

Welcome to our live streamed ONLINE course in **Microbiology and Wastewater Treatment** for wastewater treatment professionals

September 20 – 24, 2021

ANOXKALDNES

Course fee

800 € (excl. 25 % VAT).

Course content

Basic microbiology

- Groups of microorganisms
- Bacterial needs
- Microorganisms in groups
- Microbial processes

Wastewater treatment processes

- Activated sludge processes
- Biofilm processes
- Anaerobic processes
- Nutrient removal & - additions
- Combined biological processes

Trouble-shooting

- Diagnostic microscopy
- Problems in treatment processes
- Laboratory tests

Who should attend?

- Process operators / engineers / designers
- Consultants
- Anyone who wants to learn more about the principles of biological wastewater treatment

Get to know your microscopic colleagues

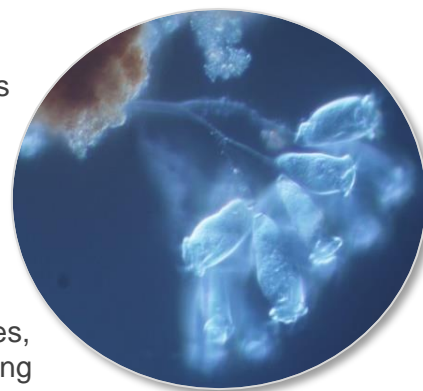
A course dedicated to the hard working teams that are doing all the work in biological wastewater treatment processes – the microorganisms. Learn from experienced professionals how to keep them happy and how to get rid of unwanted guests!

AnoxKaldnes course in Microbiology and Wastewater Treatment is on a basic level and treats topics from microbiology and different types of treatment processes to how to troubleshoot your treatment plant.

Lectures are held by several of AnoxKaldnes wastewater treatment experts, with long experience in the business.

The focus of this course is on the general microbiology of biological wastewater treatment. Whether you are a process operator/process engineer or working in sales, process design, commissioning or engineering design, you will enjoy the coverage of topics, the in-depth lectures and the hands-on troubleshooting.

It will be an interactive, live streamed, online course where you will have the chance to ask questions to the lecturers and have discussions with your fellow course attendees.



Take a virtual step into our lab and discover the exciting microscopic world!



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by  **VEOLIA**
Water Technologies

Course arrangements

Date: September 20 – 24, 2021

Time: 15.00 – 18.15 CEST

How: Online course, live from Lund, Sweden

The course days will consist of lectures and discussions with your fellow course attendees and lecturers.

Technical information

The course is held online and every participant will follow the course from their own computer. Participants will need access to a computer with a camera, speakers and a microphone. We recommend that participants use a headset for optimal quality. A stable internet connection is a requirement. For best course experience, we recommend the usage of two computer screens.



The course fee is **800 € (excl. 25 % VAT)**. The fee includes course material.

Last day of registration is August 20th. Note that the registration is binding. At cancellation before May 30th, 10 % of the course fee will be charged. At cancellation after this, full price will be charged. The name of the participant can be changed until the day of the course. Payment is due in advance, within 30 days after invoicing date.

If you are interested in attending the course, send an email to **kurser@anoxkaldnes.com**. You will then receive a registration form.

If you have questions, please don't hesitate to contact:

Phone: +46 46 18 21 88

E-mail: kurser@anoxkaldnes.com

The following topics will be covered during the course:

Basic microbiology

Groups of microorganisms

Bacteria, archaea, fungi, algae, protozoans, metazoans and virus. What influence do they have on biological treatment processes?

Bacterial needs

What do the bacteria need to grow? What environmental conditions are important? Energy, organics, nutrients, salts, pH, temperature, oxygen and other growth factors.

Microorganisms in groups

Microbial cooperation results in complex transformations that are important in biological treatment processes.

Microbial processes

The application of microbial processes in biological treatment and the cycling of carbon, sulphur, nitrogen and phosphorus.

Wastewater treatment processes

Activated sludge processes

The activated sludge process was invented in 1914 but is still evolving as a technology. Today there are many ways to operate the process.

Biofilm processes

From trickling filters to suspended biofilm processes. How are they operated and how do they match up to the activated sludge process?

Anaerobic processes

Anaerobic treatment processes for industrial and municipal wastewaters.

Nutrients in biological treatment processes

Biological nitrogen and phosphorus removal in municipal plants and optimal nutrient dosage in certain industrial plants.

Combined biological processes

The combination of different biological processes has gained a growing interest. What can be achieved and what are the limits?

Trouble-shooting

Diagnostic microscopy

The use of a phase-contrast microscope for assessment of sludge/biofilm quality and for trouble-shooting.

Problems in treatment processes

We will discuss the most common problems in industrial and municipal treatment plants and how to solve them.

Laboratory tests

How can degradation tests, inhibition assays, toxicity testing and molecular biology contribute to process optimization?

*The **objective** of this course is to give the participants knowledge of the microbial processes that are the heart of biological wastewater treatment.*

This knowledge is an important tool when it comes to design, operation, trouble-shooting and optimization of the treatment processes.

The understanding that the processes are based on living organisms with different needs gives an extra dimension of meaningfulness when it comes to designing and taking care of a treatment plant in the best possible way.

Teachers



Charlotte Carlsson, M.Sc.
Laboratory manager

Bioassays for degradation and inhibition



My Carlsson, PhD
Services Manager

Anaerobic processes,
Process microbiology



Magnus Christensson, PhD
Senior Research manager

Municipal wastewater
treatment, Biological
nutrient removal



Maria Ekenberg, M.Sc.
Process Specialist

Industrial wastewater treatment,
Diagnostic microscopy



Christian Rosén, PhD
Process specialist and Sales Engineer

Municipal wastewater
treatment, Modeling and
control



Eva Tykesson, PhD
Process Specialist

Biological nutrient removal,
Diagnostic microscopy



Thomas Welander, Docent
Chief Visionary Officer

Industrial wastewater
treatment, Process
microbiology



Linn Malmquist, M.Sc.
Process Engineer

Diagnostic microscopy