

## Evaluation KJM1140 - 2017

Giving a Biochemistry course in the first semester is a potential challenge, since it requires basic knowledge not only of general chemistry, but also of organic and physical chemistry. On the other hand, this course should fit the interests of the students in *Kjemi og Biokjemi* perfectly. It was hence hoped that the students would be willing to rise to the challenge and put in the required work (in parallel with establishing good study routines). Unfortunately, this was not the case. Even shortly before the exam, most students did not even know the amino acids. With 25% failure rate, and another 25% drop-out before the exam, the final exam reflected this knowledge gap. On the positive end of the scale, there were 2 A's, including one exam with 97%.

To evaluate the course, we appointed four student representatives at the beginning of the course, who volunteered to give us feedback. We had two meetings with them, in the middle of the course and after the final exam. In addition, we scheduled a general course evaluation with all students at the same occasion as we gave out exam information. We discussed and summarized the insights at a final meeting with the other teachers.

Generally, the course was appreciated, but found challenging. With few exceptions, the students liked sitting at pre-assigned desks. They also appreciated the variation in teaching, with active lectures, quizzes, mentimeter questions, acting and model building, poster presentations, and critical discussion of literature sources. Highlights were the labs – both wet labs and data labs. Student understanding was tested by pre-labs as well as by questioning during the lab, which the students felt valuable. We therefore plan only small adjustments of the labs for next year. The only major addition will be the introduction of a 1-hour start-up lecture before all labs. We will also be clearer which labs require some additional time (or extend these labs with one hour). The format of the lab reports will be kept, including the one extensive lab report (all others are short). We will, however, consider setting up extra hours for discussing the lab reports, so that this does not disturb the other teaching sessions. Next year, we also hope for better coordination between the courses.

The general sequence of teaching sessions will remain the same, with one exception: the research-based teaching of protein chemistry and macromolecular structure analysis in weeks 3 and 4 of the course was too challenging for the students. Next year, these topics will be scheduled after the respective labs. We will also make all course material available to the students much earlier. We hope to be able to keep the 3-hour teaching sessions, in a seminar room suitable for active learning.

The exam was experienced as difficult. The trial exam in the middle of the course was appreciated by the students, but they felt that it did not reflect the difficulty level of the final exam. Next year, we will hold a second trial exam at the end of the course, shortly before the final exam.

We had opted for two alternative course books, with clear recommendations: One book is more suitable for this beginner's course (the "Stryer"), since it is shorter and more easy to read, but the more detailed book (the "Lehninger") will be used in more advanced

biochemistry courses and is therefore recommended to students with special interest in this topic. The students would have preferred to have only one choice (the Stryer), but saw the dilemma. Next year, we plan to keep the same text books, but if possible be even clearer on our recommendations.

The Biochemistry course is probably better placed in the second semester, but before rescheduling the entire program (*e.g.* by switching biochemistry and inorganic chemistry), we should give the current format another try. We, however, need to ensure that the students put in the required work and start studying early. This can be accomplished by adding mandatory exercises (or with a midterm exam). Best would be if all students obtained access to the electronic exercises connected to the Lehninger, paid for by the Department. These exercises are excellent and 80% performance could be made mandatory for taking the exam. Given the challenges that we face with this course, it is further recommended that the student number remains limited to 60 in the coming year.