Re3data.org
Open Data Pilot Elsevier
Reuse qualitative data

Research data available: wifi traces on EPFL Campus (post-referee with zipped data)
Long-term observation of amphibian populations inhabiting urban and forested areas in Yekaterinburg, Russia (Dryad data set)
Long-term observation of amphibian populations inhabiting urban and forested areas in Yekaterinburg, Russia (Data Paper in Scientific Data journal)

Scientific Data now indexed by PubMed
A database for the monitoring of thermal anomalies over the Amazon forest and adjacent intertropical oceans

- Open Research Data (ORD) can be:

    - Quantitative or qualitative (such as transcripts of interviews and surveys for social sciences)
    - Totally Open Access (or partially confidential)
    - Reusable (or only visible in Open Access)
    - Published in public Data funded or publisher repositories or in Data journals
    - Subject (Environment: ex NERC data Centers) or multidisciplinary (Dryad, Zenodo, Figshare) or qualitative oriented Qualitative data Repository. DataCite and Re3data.org can help to find a repository.
    - With DOI (or without DOI)
    - Peer-reviewed by journal research paper reviewers or by Datacenter reviewers or by Data journal reviewers or not reviewed

- ORD citation

ORD is a new way to publish. Scientific integrity demands that the author of a scientific dataset is cited. As a result, ORD publication can increase visibility of authors. Some persons estimate that well-structured and presented data increase article citation also.

Author(s) | Title of the dataset | Datacenter name | year of upload | direct link to dataset

Example: Barnett, N.A. Beresford, L.A. Walker, M. Baxter, C. Wells D. Copplestone, Datareference Element and radionuclide concentrations in representative spieces of the ICRP's reference animals and plants and associated soils from a forest in North-west England. NERC- Environmental Data Center (2013) http://sx.doi.rog/10.5285/e40b53d4-6699 4557-bd55-10d196ece9ea

- ORD publication

ORD preparation behind a publication is not an easy task: data must be clean, column labelled correctly, and metadata carefully chosen to allow easy retrieval and reuse by reader. But moreover, the exact reporting on how raw data were obtained is essential. This very careful and precise reporting can take place in

    - Extended Material and Methods section of digital journal article
    - Supplementary material of digital journal article
    - Complete description file to go with raw and/or calculated data in a file in ORD repository
    - Published in Data Papers, dedicated to describe datasets or published as supplementary material to come with journal article or as a file description in ORD repository
    - Data Paper can be indexed by bibliographic databases, such as Pubmed for *Scientific Data* journal

An ideal example: a Research article interprets a subset of data or totality of raw data, linked to an ORD repository. The Research article can be linked to the DOI of Dataset in repository and to the DOI of the Datapaper in a Data journal.

- ORD reporting guidelines

In any case, in order to achieve good quality of reporting for reproducibility and reuse, reporting guidelines have been adopted by numerous journals, data journals, or as recommendations by domain.

Example in biomedicine: animal experimentation reporting guidelines GSPC and ARRIVES (Animal Research: Reporting of *In Vivo* Experiments), EQUATOR (Enhancing the QUAlity and Transparency Of health Research), CONSORT

(Consolidated Standards of Reporting Trials).

- ORD set and reproducibility

Reproducibility initiatives, training and research grow fast. Here are some examples:

Workshop: Transparency and Reproducibility Methods for Social Science Research Workshop (8-10.07.2015 Berkeley)
Service: Reproducibility initiative
MOOC: Reproducible research Coursera course by Johns Hopkins Data Science Specialization.
Research: Errington et al. An open investigation of the reproducibility of cancer biology research eLife 2014;3:e04333.
DOI: 10.7554/eLife.04333

Final advice

A PhD student finishing today his thesis with "only" high quality negative results should be able to publish a Data paper with the help of reporting guidelines, a Dataset, and a Research Paper in a Gold-OA multidisciplinary journal. All could get high citations (if very high quality standards of research are fulfilled), because reproducible science is lacking this type of information. It is better for career than the publication of non-reproduced and reproducible results.

Study Case

PhD **Marie Schuller** from EPFL is writing an article on pro-biotics supplementation together with **John Imrak** a post-doc student located abroad. She generated her own data, but combined them with previous non-published older data of a former lab PhD, **Stefan Aragno**. **Paul Vinze** is Marie Schuller's Professor (h-index of 32) that raised the project funding money. He read the article when the writing of Marie and John was finished, and was very happy of the work and conclusions, allowing Marie to submit the article to a journal. John and Marie processed the data. Marie designed the experiment, together with **Marc Hindermülle**, statistician.

Marie Schuller was a part of a SNSF (n°17422). Prof. Vinze has 2 other SNSF projects, and his chair is funded by Nestlé and Roche.

Some key questions

- Who can be author? Bachelor, Master, or PhD student, professor, post-doc, lab technician, statistician, data handling person, responsible person of the funded project?
- Has the author's place a meaning?
- In case of non-authentic results, fraud, plagiarism or misconduct: are all authors responsible of the content, or only last the author, and/or laboratories and institutions?

Task

Prepare a 5 min presentation

Slide 1
Explain to the participants who should be 1st, 2nd, 3rd, 4th, 5th author? Explain your choice
Write Marie Schuller's author affiliation

Slide 2
Show participants how to write the Acknowledgment section including project funding name institution's name number and/or sponsor
Write a possible declaration of conflict of interest or competing interests

Material to use

Fruit-fly paper has 1,000 authors
It is time for full disclosure of author contributions
cAMP-Signalling Regulates Gametocyte-Infected Erythrocyte Deformability Required for Malaria Parasite Transmission (see Aknowledgments and Contributions work sections)
Human vascular model with defined stimulation medium – a characterization study (see author notes)
Prof Margaritondo 722 peer-reviewed publications
The White Bull effect: abusive coauthorship and publication parasitism

EPFL Directive concerning research integrity LEX 3.3.2 and good scientific practice at EPFL
Unil Plagiat et respect de l'intégrité
UniGe Intégrité dans la recherche scientifique
Uni Fri Directives concernant la procédure en cas de soupçon de comportement scientifique incorrect
UniNe: uses the Qualité d'auteur des publications scientifiques 2013-2014 from Swiss Academy of Arts and Sciences

- Authorship is when

    - Someone contributed in an intellectually significant way to the work, and is able to take public responsibility for that contribution, and has participated in the writing and/or reading of the final manuscript. Nowadays, because science is less and less the fruit of one person, equal contribution to the experimental design, production of data, data interpretation and analysis, and writing is not true anymore. It is common that scientific persons participated more or less a specific aspect of a research study. In this case, a detailed work contribution legend helps the reader to understand each contribution. A "senior" author is a person that took actively part in following, checking and analyzing the data, and writing the manuscript, besides responsibility of the work's scientific accuracy, validation of selected methodologies, check analysis and conclusion.

- Authorship abuse is when

    - Someone has not contributed in an intellectually significant way to the paper. A technician assuming daily lab routine cannot be author. But a technician involved in results interpretation, and who participated to the writing or deep reading of the article before submission can be author.

    - There is awarding of authorship out of respect or friendship, in an attempt to curry favor, and/or to give the paper a greater sense of legitimacy

    - There is denial of authorship. The most typical example of this involves individuals who participate in generating data for what they presume is a legitimate scientific collaboration. However, the other so-called "collaborators" publish a paper using these data without giving the investigators co-authorship or accurately acknowledging their contribution

    - "Senior" author is awarded simply because of his/her seniority, rank, standing in the field, or writer of the original project to the funding agency and/or sponsor.

- Authorship abuse and h-index

Authorship abuse is the most prevalent and most tolerated scientific fraud. A PhD student can be tempted to legitimate his work and to enhance his article findability and citation number by allowing a "senior" authorship.

Computed h-index, citations number for bibliometrics, downloads and views for altmetrics rely on the hypothesis that authors contributed equally to the work. For the moment, computer machine citation counting is not capable to take into account embedded work contribution details in the publication full text.

Remember that there is no direct correlation between Nobel laureates and the top of the list of h-index (or number of publications and number of citations). The only virtue of h-index is the fact that it is easy calculated. Some high h-index can be partially the result of authorship abuse, and/or researcher community size effect and and/or age effect, and/or coverage year of machine citation counting [PhD beginner course].

<u>Final advice</u>

Many times, co-author content responsibility is engaged. You may not know that a co-author commits plagiarism, misconduct or scientific results fraud, if you are not actively involved in the publication. Due to development of post-review tools and fast relay of information on Internet, your scientific and e-reputation can be very quickly attacked.

Study Case

What do you think about this statement?
The authors of article Methods to study Drosophila immunity comply with SNFS Open Access guidelines, because the article was Open Access within 6 months (article published in March 2014, record and full text online in August 2014 on Infoscience).

Some key questions

- What is funding agency Open Access policy?
- What is journal publisher Copyright policy?
- Are funding agency Open Access policy and publisher Copyright compatible? How to comply with both?
- Is there any automatic posting of publisher version after embargo period in a Subject Open Repository (this is biomedical article that could be deposit in Europe PubmedCentral) allowing to comply automatically with SNSF Open Access guidelines?

Task

Prepare a 5 min presentation

Demo 1
Show the participants how to find comply with Copyright publisher guidelines and SNSF Open Access?

Slide 2
Show the participants how to prepare the post-referee manuscript version before online upload. Explain participants what are consequences of no compliance with Copyright and funding agency Open Access policy?

Material to use

Postprint on Infoscience (Antonin Danalet Blog, former EPFL PhD)
A Bayesian Approach to Detect Pedestrian Destination-Sequences from WiFi Signatures post-referee article
A Bayesian Approach to Detect Pedestrian Destination-Sequences from WiFi Signatures Infoscience record

Elsevier Sharing policy (Issued May 2015)
Open Access (OA) rules of the SNSF – guidelines for researchers
SHERPA & RoMEO Publisher Copyright policies & self-archiving

NIH Public access policy
Funders punish Open Access dodgers
Elsevier Takedown Notices for Faculty Articles on UC Sites

- Copyright, Open Access, and Self-Archiving

Researcher has to find a way to comply with Open access guidelines of his funding agency *and* Copyright policy of a publisher. It is not rare neither that funding agencies also ask for Self-Archiving of the research paper even it is in Gold-OA journal.

- Self-archiving of Gold-OA papers

If Gold-OA journal uses CC-BY license, direct upload of publisher's article version on personal websites or blogs, open institutional or subject archives is possible. Some journals or publishers are even performing automatic posting in subject open repositories such as PubmedCentral and Europe PubmedCentral for the biomedical domain.

- Self-archiving of subscription (and Hybrid) journals

Green Road is complex to realize. An author shall read carefully publisher Copyright policies and funding agencies guidelines or policies. A help can be also find with SHERPA & RoMEO Publisher Copyright policies & self-archiving For a subscription-based journal, Self-Archiving of post-referee manuscript is generally allowed, but not the final publisher article version. Self-Archiving of final publisher article version can be targeted by Takedown Notices on personal websites, scientific social media Academia.edu and ResearchGate, institutional or subject repositories. If the take down of notice is issued many years after upload, it is highly improbable that the author(s) find the "author's final version" to upload, preventing long term Open Access to public who funded the project, and violating Open access guidelines of the funding agency.

NIH obliges researchers to upload "author's final version" on PubmedCentral just after acceptance of publication, which is now not compatible with Elsevier's recent policy allowing posting of the "author's final version" only on personal websites or blogs and not in open institutional or subject archives anymore. Moreover, researchers position is not easy is this case, because they may face a cutting of budget if Open Access is not realized.

Researcher position is easier when funded by SNSF: it obliges researchers to upload "author final version" on personal websites or subject or institutional open archives 6 months after publication to realize Green Road. Moreover, no threat for cutting budget for researchers: "If the choice of journal creates legal obstacles with regard to an OA publication, the SNSF must be informed of the fact that the OA commitment will only be fulfilled at a later stage or not at all".

But this more comfortable position for the researcher is problematic for long term archiving and Open Access: considering Elsevier new sharing policy, one of biggest STM publisher in the world, it may happen that long term archiving or long term access to article may be threatened; indeed, long life of personal websites, blogs, and social media profiles is rare.

- Self-Archiving manuscript preparation

In any case of self-archiving on personal websites, blogs, open institutional or subject archives, article record and pdf version should contain a direct link via its DOI. In case of self-archiving of pre-print or "author's final manuscript", it is advised to add an embedded mark clearly identifying the type of manuscript for the reader.

Example: Self-Archiving notice of subscription journal article (to be add to pdf)

NOTICE: this is the author's version of a work that was accepted for publication in Transportation Research Part C. Changes resulting from the publishing process, such as peer review, editing, corrections, structural formatting, and other quality control mechanisms may not be reflected in this document. Changes may have been made to this work since it was submitted for publication. A definitive version was subsequently published in Transportation Research Part C: Emerging Technologies, Volume 44, July 2014, Pages 146-170, ISSN 0968-090X
doi:10.1016/j.trc.2014.03.015
This document has been generated on September 29, 2014

Example: Self-Archiving notice of a Gold OA journal article (to be add to pdf)

NOTICE: Original version of Research paper: Outi Huttala et al (2015) Human Vascular Model with Defined Stimulation Medium – A Characterization Study. Altex 32(2). http://dx.doi.org/10.14573/altex.1411271 published the 02.03.2015

Final advice

Avoid to rely *only* on social and/or scientific social media Linked-in, Academia, or ResearchGate to allow access to full text of your publication list. Use also institutional and/or subject repositories to allow long-term archiving, long term Open Access, and Open Access to all kind of citizen to your Research papers.

Presentations
4 groups: 5' presentation + discussion 10'

Your Notes

Part 3: Work on <u>your</u> publication with this PhD publication check-list

15h- 15h30

Before project	The project leader includes Gold-OA funding's to SNSF [not done by PhD]	
Journal selection before writing	The researcher avoids **hybrid journals**, as recommended by SNSF	
	The researcher favors subscription based journals allowing **Green-OA within 6 months** to comply with SNSF OA policy.	
	The researchers take into account IF value, indexation of journal by search tool, OA-conditions, CC license, ORD compatibility and avoids **predatory journals**	
Before publisher signature	The researcher signs agreement with the publisher for the re-use of the article in his PhD if necessary [PhD beginners course]	
	The researcher select a publisher compatible with his OA-thesis	
After signature and during writings	The researcher avoids **auto-plagiarism, too many auto-citations** and citations to please supervisor and/or, editor and/or publisher**,** and avoids **secondary citations** if not necessary [PhD beginners course]	
	The researcher complies with **Copyright** and **Creative Common licenses** [PhD beginners course]	
	The researcher makes difference between **authors** who share responsibilities of the paper and **acknowledges** individuals who contributed partially to the study	
	The researcher chooses carefully **keywords** in title, abstract, and author keywords to enhance findability by search tools	
	The researcher complies with check-lists for best **reporting** of experimental design, protocols, and statistics allowing reader to rapidly detect putative bias, and to easily reproduce results	
	The researcher writes **affiliation** according to institutional guidelines for easy University bibliometrics	
	The researcher writes **agency funding name** and project number, **sponsor,** and make a clear **declaration of conflict** interest to allow reader to evaluate putative bias	
	The researcher prepares **research data** : anonymization, metadata, compatibility format, and selection of ORD repository	
During evaluation process	The researcher stays up-to-date on a specific question effortlessly thanks to **emails, RSS alerts** [PhD beginners course], and group bibliographies alerts [not treated]	
	The researcher keeps carefully the last **post-referee version** for further Green-OA compliance	
After publication	The researcher archives the post-referee article on **institutional** and/or **disciplinary Open Access repositories** (+ embedded mark for article type of manuscript +DOI to original publication)	
	The researcher updates his personal reference list on **ORCID,** Thomson **Researcher ID**, Scopus and Researcher ID	
	The participant follows publication comments from **post-reviewing** sources (journal, search tool, dedicated websites)	
	The participant uses **social media** to promote his article (Academia, Research Gate, Linked-in)	

Part 4 Scientific information controversies *15h30-16h30*

Open Science dreams are to increase science access for citizen, authorities and developing countries (Open Access), to increase validity of results (complete reporting, post-reviewing), and to speed new science results thanks to easy re-use (Open Research Data and Creative Commons licenses).

But it seems that Open Access publication is raising many practical problems. Some people feel that OA-journals are not really comparable to Open Research Data and Creative Commons licenses independent movements, unlike Gold-OA journals mostly linked to historical publishers. Therefore, controversies are alive in librarians, researchers, publishers and funding's agencies.

20' preparation + 4 groups: 5' presentation to agree, disagree, or find solution, 5' debate

Group 1 **Open Access journals: open for rich, closed for poors!**
> Open Access journals: open for rich, closed for poors (Ayoub Meo, Journal of the College of Physicians and Surgeons Pakistan letter to editor)
> The cost of academic publishing (Open Access Working Group)
> Academic publishers make Murdoch look like a socialist (The Guardian)

Group 2 **Open Access journals will generate profits as much as subscription-based journals (about 30%) for publishers and will not change serial crisis**
> Open Access research 'catastrophic' for Reed Elsevier (Giaom Research)
> Goodbye to Berlin - The Fading Threat of Open Access (Upgrade to Market-Perform) (Claudio Alesi, analyst)
> Open access: The true cost of science publishing (Nature News Feature)

Group 3 **Open Access is a dogmatic anticapitalistic movement, contribute to information overload, and decreases peer-review quality**
> The Open Access Movement is Not Really about Open Access (Beall Jeffrey, in a OA- journal!)
> Beyond Open Access: understanding science's closures (Guardian Science Blog)
> Open access is tiring out peer reviewers (Martijn Arns, Nature Column)
> Contrary to what you read in Nature, Open Access has not caused the growth in science publishing (Michael Eisen Blog)

Group 4 **The obligation to publish Open Access hinders scientific career in disciplines where theses published by renowned publishers are important. Furthermore, this policy undermines the valuable work of these publishers**
> Fonds national suisse de la recherche scientifique FNS-SNF: L'édition académique en danger! Die akademischen Verlage sind in Gefahr! (Petition)
> Le Fonds national accusé d'affaiblir les éditions de sciences humaines (le Temps)
> Petition "Swiss academic publishing in danger!": the SNSF clarifies (SNSF)

Selected sources to follow controversies about Open Access

> Scholarly Open Access: a critical analysis of scholarly publishing (Jeffrey Beall, librarian)
> It is not a junk (Michael Eisen, co-founder of Plos One, biologist)
> Scholarly kitchen: what's hot and cooking in scholarly publication (Society for Scholarly Publishing)
> Open and Shut (Richard Poydner journalist)
> Retraction Watch (Adam Marcus and Yvan Oransky, scientific editors)

Other controversies

- CC license doesn't allow to retract a paper anymore!
- Like citations gave birth to bibliometrics, post-reviewing and Open Access journals gave birth to altmetrics which are anyway very bad statistics to measure science productivity!
- Text and data mining are crap science!

Your Notes