



Example template – Course analysis (course evaluation)

Course code 1BI031	Course title Biochemistry	Credits 12hp
Semester (spring/autumn) VT24	Period 15/1 – 5/3	

Course coordinator Manuel Zeitelhofer	Examiner Bernhard Lohkamp
Teacher in charge of component	Other participating teachers various

Number of registered students during the three week check 51	Number approved on the last course date 38	Response frequency course valuation survey 72%
Other methods for student influence (in addition to concluding course valuation) Course committee meetings (2 times, 1 during the course, 1 after)		
Feedback reporting of the course valuation results to the students Survey (without comments) published on Drupal and sent to students who have participated in the survey. Survey was discussed with the course committee.		

Note that...

The analysis should (together with a summarising quantitative summary of the students' course valuation) be communicated to the education committee at the department responsible for the course and for programme courses also the programme coordinating committee.

The analysis was communicated to the education committee on the following date: 240502
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1. Description of any conducted changes since the previous course occasion based on the views of former students

First, based on students input and after reviewing and evaluating the goals, content, structure, and teaching forms of the Biochemistry course 2 main goals were defined. 1. The students should better understand the **integration of metabolism**. 2. The **3 course parts**, carbohydrate metabolism, lipid metabolism and integration of metabolism, should be clearly distinguished, which included to optimize the course schedule. These goals led to various modifications of the content, structure, and teaching forms. According to the first goal (the integration of metabolism), 2 new lectures as well as a new project work, *Metabolism in health and disease*, were implemented while other content was removed or streamlined. The aim of this project work is to foster and gain a deeper insight into the understanding of integration of metabolism, which is essential for applying basic biochemical knowledge to various disease states and physiological conditions that demand different metabolic adaptations. This is in accordance with student feedback from previous years as well as our observation that students found it rather

difficult to understand and apply the concepts of integrative metabolism. The new project work also incorporates aspects of the KI's 2030 strategy ("KI should be in the forefront to raise awareness for the preventive measures that can be taken to reduce the risk of developing civilization diseases") and the UN sustainability development goals (SDGs), specifically SDG 3.

Furthermore, the seminar on integrative metabolism was completely revised. The revised seminar, the *Runner's experiment*, integrates all major metabolic pathways and contributes to the focus on better understanding integrative metabolism.

Regarding the optimization of the schedule, another point raised by the students in previous years, the students were given more time to prepare for seminars, project works as well as the final examination. This was reflected in highly interactive and engaging seminars. In addition, the number of students in the groups for the project work lipids have been reduced according to both teacher- and student feedback. Finally, examination of practical lab skills (centrifugation) was conducted as required by the new KI directive.

Second, after carefully evaluating various Biochemistry literature and based on student's feedback, **Stryer, Berg 10th edition was introduced as a new course book** (which is from now on also used in the course Introduction to biomedical sciences). Thus, lectures/content have also been removed and/or redistributed. The changes in lectures/content are also interconnected with streamlining of the format and content of introductory, but also of the later courses in the Biomedicine program, as well as with student feedback, respectively. For example, instead of lecturing about steroid hormones and prostaglandins, which do not contribute to the main course topic (general metabolism) and which are also introduced in later courses, we added new lectures focusing on the understanding of the integration of metabolism as well as adding content on bacterial metabolism where appropriate. In addition, a new seminar was added, (*Contextualizing biochemistry*), which replaced the seminar *Reading of scientific article*, since the students have an extensive workshop, *Communication and critical thinking* in the course Cell, stem cell and developmental biology that is held right before the biochemistry course in the 1st semester. Instead, in the new seminar, the students have constructed primitive metabolic networks as well as have worked on TCA-adjacent processes and identified the links to the TCA in line with one of the main goals to better understand the integration of metabolism.

Third, KI initiatives such as the KI 2030 strategy, and SDGs were implemented in the course syllabus, the theory content of the biochemistry course, and further integrated in the course content such as in lectures, seminars and project works.

2. Brief summary of the students' valuations of the course

Although the course is perceived challenging by the students, the course is appreciated very much which is reflected in very positive feedback both from the survey and from the student committee. According to student feedback and the exam results the new implementations were successful. Students would appreciate though to get more detailed feedback on their lab reports (especially the lipid lab).

3. The course coordinator's reflections on the implementation and results of the course

Strengths of the course: Labs, lectures and seminars were in general very highly rated. The new implementations to foster understanding of integrative metabolism were appreciated,

which was also reflected in the examination results. Students found the constant link between metabolism in general and the current health challenges such as obesity, metabolic syndrome and connected diseases very interesting and inspiring. The students appreciated the project works to integrate knowledge and learn in teams. The course schedule and the clear structure of the course with 3 course parts was rated highly. In addition, the midterm digital tests are viewed as helpful for fostering the student's learning and valuable as preparation for the final examination. It was pointed out that both the lecture and the theory content clearly explained what the students need to know to achieve the aims of the course.

Weaknesses of the course: The feedback for lab reports (especially the lipid lab) were too short and the deadline for lab corrections could be not respected due to several reasons. Some lectures were perceived as too long and rushed through. The presentation session of the project work Metabolism in health and disease was judged as too long. The protein lab was perceived as a separate module that could be better integrated/ linked theoretically and practically with the overall course content.

3. Other views

The lipid lab was perceived on the one hand very challenging and on the other hand very interesting. The challenging nature of particularly this lab potentially had the following reasons. The lab responsible teacher and some of the lab tutors had this role the first time.

Although lectures have been designed more interactive there is still room for improvement in that regard. The students would appreciate more feedback for their project work presentations.

4. Course coordinator's conclusions and any suggestions for changes

The coordination of the lipid lab as well as the feedback for the lipid lab reports need to be improved (LJa, ODa and MZe). Although the oral tests were rated highly by the students, a different grading form could be introduced. Instead of pass/fail, a system of bonus points counting for the final examination could be introduced (MZe and BLo). As a possibility for the students to evaluate their current knowledge and understanding of the topic, post-lecture and pre-seminar quizzes could be implemented (MZe). This also represents an incentive for the students to be even better prepared for the seminars and engage interactively. The presentation session of the project work Metabolism in health and disease will be shortened e.g. by distributing the students in more groups (10 groups similar to the PW lipids) and eventually also the number of topics will be reduced (MZe). In general, more time will be allocated for giving the students feedback on their project work presentations (MZe and IPs)

Changes effecting course plan revisions will be implemented latest by 1 October, schedule changes by October and others by the beginning of the course.

Appendices:

Survey