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## Bad Chemistry

### Year

1998

### Description

This case demonstrates how the vagueness and uncertainty of conventions on credit and ownership create subtle but complex problems in the practice of science, also illustrating the subtleties of the authority relationship between student and professor.

### Body

Tom Jones and Dan Michaels are both fourth-year Ph.D. students in the chemistry department at a major U.S. research university. They joined Charles Imhof's research group at the same time, and they will both graduate at approximately the same time next year. Over the years, the two students have come to view each other as rivals and competitors for Professor Imhof's favor. Michaels is a fairly quiet, reserved individual who hopes to teach some day at a small liberal arts college, while Jones has an aggressive, sometimes abrasive personality, holds Imhof as his ultimate role model, and hopes to be a professor in a top-ten rated academic chemistry research department. By their fourth year, their dislike for each other has become obvious to all of the other students in the group.

At a weekly meeting during which students in Imhof's synthetic chemistry subgroup summarize their research activities over the past week and their plans for the next week's experiments, Michaels describes an extension to his work. The new project is a fairly major departure from what he has been doing, but he says that he hopes to

get to it soon. None of the meeting participants make any comments except Imhof, who casually remarks, "That would be really interesting if it worked."

Two months later, Michaels has made no further mention of his new idea as he has become bogged down in writing a paper and preparing for a chemical education conference. An incoming student, Dave Perry, arrives at the university and is assigned to Imhof's lab for summer research. Perry shares Jones' attitude and views on what it means to be a "real scientist," and the two hit it off almost immediately. Hoping that Perry will join the group on a permanent basis when new students choose their advisers in the fall of their first year, and reasoning that some quick results will not only encourage him to do so but also help to win Imhof's favor, Jones tells Perry of Michaels' idea. He advises Perry, "Go ahead and try it. He'll never get to it anyway -- he cares more about teaching than real work."

Michaels' idea proves to be a very good one. With some technical help from Jones, Perry succeeds in synthesizing and determining the structure of an unprecedented chemical compound. When he presents his data at the weekly group meeting, Imhof is visibly impressed and states, "Write that up with Tom ASAP."

Michaels correctly surmises that Jones has passed along his research idea to Perry behind his back. After the meeting, he goes to Imhof's office and complains that the idea for the experiment Perry has just reported was his. Michaels says that he thinks he should be given credit for the research. Further, he demands that disciplinary action be taken against Jones. He says, "Tom gave Dave Perry my idea! He is obviously trying to undermine my work here! Can't you see that?" Imhof retorts, "Tom and Dave understand what we're trying to accomplish here, and I appreciate their fervor for research! What do you care? Your priorities obviously lie in other areas. Next time, don't waste so much time on chemical education activities and maybe you won't get scooped!"

## **Discussion Questions**

1. How should Imhof respond to Dan Michaels' request for "disciplinary action"? What form(s) might such action take?
2. Who should be the co-authors on the paper? In what order should they be listed, assuming that it is most beneficial to have one's name listed first?
3. How do attitudes toward career goals affect this case?

4. What could Imhof have done differently over the past four years (including recently) to make the present situation less troublesome?

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## **Notes**

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