



Kursanalys (kursutvärdering)

Kurskod 1BA181	Kurstitel Mikrobiologi 2	Högskolepoäng 7.5 hp
Termin (vt/ht-år) HT24	Tidsperiod 20241003-20241105	

Kursansvarig Soham Gupta/Catharina Hultgren	Examinator Soham Gupta
Momentansvariga lärare	Övriga medverkande lärare Soham Gupta, Chaitanya Tellapragada, Tsegaye Sewunet, Anna Olofsson, Sefanit Rezene, Anoop Ambikan, Magdalini Lourda, Rokeya Sultana Rekha, Mukesh Varshney, Akos Vegvari

Antal registrerade studenter vid treveckorskollen 8	Antal godkända vid sista kursdatum vid första tillfälle 8	Svarsfrekvens kursvärderingsenkät 75% (6/8)
Övriga metoder för studentinflytande (utöver avslutande kursvärdering) Studentråd under kursen, Sammanfattande utvärdering i halvklass efter sista presentationen		
Återkoppling av kursvärderingsresultat till studenterna Via mejl genom canvas, också tillgänglig på kursens stängda aktivitet på canvas		

Observera att...

Analysen ska (tillsammans med sammanfattande kvantitativ sammanställning av studenternas kursvärdering) delges utbildningsnämnd vid kursgivande institution samt för programkurser även programansvarig nämnd.

Analysen har delgivits utbildningsnämnd följande datum: **19/02-2025 (uppladdad i box)**
Analysen har delgivits programansvarig nämnd följande datum: 19/02-2025 (skickad till Busra)



1. Beskrivning av eventuellt genomförda förändringar sedan föregående kurstillfälle baserat på tidigare studenters synpunkter

The HT2024 Microbiology 2 course, conducted under the Biomedical Laboratory Science (BMA) program, was also the first time managed by Soham Gupta. This year, while retaining the foundational structure of the course, a significant emphasis was placed on integrating application-based approaches. This included:

1. **Inspirational Lectures:** New inspirational lectures were added, covering advanced and application-based topics such as bioinformatics, proteomics, immunological methods, organoids, and antimicrobial peptides. These sessions aimed to connect theoretical microbiology with practical, real-world applications and emerging technologies.
2. **Flexible Project Selection:** Students were offered the opportunity to choose one of four practical projects, allowing them to tailor their learning experience to align with their interests and career aspirations. Two projects were preferred by all the students, and all students conducted both projects, with the submission of a project report for one of the projects assigned to them. The projects were team-based activities to enhance collaborative learning. The two projects that the students performed over the period of two weeks are as follows:

Project 1: Gene Express: Focused on bacterial transformation, plasmid amplification, protein expression, and Western blot analysis.

Project 2: Hear the Microbes: Investigated bacterial contamination on earphones, evaluated UV-light sterilization, and assessed the effectiveness of over-the-counter ear drops alongside antibiotics.

The practical sessions were revised to focus more on real-world applications, such as bacterial management techniques and disinfection studies, enhancing the course's relevance to microbiology research and practice. The projects provided a fun and interactive way for students to learn, fostering teamwork and collaboration while applying advanced microbiological methods to solve practical problems.

A lecture on statistical analysis was included to guide students in interpreting their project results. This ensured that students developed essential analytical skills to handle experimental data.

3. **Journal Presentations:** The journal review component was redesigned to emphasize the integration of both classical and emerging microbiological techniques. Each group of students was assigned one of four focused topics based on the research article



- "Emerging Technologies and Infection Models in Cellular Microbiology" (Nature Communications). The topics included advanced methodologies such as imaging techniques, proteomics, genome sequencing, and organoid models. Students were tasked with presenting these topics through a dual approach: providing a brief overview of classical methods and diving deeper into recent advancements and their applications. The presentations were structured to last 15 minutes, followed by 10 minutes of discussion and Q&A. The process of preparing and presenting these seminars encouraged students to critically analyze the evolution of microbiological techniques, while also enhancing their ability to communicate complex concepts effectively.
- 4. Study Visit:** The study visits complemented the course theme by bridging theoretical microbiology with real-world applications. The BSL-3 facility visit highlighted pathogen handling and biosafety in infectious disease research, aligning with the focus on microbial pathogenesis. At the Pre-GMP facility, students observed vaccine and therapeutic development processes, connecting with lectures on immunological and antimicrobial strategies. The Sprint Bioscience visit showcased microbiology's role in drug discovery, illustrating its practical impact in biotechnology. These visits enhanced the course by demonstrating the diverse applications of microbiology in research and industry.
 - 5. Assessment:** Assessment in the course was conducted through a combination of formative and summative evaluations to ensure a comprehensive appraisal of students' understanding and skills. Formative assessment took place during the practical sessions, where students received feedback primarily in the form of peer reviews. This approach encouraged collaborative learning and allowed students to critically evaluate each other's work, fostering a deeper understanding of experimental methodologies and their results. The summative assessment consisted of two key components. The theoretical examination comprised 40 multiple-choice questions, designed to evaluate students' conceptual understanding of microbiology and its applications. For the practical examination, students were assessed based on their project presentations and the submission of detailed project reports. The peer feedback mechanism in the practical sessions played a pivotal role in preparing students for the summative evaluations, ensuring they were well-equipped to present and defend their findings. This blend of formative and summative assessments provided a balanced framework for evaluating both the theoretical knowledge and practical competencies of the students.

2. Kortfattad sammanfattning av studenternas värderingar av kursen

(Baserad på studenternas kvantitativa svar på kursvärderingen och centrala synpunkter ur fritextsvar. Kvantitativ sammanställning och ev. grafer bifogas.)

The HT2024 Microbiology 2 course received overwhelmingly positive feedback from students, with many highlighting its engaging and research-oriented nature. The course was commended for its balance of theoretical and practical components, providing valuable learning experiences that bridged the gap between microbiology fundamentals and real-world applications.

Strengths:

- Students appreciated the practical relevance of the course, with comments such as, *“Väldigt forskningsanknuten och framtids-anknuten kurs”* (Very research- and future-oriented course). The combination of theory and hands-on projects was particularly praised.
- The practical sessions were seen as engaging and well-organized. One student noted, *“A lot of practical work and well-explained lectures.”*
- Study visits were a highlight for many, with feedback like, *“Kul med studiebesök till annat än vanlig klinisk verksamhet”* (Fun with study visits to something beyond the usual clinical work).
- The course's integration of research and clinical applications was appreciated, with students commenting on the *“bra blandning av mer forskningsanknytning samt klinisk applicering”* (good mix of research connection and clinical application).
- The course leadership by Soham Gupta was also positively received, with students stating, *“Soham Gupta var duktig för att vara ansvarig för en kurs för första gången”* (Soham Gupta did well for managing a course for the first time).

Areas for Improvement: While overall feedback was positive, a few suggestions for refinement were made:

- Some students suggested clearer instructions and better organization on Canvas, such as, *“Tydligare att hitta info på Canvas samt tydligare info generellt”* (Easier to find information on Canvas and clearer information in general).
- While students valued the diverse assignments, a few found the workload challenging within the given time frame. Suggestions included reducing the number of submissions and allowing more preparation time for the exam.

Overall, students found the course interesting, informative, and valuable for their academic and professional growth. The blend of research-oriented content, practical sessions, and innovative teaching approaches made the course stand out. One student summarized their experience by saying, *“It was an interesting course, and the lecturers were nice and explained things quite clearly.”* The overwhelmingly positive feedback reflects the course's success in meeting its objectives and providing a comprehensive learning experience.

3. Kursansvarigs reflektioner kring kursens genomförande och resultat

Kursens styrkor:

Managing the HT2024 Microbiology 2 course under the Biomedical Laboratory Science (BMA) program was a rewarding experience. While retaining the foundational structure of the course, I aimed to introduce new elements that emphasized application-based learning and engagement. The inspirational lectures on advanced topics such as proteomics, organoids, and bioinformatics added depth to the theoretical content and connected it to real-world applications. The practical projects allowed students to work collaboratively while applying microbiological techniques, which enhanced both their technical skills and teamwork abilities. The study visits to facilities like the BSL-3, Pre-GMP lab and Sprint Biosciences provided unique insights into the application of microbiology in industry and research, which students found inspiring and engaging. The journal presentations fostered critical thinking and understanding of both classical and emerging methodologies, bridging historical techniques with modern advancements.

Kursens svagheter:

While the course was highly engaging, its small size posed challenges in terms of financial efficiency, as significant teacher effort was required for a limited number of students. However, this small group dynamic enabled more personalized guidance and deeper independent work. Some of the practical projects were ambitious and required more time or access to cell culture facilities, which occasionally limited their execution. The transfection of cell lines for the project had to be undertaken by the practical tutors due to the time and resource constraints. Furthermore, students pointed out the need for clearer instructions on assignments and better workload distribution, as the number and timing of submissions were found to be demanding within the course's schedule. A common concern was the limited time allocated for exam preparation. Additionally, the organization of content on Canvas could be improved to facilitate easier navigation and access to course materials. Addressing these areas in future iterations will enhance the course's efficiency and student experience.

The overall positive response motivates me to build on this year's framework. Identifying areas for further improvement, I look forward to further enhancing the learning experience in the future.

4. Övriga synpunkter

Another consideration for improvement would be having the Canvas page accessible earlier than two weeks before the course start. This additional time would enable more thorough planning and organization of course materials, especially when implementing changes or introducing new elements like inspirational lectures and updated project components. Early access would ensure a more streamlined and structured course page, enhancing the learning experience for students from the very beginning.

5. Kursansvarigs slutsatser och eventuella förslag till förändringar

(Om förändringar föreslås, ange vem som är ansvarig för att genomföra dessa och en tidsplan.)

Area	Improvement Plan	Responsible	Timeline
Workload Management	Adjust deadlines and distribute assignments more evenly.	Course Coordinator	HT2025
Practical Feedback	Incorporate structured feedback sessions during lab work.	Lab Tutors	HT 2025
Instruction Clarity	Provide more detailed instructions on Canvas. Restructuring of the structure of the current Canvas page.	Course Coordinator	HT 2025
Study Preparation	Add preparatory sessions for theory exams.	Course Coordinator	HT 2025
Monitoring Submissions	Introduce reminders and progress tracking for project reports.	Course Coordinator	HT 2025

Bilagor:

6. Ange medelvärde och svarsfrekvens för KI's Tio generella frågor

Fråga 1: Jag uppfattar att jag genom denna kurs utvecklat värdefulla kunskaper/färdigheter.

Medelvärde: 4,3

Svarsfrekvens (%):75



Fråga 2: Jag bedömer att jag har uppnått kursens alla lärandemål.

Medelvärde: 4,3 Svarefrekvens (%): 75

Fråga 3: Jag uppfattar att det fanns en röd tråd genom kursen– från lärandemål till examination.

Medelvärde: 4,3 Svarefrekvens (%): 75

Fråga 4: Jag uppfattar att kursen har stimulerat mig till ett vetenskapligt förhållningssätt (t ex analytiskt och kritiskt tänkande, eget sökande och värdering av information)

Medelvärde: 4,7 Svarefrekvens (%): 75

Fråga 5: Jag uppfattar att lärarna varit tillmötesgående under kursens gång för idéer och synpunkter på kursens utformning och innehåll.

Medelvärde: 5,0 Svarefrekvens (%): 75

Fråga 6: Jag upplever att kursen bidragit till att jag blir väl förberedd för mitt framtida yrke.

Medelvärde: 4,7 Svarefrekvens (%): 75

Fråga 7: Kursen byggde vidare på mina kunskaper från tidigare kurser under utbildningen.

Medelvärde: 4,7 Svarefrekvens (%): 75

Fråga 8: Jag har fått användbar återkoppling.

Medelvärde: 3,0 Svarefrekvens (%): 75

Fråga 9: Vi studenter uppmuntrades att ta ansvar för vårt eget lärande.

Medelvärde: 4,8 Svarefrekvens (%): 75



Fråga 10: Kursen var forskningsanknuten..

Medelvärde: 4,8

Svarsfrekvens (%): 75