

Evaluation results: Rules of good scientific practice (March 6, 2015)

Course details

During the course, Henrik Hartmann provided background knowledge on good and bad scientific practice – and the grey area in between. Since good scientific conduct is crucial for your own research activities and interactions between the scientific community and society at large all IMPRS members should deal with these issues and participate in one workshop like this. Detailed information is provided on the following webpage: <http://www.imprs-gbgc.de/index.php/Courses/GoodScientificPractice2015>

19 out of 26 participants filled in the survey by March 16, 2015.

Survey results

To which extend has the course improved/clarified your general notion of good scientific conduct?

- partly
- I found it very useful, especially when it is the first course I have after few weeks of arriving to the institute. It gives a broad perspective of the role of Science in Ethics, which I consider a main issue, not only because cases of plagiarism but also considering the responsibility of scientists towards society.
- general knowledge about good scientific practise
- To a good extent
- It was a nice overview of the GSP for the researchers especially the early researchers like PhD students.
- Since my past course of studies already covered some aspect of good scientific conduct, the main advantage is a rise in awerness for good scientific conduct.
- I know now, where to find the specific rule set of MPG. Previous knowledge was refreshed.
- Pretty much well.
- very little
- It reminded me more pronounced to the consequence of not conducting scientifically good with th examples we learned. Or examples of some details that people might do to improve results but are not honest (e.g. removing outliers). Or the I learned that my data should be available for 10 years after publition or that the our work in a manuscript should be explained well enough so that it could be reproducable.

- The course rather I should say a discussion was really informative and clarified a lots of questions of GSC.
- more aware of misconduct in science
- It enhanced by technical-know on best practices in sciences (e.g. data management,good scientific conduct and practices,cases studies on scientific misconduct and consequences, scientific writing, authorship, review and publication, scientific outreach -schools and general public etc). We cannot take the privilege as a scientist for granted.
- Not very much. Was not really new, have heard much of it at university already, but course was mandatory.
- To an extent. But I didn't think it introduced me to any new ideas.
- Especially for publishing data, but also in general concerning all the rules
- The process of reflection towards ethical implications of scientific endeavours in my opinion very important and this course to the full extent possible served this goal. Getting insights from experienced scientists who have successfully survived the burnt of review processes are pearls of wisdom any early career scientist would cherish and hold precious.
- It has definately improved my knoeledge and ethics to do good science. I would rate this course 8 out of 10.
- Generally I am aware of this issue, but was not exactly able to give a good statement or examples on scientific misconduct. After attending the course, I am more certain and am able to define what are good and bad scientific conducts as well as the grey area in between.

Are you aware how the concept of good scientific practice applies to your particular situation (e.g. with respect to your field of studies and your career stage)? How has the seminar contributed to this understanding? Do you have any ideas for further improvement in this respect?

- yes
- Yes, this has contributed to have a wide perspective of good scientific practice and consider the most important aspects of ethics in this matter.
- 2a) I think so 2b) less 2c) e.g., tell more about experiences older scientists made (important things you should be aware of and you do not necessarily have in mind)
- It was general enough to capture everyone's interest, but we also discussed some particular aspects in detail and this was also usefull.
- I would say the availability of my data to public is quiet curical descion for me. But at some point I have to make it ppublic as I am conducting this research from tax payers money.
- The workshop helped to understand the importance of early consistent data storage in order to have traceable results.

- It would be good to have an example of questionable scientific conduct, without it being discernable as bad conduct right away. Let the attendees figure out the situation.
- I was aware of this issue generally. One thing that we didn't discuss much was the ethical limit of science. Maybe it is decided by law and scientists only have to go until this line, but also we all have to be aware of all the impact of our conducts. Probably this applies much to the animal scientists who have to kill or modify crucially animals in the name of science, but this can also apply to all scientists in some sense. For example, conducting field manipulation experiment can be also against ethics when it comes to destroying the nature, and they have to be aware of this and try to reduce the impact
- not so much
- Yes. The points mentioned above are true for this question as well.
- Yes! Few important things I came to know in detail after having course which were quite notable like manuscript writing, authors lists, authors rights etc.
- Yes, more than before. The course clarified how other young scientists around me see science and how they treat it. It made me also see how mistakes are occurring by specific examples Henrik mentioned.
- Yes!!!The seminar argument my knowledge base on the concept and sources of good scientific practices, rules and regulation of good scientific practices. The scientific findings are essential for scientific policy development. We cannot afford to mislead the public. Therefore, the need for good scientific practices. Furthermore, helps to keep science transparent and trustworthy, to safe guard the body of science and to keep the flow of availability of public funds for scientific research.
- yes, I am aware. See above for how much this has contributed to my understanding.
- I believe I am aware. Again, only a small degree. No really new ideas.
- Yes I think, I am aware of the concept. In preparation to the course we should read all the guidelines and Henrik explained them in the course. I don't think that the most people starting their career in science are really reading all the rules in detail. Of course you are taught, what to do and what not and some of these rules you learn already in schooltime, because its simple ethics, but not in such a detailed way, like in the course and in preparation to the course. But I think this should be required if you want to work in science. I can encourage everyone to read and discuss all the guidelines!
- The seminar in my opinion led to a very healthy discussion about existing ethical conundrums. It has certainly improved my perception and dissipated misconceptions very effectively.
- Yes, I am very pleased to attend this seminar and it has significantly contributed and motivated me to do good science.
- Yes, I am aware about the significance of good scientific in my field where precision, honesty and good data management are the crucial aspects in conducting experiments. In general, I am well aware about bad scientific misconducts such as data distortion and plagiarism, however I gained much more insights on this issue especially on the grey area of bad scientific such as "wishful thinking" on misconduct, or on good data management as part of good scientific practices.

Which parts of the course were especially good (and why)?

- First part about actual good scientific practice, scientific misconduct
- I liked the order and explanation of the topics, also the discussion, although I have no much experience in the topic it was good to hear from more experienced people their opinions and points of view.
- the example article --> maybe use this as discussion starter to get participants more active
- The discussions, because it brought new points of view to the topic.
- The real life example how the guy was caught by a reviewer of the false data presented in a journal.
- That author means "AUTHority and ORiginatOR" was very helpful. Overall the part about authorship issues was well presented.
- First half, explaining the basics, especially concerning the publication process. Discussions were good as well.
- We didn't spend so much time on going through all points which we can read from supplementary materials. This was efficient.
- how to responsibly use citations
- Can't really answer to this one.
- Open discussion session during the course was very informative and hence can't judge the whole course in total. Overall it was a good course and Henrik did a great job!
- The discussions. I really liked that at the second part Henrik made it possible to let the conversations get a "flow" and he gave us time for really discussing and was not sticking too tight to a time schedule.
- Rules and good scientific practices- Avoiding scientific misconduct. Data management and record keeping. Scientific writing , authorship, peer review process and publishing. How to be a good reviewer Scientific ethics Access to key literature (e.g., how to write good scientific paper, hypothesis testing, peer review process and among many more) Acquisition of these fundamental knowledge and skills are critical for my scientific success and career development as upcoming young scientist.
- The discussion on the operation of belief systems in science was interesting.
- I really liked the openness for discussion and questions and Henriks confident demeanour. The course was pleasant. The presentation was good, except the points mentioning in 4.
- Discussions pertaining to peer review, paper drafting and authorship contention were for me key points covered nicely. Though a little more emphasis on these aspects would have made the session more effective.
- All is fine. It could have been more interesting though.
- In general, the course is quite interesting. what's better are sometimes, there are really good discussions from the participants, such as the discussion on the general idea on

"science as a means and not just a purpose", or "science as a belief". It provokes our traditional thinking on doing science as to achieve a certain research objective, which we are often trained because of several reasons eg. publications, finishing a thesis etc. Other than that, I think the information on the reviewing process is good. I feel more prepared in submitting my next manuscript.

Which parts of the workshop were not so good / not so fitting / not well enough presented?

- second part about paper publishing/review process. This was slightly vague and a bit confusing. Parts of it overlap with the scientific writing course
- I think most of the sections were very well presented, although I would suggest some activities or groups discussion to have a participant audience, especially in the afternoon.
- 1) more details would have been interesting; course was on a very general level, that implicates less new knowledge for me as participant 2) discussions were often niggling
- Given that there is also a workshop on scientific writing, maybe this is not necessary...
- I was wondering how paper writing stuff can be taught in GSP course. To me it was a misfit.
- Examples to the sub-part "Sources cited but still plagiarized" would have been helpful. Moreover the part about "How to cite other sources" was too short of practical advice, how to actually cite a source.
- Scientific ethics in morally grey areas. It's the shady parts where one might get lost and which need extra vigilance to stay clear of.
- Some details were only discussed when questions arose. For example, plagiarism is illegal, but having one sentence with quote marks and reference is allowed. This example was given during the course, but there could be more examples than this, and it will help me if all the possible examples that we can encounter are given with "dos" and "don'ts".
- writing and publishing a scientific paper
- We missed a full guide into: 1. Authorship (who can be a co-author and how to order the co-authors upon their contribution) 2. Citation (how to cite in different situations) 3. How to paraphrase text from other manuscripts (to what extent should a text be changed for example, specially in the material and methods part of a manuscript using already introduced methods- or how to take a part of the text of a manuscript without paraphrasing like putting it in "" or writing c.f. and then the text) 4. Examples where mentioned when is wrong to remove outliers in data but we didn't learn when is right to do so.
- Conflict of interest was a common question among a considerable number of participants and probably one of the important parts in case of organizations like MPI where the multiple scientific dimensions meet at one goal to complete manuscripts, and one of which could possibly corrupt the motivation of individual or organization.
- none

- The course was well organised and well-delivered. The duration and timing was good.
- Important issues could be discussed in detail. Maybe in smaller groups to discuss a specific case.
- I found the session after lunch - discussion about presentation of manuscripts and protocols for review etc quite dull. I wonder if it couldn't be made a separate course by itself while focussing on scientific ethics in this seminar.
- Maybe it would be nice, that there is also a kind of practical part. For example if everyone has already read all the guidelines in preparation to the course, than it is not necessary to spend the whole morning in reading them again. This part could be shorter. Than there is maybe more time to discuss examples of misconduct, which can happen or maybe have already happened to young scientist like us. It could be possible to split the whole group in smaller groups, so that each group has to investigate one example by using the rules or/and other material and maybe present it in a short way in the end in front of the course. There you can proof than if everybody has understood the rules! Maybe this presentation can replace the essay in the end. This would also help Hendrik, because he has to correct all the essays in the end and this takes a lot of time. And also for the most students it would be helpful, because in many cases, they don't have time in their everyday lab-life to write such an essay. Pictures in the presentation should be bigger, so that everyone could read/see them. Speaking about plagiarism could also include more detailed information about copyright and intellectual property. The course was only teaching you how to cite in case of text passages/ideas of others in publications. Information about image rights were not presented, but this is also important, since everybody is using also images, figures and so on of other people in presentations or maybe on posters. Most of them are not aware of the image rights.
- The course in general was well presented. However, a little more clarity on guidelines with sample archiving and data archiving could be nice additions.
- It should not be extended so much longer. I think 4 hours is enough for that, after all we invest our time from work and research and whole day would be too much for that.
- the presentation is not perfect, but I am also of the opinion that flexibility is refreshing. I am also happy that the attendants are given a lot of space to interact and speak their opinions.

Do you have other suggestions for a future course?

- The course in general was very interesting and quite well organized. It could, however, be improved by not being so "frontal" i.e. lecture like but more interactive (at least in parts). Following a lecture for one day is easy and lets you lean back and consume but does not stimulate your brain for thoughts and discussions. Include some interactive discussion/workshop parts after 1-2h of lecture.
- My suggestion is having some groups with different cases to discuss with in the groups and later present a summary to the whole group and discuss about it. Cases can range from plagiarism to business-induced lines of research.

- Maybe split the course into two sessions on two different days, instead of brute-forcing through the issue in one go.
- Perhaps the presenter could focus more on the notions of good/bad scientific practice and less on own experience with publishing and writing scientific papers since there is already a course available for that.
- Generally we learned that we should not fake data or results or that we should not be biased towards our study or a specific aspect (specially if we want to review other peoples work). However these affairs are more or less known to everyone. What we miss is more detail information on how to be as proper as possible in using and citing other peoples work and introducing our work.
- Possibly, the material should be sent before to all the participants (Only limited to IMPRS & MPI in current situation) so that they don't have any confusion for the material during session.
- It would be nice to mention examples of scientific misconduct.
- I will appreciate more time to be given for review process. What to prepare and present manuscript to facilitate acceptance. In case of rejection of scientific manuscript how to improve the work. How to response to reviewers comments.
- I would have liked to see longer and more intensive discussions on complex issues of scientific ethics. We mainly spoke about "safe" topics, where we could generally agree on "wrong" practices. I think I would personally benefit from a discussion of nuances and complexities in issues such as climate engineering. Of course, the course might have a different focus so none of these suggestions might apply.
- see 4. If the course stays like this is not required to read all the guidelines in preparation. This can be skipped. Examples should be not so obviously. The cases of Henrik are obvious misconduct. It would be more interesting to discuss the smaller problems that are happening to us/could happen to us during our daily work, because these are the conflicts we have to deal with.
- At the very core of research lies a phd student struggling to manage his or her phd project. I feel ethical management of ones research should be a part of this with case studies from previous students can offer very clear context specific insights. Though this may be difficult to implement but it will add more teeth to this course and offer troubleshooting tips and guidelines.
- I especially like the scientific writing and publishing part, that was quite helpful for me.
- I think it would be really interesting to include another one or two senior scientist for their view/experience on this issue as well as on the reviewing process.