

# CHEM Course Feedback Form

Course: CHEM-E1160 Biomass Pretreatment and Fractionation - in Laboratory, spring 2017; number of students: 11

Reporter and date: Kyösti Ruuttunen (KR), June 15<sup>th</sup>, 2017

Teaching and learning methods: Lectures, workshops, laboratory exercise. The teaching was planned and partially executed together with Ms. Maria Clavert from Aalto Design Factory (ADF), where some parts of the teaching was also carried out. In the beginning, the students could choose from two themes around which two teams were formed (5 or 6 students/team), aiming to solve problems of an imaginary company. The themes were Textiles and Digitalization/Internet. Firstly, the students had to study what kind of possibilities the company would have around these themes, and secondly they had to plan a production scheme according which they would produce one fiber-based product and two products based on a side-stream. Only kraft pulping could be used as the fractionation method, and only pine, birch, or eucalyptus could be used as wood raw materials. The laboratory experiments were carried out by methods and equipment available at the Department (air-bath digester, kappa number & viscosity determination, ClO<sub>2</sub> and peroxide bleaching *etc.*), instructed by KR and Ph.D. students. The student teams reported their results in many different ways, both orally and in written form. Also, the students gave feedback on each other's work with the *I like, I wish* method developed at ADF.

Assessment methods: The student teams produced various written documents during the course: Project Plan, Laboratory Report, and Project Report. These accounted for 20%, 40%, and 40%, respectively, of the final grade. The students carried out self and peer evaluation of the team members' input in the team work and based on this, a personal coefficient was calculated for each student. The coefficient's impact on the student's personal grade was limited to  $\pm 1$  grade point.

Feedback summary: Feedback was collected both by group discussion with the students and by the standard electronic survey (Webropol). Summary on the positive aspects mentioned by the students: lab work and report (n=8), working with course assistants and KR in the lab & study sessions (n=6), improving team work skills (n=6), informal & relaxed atmosphere (n=4), good planning & execution of the course, creativity (n=4), wide variety of teaching methods, preparation for presentations in English (by Jaana Suviniitty; n=4). See also the attached summary of the Webropol survey.

Summary on the things to develop according to the students: clearer instructions, justification, for the reports, lab work, study sessions – practically everything! (n=11), better collaboration and coordination with Herbert's course (CHEM-E1150; n=8), smaller teams, more opportunities to work in the lab (n=3), MyCourses workspace poorly organized with too much material (n=3).

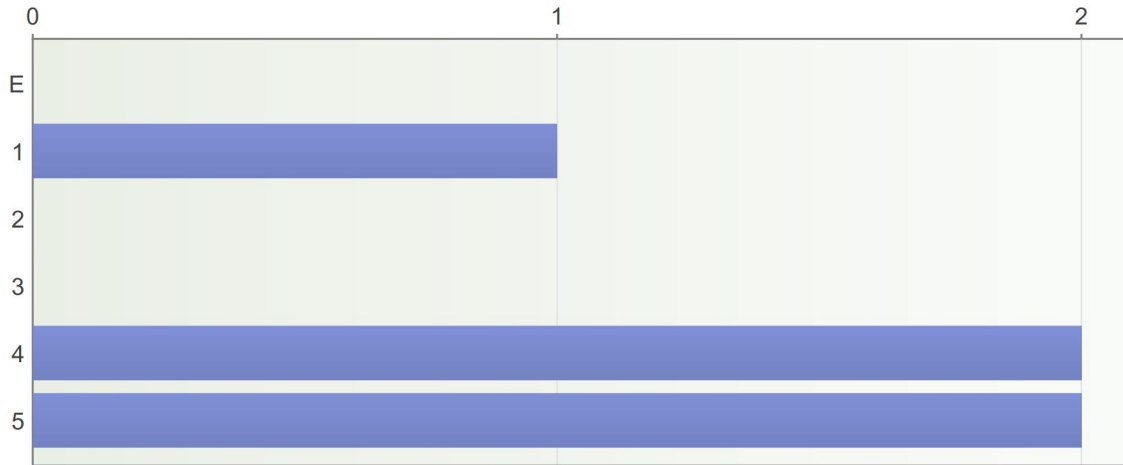
Development actions for next year: For next year, I will base the schedule largely on this year's course: the feedback was mostly positive, so in my view no major changes are needed. I will redesign the MyCourses workspace to be more clear and easy to use. I will continue working together with Ms. Clavert and Ms. Suviniitty. I will look into the possibility of giving the students more opportunities for working in the lab. I will try to plan the course together with Herbert so that our courses support each other in a better way. Instructions for reporting have to be yet improved; the students need more feedback during the writing process. All in all, the main characteristics of the course will stay very similar next year compared to this year.

General feedback from the teacher: I was very happy with the course: most of the teaching methods (also the more "experimental" ones) were working very well and received positive student feedback. The student group was very active and motivated, which made the teaching a pleasant experience.

# CHEM-E1160 Biomass Pretreatment and Fractionation - in Laboratory (2017-01-12 - 2017-05-18)

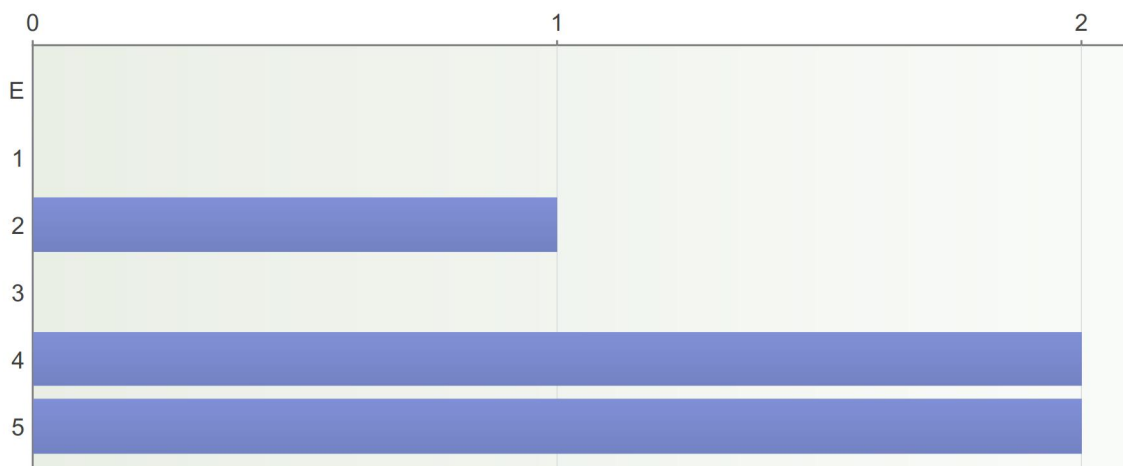
1. My overall assessment of the course E=Not applicable, 1=Fair, 2=Satisfactory, 3=Good, 4=Very good, 5=Excellent

Number of respondents: 5



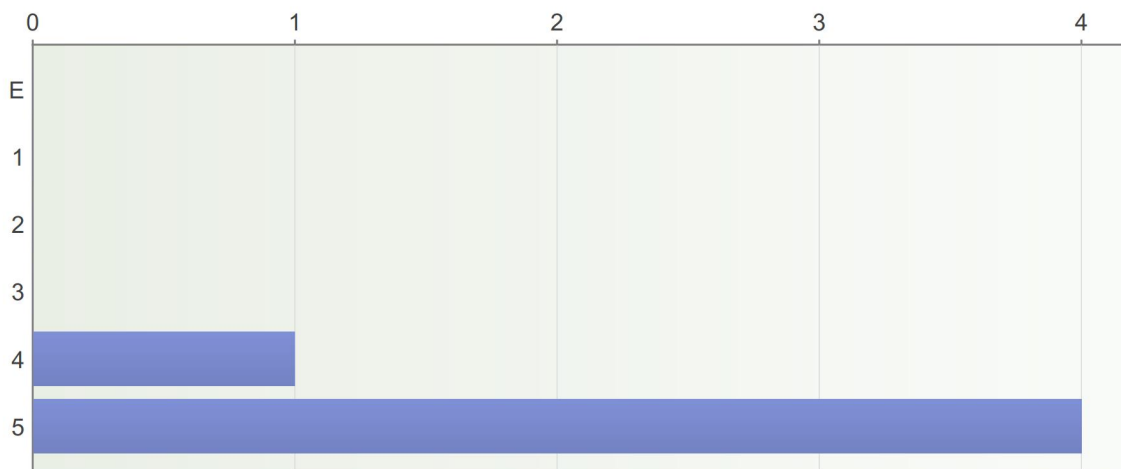
2. The teaching methods (lectures, labs, group work, online study, assignments etc.) supported my learning E=Not applicable, 1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree

Number of respondents: 5



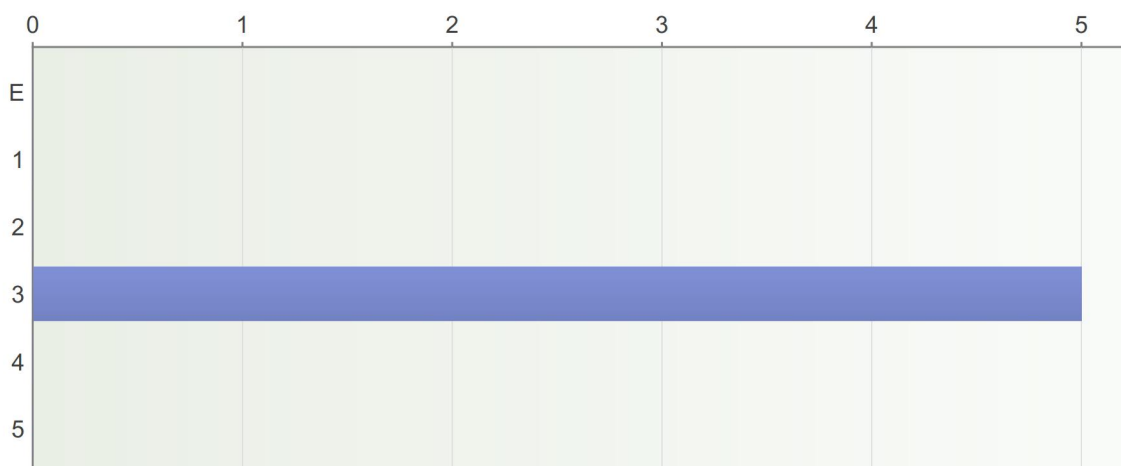
3. I am pleased with my study effort on this course E=Not applicable, 1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree

Number of respondents: 5



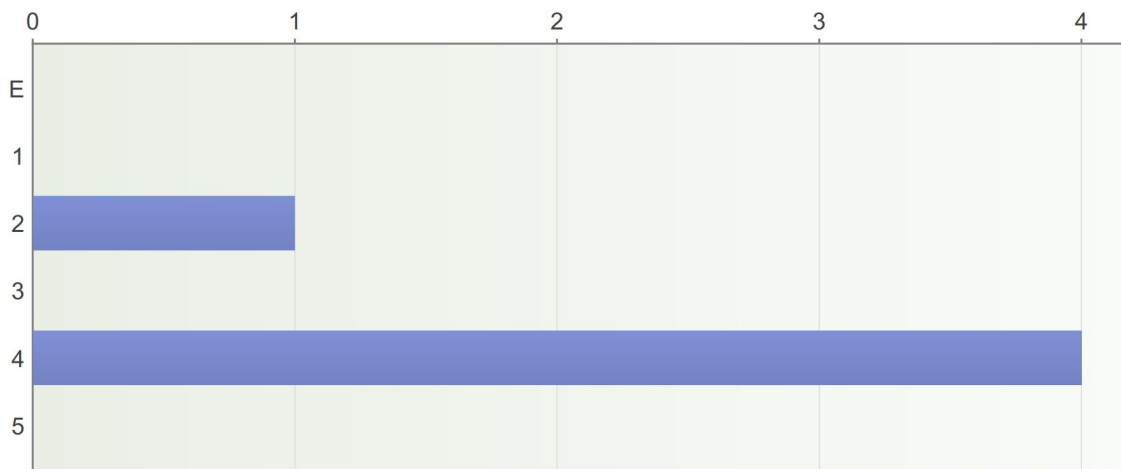
4. According to the guidelines, one credit (ECTS) requires 27 hours of student work. Compared with this, the completion of the course required E=Not applicable, 1=Considerably less time, 2=Slightly less time, 3=The right amount of time, 4=Slightly more time, 5=Considerably more time

Number of respondents: 5



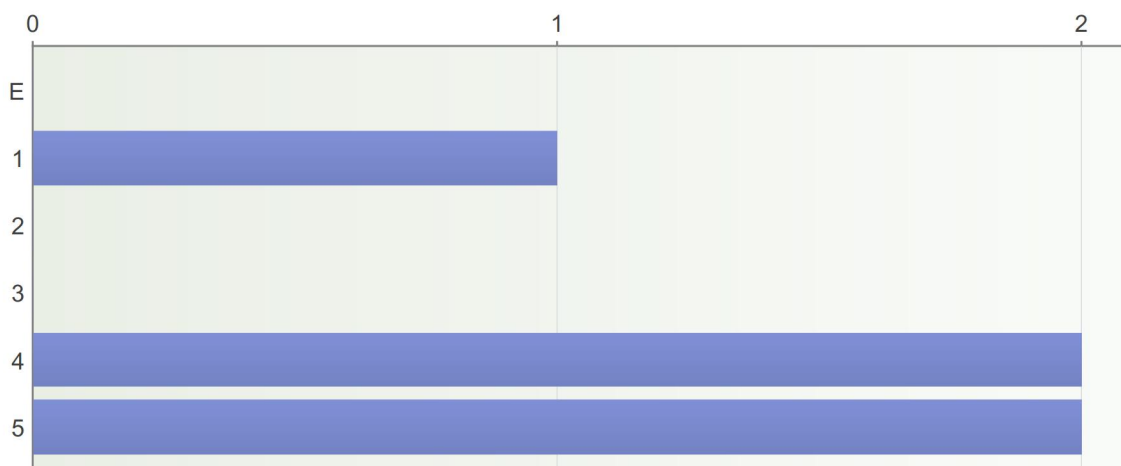
5. The course content and objectives corresponded to those of the course description. E=Not applicable, 1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree

Number of respondents: 5



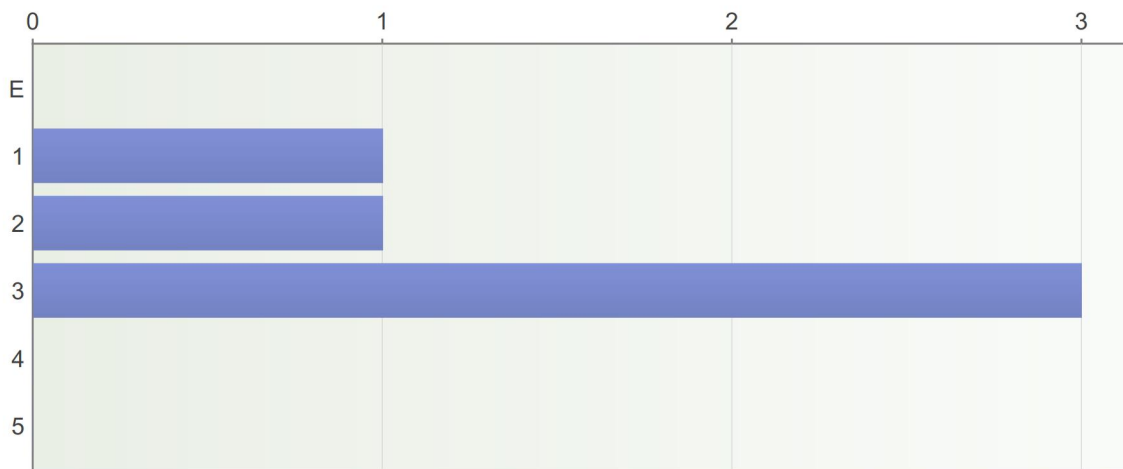
6. How was your study motivation affected by the course? E=Not applicable, 1=It suffered notably, 2=It suffered slightly, 3=It was not affected by the course, 4=It improved slightly, 5=It improved notably

Number of respondents: 5



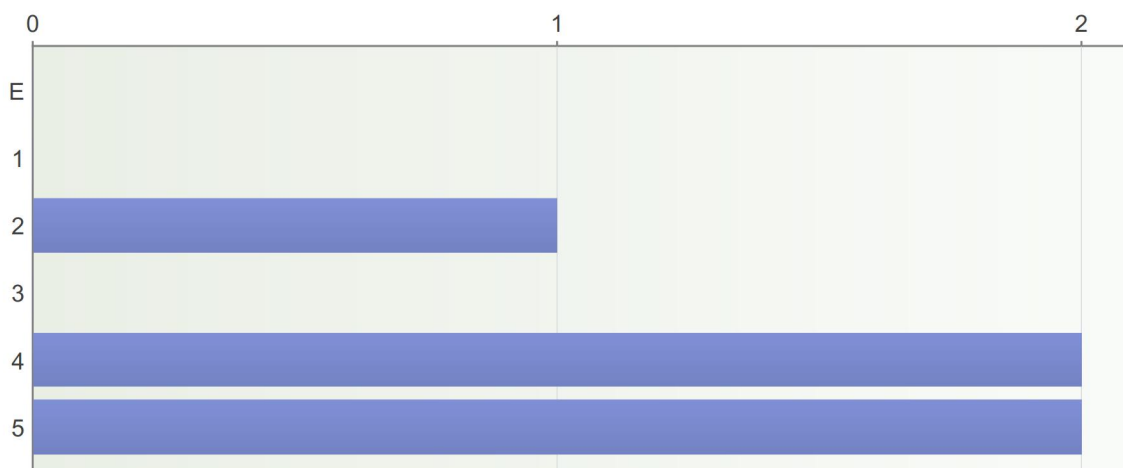
7. Compared with other courses of similar level that I have completed at the school, the course was E=Not applicable, 1=Considerably easier, 2=Slightly easier, 3=Equally challenging, 4=Slightly more challenging, 5=Considerably more challenging

Number of respondents: 5



8. The course enhanced my general skills (such as teamwork skills, writing skills, problem-solving skills and a systematic working approach). E=Not applicable, 1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree

Number of respondents: 5



### 9. Name one thing in this course which you think is worth preserving for next year.

Number of respondents: 5

- The project concept (lab report, I like I wish)
- Storyline behind the course
- Keep the same concept!!!  
Keep Kyösti!! He is the best!!
- I think the idea about having this whole lab course as project work to a company was excellent. Also, the way the presentation methods followed were exciting, so both these should definitely be retained for next year.
- Lab works (that is the idea of the course though)

### 10. Name one thing in this course which you think should be removed for next year.

Number of respondents: 5

- Only problem was the overlapping issues with the other courses.
- Nothing to remove, just rearrange the course tasks.
- Nothing any.
- Nothing to be removed. Just updating few things could make this course excellent.
- Unnecessary group work and the time and lectures used for that. Not to the benefit of anyone.

### 11. Any other comments or suggestions concerning the course?

Number of respondents: 3

- Majority was discussed during the session.
- The course was structured in a very interesting manner making even lab courses exciting :) Professor and the lab instructors were available anytime and were ready to offer help all time. Thank you for the very interesting course.
- - More lab works, more equally distributed along the timespan
  - Do the lab works in pairs, max in three person groups
  - Go through the technology of pulping & side-streams on lectures
  - Arrange separate group work exercises if that really is needed
  - MAKE BETTER AND CLEARER INSTRUCTIONS FOR THE EXERCISES (Lab works)  
state in them what should be included ("french lines" or similar) instead of writing walls of unclear text which doesn't quickly and easily show what is required.
  - Refine the marking requirements/grounds: everyone grade SHOULD have it's description.