



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Mejeriteknologi Dairy Technology

KLTF01, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED B/K

Date of Decision: 2023-04-18

General Information

Elective for: B4-lm, MLIV1

Language of instruction: The course will be given in English on demand

Aim

The aim of the course is to give scientific background and fundamental knowledge of milk from a chemical physical and microbial point of view as well as an introduction to processes in the dairy industry.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- describe milk production
- be able to explain reactions and technological properties of lipids, proteins, carbohydrates and salts
- have a comprehension of microbiology of milk and to identify relations between hygiene and quality
- be able to execute and be able to value analysis of milk chemistry and milk microbiology
- be able to describe the colloidal stability of milk and aggregation
- have a comprehension of nutritional aspects of milk
- be able to explain effect of processing on the milk system

Competences and skills

For a passing grade the student must

- be able to evaluate relations between milk composition and technological properties

- be able to estimate and analyse chemical and microbiological properties of milk and their importance for quality of milk and milk products
- be able to write and orally explain technological relations between milk composition, milk biochemistry, physical chemistry and microbiology as well as technological properties of milk for various target groups
- be able to describe and discuss results from laboratory experiments and the fundamental background of the results in oral presentation as well as in a well-structured technical report

Judgement and approach

For a passing grade the student must

- be able to independently search and value information on dairy technology in reference literature, scientific papers and electronic references
- critically evaluate information on relations between milk composition and technological properties

Contents

- milk production
- milk composition
- chemistry of milk
- physical properties of milk
- microbiology of milk
- quality control
- hygiene
- nutritional aspects
- effect of processing
- process rheology
- dairy industry in Sweden and from an international point of view
- laboratory experiments: chemistry of milk and microbiology of milk

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written examination, study visits and laboratory exercises. The final grade is based on written examination and laboratory exercises.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0119. **Name:** Written Examination.

Credits: 5. **Grading scale:** TH. **Assessment:** Passed written examination.

Code: 0219. **Name:** Study Visits.

Credits: 0. **Grading scale:** UG. **Assessment:** Active participation.

Code: 0319. **Name:** Laboratory Exercises.

Credits: 2,5. **Grading scale:** UG. **Assessment:** Accomplished laboratory exercises and approved laboratory reports.

Admission

Assumed prior knowledge: KBKA10/KBK011 Biochemistry.

The number of participants is limited to: 24

Selection: Completed university credits within the programme. Priority is given to students enrolled on programmes that include the course in their curriculum.

The course overlaps following course/s: KLT051

Reading list

- Walstra, P., Wouters, J.T. M. and Geurts, T.J.: Dairy Science and Technology, 2:nd edition. CRC, Taylor and Francis, 2006, ISBN: 0824727630.
- Dairy Processing Handbook, Third edition. Tetra Pak Processing Systems AB, 2015.
- Hand-outs.

Contact and other information

Course coordinator: Professor Marie Paulsson, Marie.Paulsson@food.lth.se

Course coordinator: Dr Maria Glantz, maria.glantz@food.lth.se

Course homepage: <https://www.ple.lth.se/en/>

Further information: The teaching consists of lectures, laboratory exercises and study visits. The course is intensive during 3 weeks and is given together with commissioned education. Study visits organized during the course are compulsory. In case of legal impediment, the student has to accomplish an individual assignment with an equivalent content.