

# Author's Commentary on "Bad Chemistry"

Commentary On  
Bad Chemistry

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This case is intended to foster discussion of some important ethical (and procedural) issues that affect the workings of a graduate research group. As such, it is intended primarily for use in discussions with graduate students or post-docs and their supervisors/professors. The main issues it attempts to present include disciplinary action within a research group, criteria for authorship, favoritism and prejudices regarding career goals, and finally, faculty members' responsibilities to state clear expectations and to foster collegiality among the members of their working groups.

## Disciplinary Action

The first question is intended simply to begin a discussion as much as to raise the issue of disciplinary action. Most (if not all) students in research groups have encountered situations in which an explicit or implied rule has been violated or some other perceived "wrong" has been committed. In these situations, the immediate authority is obviously the professor in charge of the research group. What can a research adviser do in a case like this one? The leader of a discussion might ask the participants for two extremes in level of response appropriate for Imhof. The most severe extreme will probably involve something along the lines of kicking Jones out of his research group, or even expulsion from the university. While this action might be appropriate for some infractions (fabrication of data, sabotage, etc.), it would

seem to be quite severe for this case. The other extreme would, of course, have Imhof taking no action at all.

It is made clear in the story that Jones is the person Michaels wants to see punished. An interesting question that may come up in discussion concerns Perry's level of wrongdoing. He may seem less guilty than Jones, if only because he is the "new guy" and might not understand the norms of group research. However, he has contributed in a very real way to the situation that has angered Michaels.

## **Criteria for Authorship**

This topic is frequently discussed in research ethics and is not intended to be the centerpiece of discussion in this case. However, it is an issue that will face almost every participant in scientific research at some time and as such is an appropriate lead-in to other points in this case study.

Criteria for authorship, at least within the scientific community, are not spelled out by any universal governing body such as the American Chemical Society. Questions that are often considered when determining authorship include, but are not limited to, who actually writes the manuscript, who performs the experiments and who conceives the idea or makes significant intellectual contributions toward its fruition.

In the present case, Michaels originally conceived the idea in question. Therein lies his claim to authorship and the basis for his complaint against Jones. During discussion of the case, Michaels' request for authorship will be addressed. Since Michaels has not yet performed any actual experiments related to his idea, it is unlikely that all participants in the discussion will entirely agree with his position. However, most will probably feel that he has some right to credit for his idea. How much credit is really the question. Again here, asking participants in the discussion to propose two extremes in the amount of credit Michaels should receive might be helpful to the discussion. The extremes would range from sole authorship of the paper to no credit at all. Between these extremes, a consensus might be found; such a consensus may involve including Michaels as a co-author or mentioning him in the acknowledgments section of the paper.

A slightly more subtle point that stems from this discussion concerns the ways in which credit for intellectual contributions to group projects might be rewarded, other

than by co-authorship on a paper. One possibility is the all-important letter of recommendation a professor writes for a student or post-doc at the completion of his or her time in the group. In this case, Imhof clearly does not think a lot of Michaels as a researcher. Thus, this avenue for receiving credit is not likely to be available to him. The reasons this situation has come about relate directly to the fundamental issues this case study is intended to address.

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## **Favoritism and Prejudice Regarding Career Goals**

The problem of favoritism by professors who head research groups, either real or imagined, is common enough that most graduate students will be exposed to it, either personally or by hearing someone else complain about it. Favoritism can occur for many reasons, and it is usually quite destructive to the group atmosphere. This case spotlights one common source of favoritism in the academic research setting.

Students choose to attend graduate school with various career goals in mind. These goals can include industrial employment, employment as a professor at an academic institution emphasizing research, or professorship at a (usually smaller) teaching-centered college or university. It is unfortunately common for professors at graduate institutions, who have achieved their stature in large part by dogged pursuit of research results, to think less of graduate students who wish to gain a Ph.D. under their direction but ultimately seek careers that emphasize teaching rather than research.

The third discussion question is intended to begin a discussion on this topic. Clearly, Imhof regards teaching as much less important than research, as seen in his response to Michaels at the end of the narrative. Michaels will end up angry, probably bitter, and without his name on a paper describing his idea in large part because of Imhof's attitude and, apparently, the fact that he allows his personal attitudes to affect his treatment of his students.

This part of the discussion is intended to move toward a professor's ethical responsibility to treat all the members of his or her group without prejudice, and the basic right held by members of a research group to be treated fairly and equally as long as they follow group rules and behave in a collegial fashion.

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## **Faculty Members' Responsibilities**

The final discussion question regarding what Professor Imhof could have done differently is intended to bring the discussion around to the main point of this case study; that is, the responsibilities of professors who head research groups. One likely response to the question will involve Imhof's failure to foster cooperation and collegiality among members of the group. The animosity between Jones and Michaels is clear in the story. This level of animosity poisons the work environment. Suggestions as to ways Imhof could have avoided this situation might include holding closed-door meetings with the "warring factions," conflict mediation and the like. Collegiality is expected within the scientific community. Major professors in science are ethically responsible for educating student under their direction in such basic principles. It is a vital part of the training to which graduate students are entitled.

The question might arise of whether Professor Imhof was even aware of the animosity. That is a good question, and in fact points to another common problem in research groups: ignorance on the part of a major professor regarding relations and personal difficulties between members of his or her research group. When the new student, Perry, is effectively assigned to a project not by Imhof but rather by another student, Jones, that suggests that Imhof is not adequately involved in the day-to-day functioning of his group.

It is hoped that the discussion will also consider the topic of rules and standards within a research group. One way to lead the discussion in this direction might be to ask the questions, "How will the students in the group know which names should go on the paper?" and "Why is there a conflict here?" If Imhof were to set forth clear guidelines for authorship, the answer to the first part of this question would be clear.

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