

Prevailing Interaction Patterns in the Lab

Objectives

Participants get an impression of what daily life of PhD students in a laboratory is like and get insights on how the relationship and interaction between mentor and PhD-student can look like and also how diverse this relationship can be. They will get a glimpse of how these relationships can play out differently for women and men and how decisive this can be for finalizing a PhD or for staying in scientific research in principle. Furthermore, they will get aware of the fact that also science documentaries are subject to narratives and story-telling and are a kind of constructed representation of scientific success story.

Introductory Notes

The documentary film, “Naturally Obsessed; the making of a scientist” compresses three years of filming material in a world class research laboratory of molecular biology. The film’s focus is a group of college graduates who are working towards their PhD degrees in molecular biology. The idea behind the film was to give students an idea of the process of doing science and the chance to imagine themselves as scientists. At the same time the film reveals interesting aspects about mentor-student-relationships and their sometimes gendered interaction.

Furthermore, in the obligatory text of Myers it becomes clear that also documentaries, not only fiction films, are subject to narrative constructions, i.e. within the post-production phase of selecting scenes and cutting the film material.

In the film lab the molecular structure of protein molecules are studied. The task for the PhD students is to explain the molecular structure of AMPK proteins that are involved in fat metabolism of the cell. These molecules can only be made visible when being exposed to shorter wave length x-ray beams. In order to be examined in an x-ray microscope, the protein must first be transformed into a crystal, in which many molecules are packed into a regular array.

In-Class-Time

210 minutes, including 30 minutes break.

The session can be combined with contents of Lesson Plan 5. In this case begin with the program of this lesson, followed by the group work on the text of Traweek in Lesson 5.

Schedule and Teaching Instructions**Preparing the session:**

Have a DVD of the documentary “Naturally obsessed” and film screening equipment ready to show the film.

Homework for the participants in preparation for the session:

- Reading the article of Myers (2010)

Film screening:

60 minutes

Hand out the work sheet before the film screening.

Give the group the instruction when watching the film: As you watch the film, put yourself in the position of each of the students and also of Larry, the professor and lab head.

Tell them about the molecular biological background of the work in the lab.

Participants' break:

15 minutes

Group Work:

60 minutes

Building groups. Groups should not be bigger than 4 people.

Exercise on Work Sheet in Groups (you find more question to discuss in the extra material in the DVD).

Participants' Break:

15 minutes

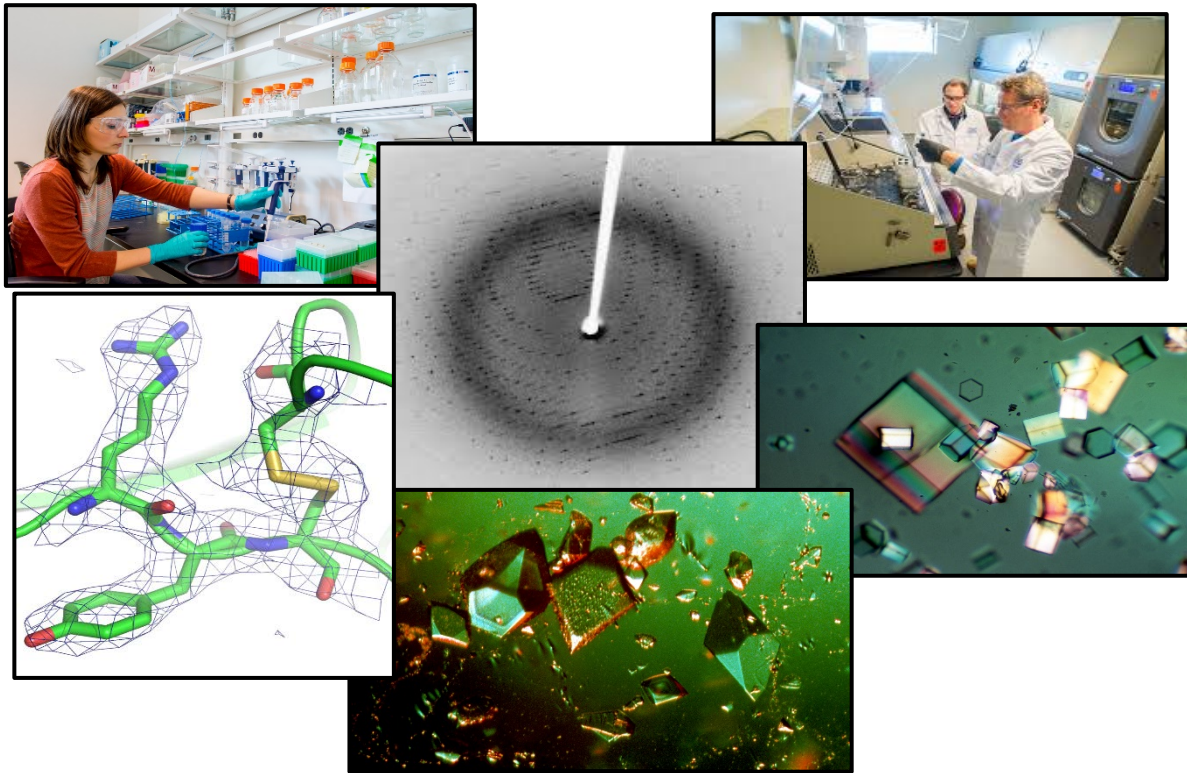
Group Presentation and Plenary Discussion:

60-75 minutes, depends on number of groups

Each group has 15 minutes to present their discussion results.

Then sum up the discussion.

Work Sheet: Prevailing Interaction Patterns in the Lab



As you watch the film, put yourself in the position of each of the students and also of Larry, the professor and lab head. Afterwards, discuss in your group the following questions:

1. What choices do the students make, and why?
2. What helps or hinders their progress? Do you see gender as an issue?
3. What are your impressions of how Larry mentors his students?
4. How do the students' experience in the film relate to experiences you may have had in a lab or to experiences you already have made?
5. How do you expect you would react to the experience of lab research?
6. What questions does this raise for you with regard to pursue a graduate degree?

Obligatory Reading

Myers, Natasha (2010): Pedagogy and Performativity. Rendering Lives in Science in the Documentary “Naturally Obsessed. The making of a scientist”. In: *Isis* 101 (4): 817–828.

Further Reading

Conefrey, Theresa (2000): Laboratory Talk and Women’s Retention Rates in Science. In: *Journal of Women and Minorities in Science and Engineering* 6 (3): 251-264.

Danielsson, Anna T. (2012): Exploring woman university physics students ‘doing gender’ and ‘doing physics’. In: *Gender and Education* 24 (1): 25-39.

Gu, Diane Yu (2012): *The Influence of Protégé-Mentor Relationships and Social Networks on Women Doctoral Students’ Academic Career Aspirations in Physical Sciences and Engineering*. Dissertation manuscript, UC Los Angeles.

Pettersson, Helena (2011): Making Masculinity in Plasma Physics: Machines, labour and experiments. In: *Science Studies* 24 (1): 47-65.

Additional Resources and Materials

- About the film: https://en.wikipedia.org/wiki/Naturally_Obsessed
- Homepage of the film <http://www.naturallyobsessed.com/>
- Interview with the directors Richard and Carole Rifkind, scientists: “The making of Naturally Obsessed” by Amy Charles 1 November 2009: <http://www.lablit.com/article/554>
- Extra Bonus Material on DVD “Naturally Obsessed”