

ADVANCED COURSE

# Biopharmaceutical Bioprocessing

15 - 19 September 2025

Michel Eppink  
Marcel Ottens  
Marieke Klijn

## AIM OF THE COURSE

Recent advances in the biopharmaceutical field (Cell and Gene Therapies, Vaccines and Biopharmaceutical Proteins) has increased the number of innovative human medicines for different diseases (e.g. cancer, auto-immune, infections).

Process development, scalability, and implementation of these innovative medicines is a main issue for different companies due to the lack of process knowledge, thereby delaying the commercial introduction of new medicines.

Experts from academia, industry, and regulatory agencies have joined forces and will present a program that addresses biopharmaceutical bioprocessing in depth, covering drug discovery, upstream/downstream processing, analytics, as well as regulatory and clinical perspectives. The focus of the course is on the design of innovative processes for cell therapies, gene therapies, vaccines, and biopharmaceutical proteins, complemented with examples of mammalian processes for biopharmaceuticals. A substantial part (ca. 40% of the time) will be dedicated to a case study, executed in teams of 4-6 participants.

This case study is about the design of a bioprocess for the production of a therapy from one of the four different fields. This includes the upstream/downstream process design and you will take into account the needed process analytics and an overall process economic evaluation. The team with the best design performance wins the Biopharmaceutical Bioprocessing prize. There are several guest lecturers from leading universities and companies in the bioprocess field, providing latest insights in technology innovations, cell lines and new bio-product categories, complemented with views from the industrial practice.

## COURSE DESCRIPTION

This one-week course is intensive and offers full-day programs. To ensure active participation by those attending, a combination of theoretical (lectures) and practical work (exercises, case study) is offered. Some online preparatory materials will be given to ensure all participants have access to have the same basic knowledge.

## LECTURES

The core lectures are mainly scheduled in the mornings and will focus on the following themes:

- Overview of the different therapies present in the field of Biopharmaceuticals
- Upstream and Downstream Process understanding needed for Biopharmaceuticals
- Scale-up processes and their scale up features
- Analytics, including process analytical technologies, needed to monitor the process development and product characterization

Invited lectures are scheduled on e.g. examples of successful bioprocesses, downstream processing, upstream processing, patient perspective, regulatory, drug development and economic aspects of bioprocessing.

## CASE STUDY

The case study will be developed in such a way that the lectures in the morning will give the information needed to develop the case study step by step in the afternoon. The course will be given in English.

## WHO SHOULD ATTEND?

The course is primarily aimed at academic and industrial professionals (MSc, PhD or equivalent experience) who seek for refreshing and broadening their know-how and practical insight in Biopharmaceutical Bioprocessing, to enable progress towards the development of human medicines. A background in e.g. bioprocess engineering, pharmaceuticals or biochemistry and a basic working knowledge of the other disciplines is expected.

## COURSE BOARD

Michel Eppink  
Marcel Ottens  
Marieke Klijn  
Bioprocess Engineering  
Section Department of Biotechnology  
Delft University of Technology  
Delft, the Netherlands

## TU DELFT

Cees Haringa  
Martin Pabst

## COURSE COORDINATION

Yvonne van Gameren  
Jenifer Baptiste  
BioTech Delft, Delft University of Technology  
Department of Biotechnology  
Delft, the Netherlands

## LECTURERS

Chris Klijn  
Genmab

Sophie van Tomme  
Sanofi

Evelyn van der Aa  
CCMO

Lenneke de Winter  
Polpharma Biologics

Jan Schouten  
Eef Dirksen  
Ingrid Overes  
Byondis

Bianca Consorti Bussamra  
Valentine Tuyishime  
J&J Innovative Medicine

Mathieu Streefland  
Galapagos

Dirk Martens  
Wageningen University & Research

Silvia Pirrung  
Novo Nordisk

Mariken Segers  
Intravacc

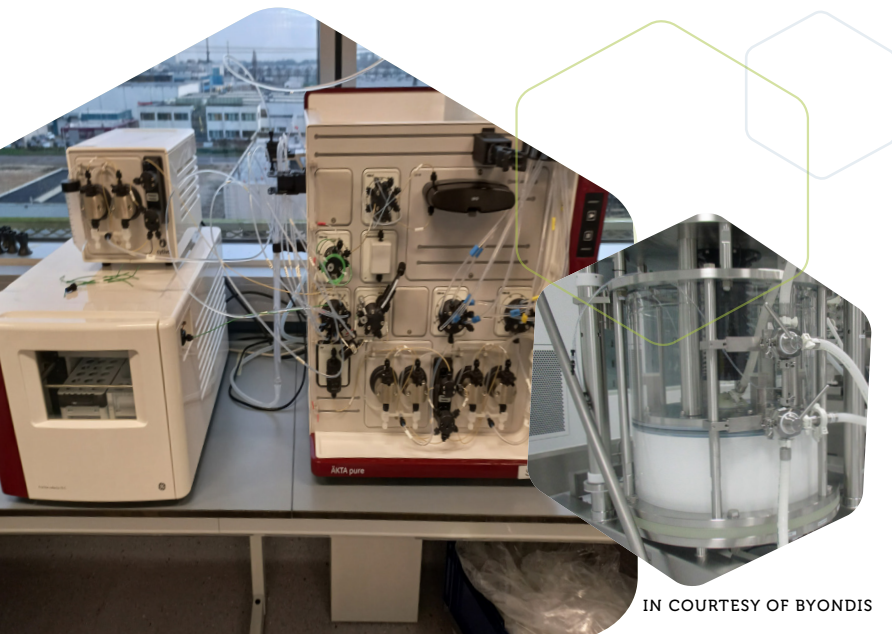
Marc Bisschops  
Cytiva

Mariana Sao Pedro  
VectorY

Emile van den Akker  
Sanquin

Marcel Hoefnagel  
CBG

Pauline Meij  
LUMC



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# PROGRAM

## MONDAY 15 SEPTEMBER 2025

Theme: Drug discovery & cell line development

- 08:45** Registration
- 09:00** Introduction to the course  
*Michel Eppink*
- 09:10** Introduction to biopharma products & business  
*Michel Eppink*
- 10:15** Drug discovery  
*Chris Klijn*
- 11:15** Patient perspective  
*Sophie van Tomme / Evelyn van der Aa*
- 12:15** Group picture & Lunch
- 13:00** Cell line Development  
*Lenneke de Winter*
- 14:00** Lab automation for screening  
*Jan Schouten*
- 15:00** Case study
- 16:30** Group presentations
- 18:15** Social event

## TUESDAY 16 SEPTEMBER 2025

Theme: Upstream processing

- 09:00** Basics of bioreactor processes  
*Marieke Klijn*
- 10:00** Protein production  
*Bianca Cosorti Bussamra*
- 11:15** Cell and gene theory  
*Mathieu Streefland*
- 12:15** Lunch
- 13:00** Scale-up/Scale-down  
*Cees Haringa*
- 14:00** Metabolic modelling of vaccines  
*Dirk Martens*
- 15:00** Case study
- 17:00** End of the day

## WEDNESDAY 17 SEPTEMBER 2025

Theme: Downstream processing

- 09:00** Intro to DSP in biopharma  
*Michel Eppink*
- 09:15** (Small) therapeutic proteins  
*Silvia Pirrung*
- 10:15** Antibodies / Antibody drug / Conjugates / New modalities  
*Michel Eppink*
- 11:00** Vaccines  
*Mariken Segers*
- 11:45** Modelling in DSP  
*Marcel Ottens*
- 12:30** Lunch
- 13:30** Viral Vectors  
*Marc Bisschops*
- 14:15** Gene therapy  
*Mariana Neves Sao Pedro*
- 15:15** Cell therapy  
*Emile van den Akker*
- 16:00** Case study
- 17:30** End of the day

## THURSDAY 18 SEPTEMBER 2025

Theme: Analytics and Economics

- 09:00** Introduction to PAT  
*Marieke Klijn*
- 09:30** Monitoring and control  
*Marieke Klijn*
- 10:15** Mass Spectrometry (MAM)  
*Martin Pabst*
- 11:15** Analytics and specifications  
*Eef Dirksen*
- 12:15** Lunch
- 13:30** Operations and Plant digitalization  
*Valentine Tuyishime*
- 14:15** Process costs and improvements  
*Michel Eppink*
- 15:00** Case study
- 18:00** Course dinner

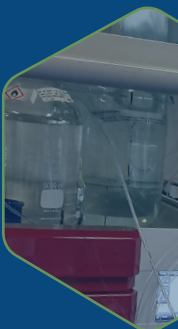
## FRIDAY 19 SEPTEMBER 2025

Theme: Regulatory and case study presentation

- 09:00** Introduction of regulatory landscape  
*Marcel Hoefnagel*
- 09:45** Patient Perspective (Patient engagement)  
*Sophie van Tomme / Evelyn van der Aa*
- 10:55** Protein-based products  
*Ingrid Overes*
- 11:30** ATMPs  
*Pauline Meij*
- 12:15** Lunch
- 13:00** Case study
- 15:30** Presenting the case study
- 17:00** Evaluation and certification

### LOCATION

The course will be held at the  
Delft University of Technology  
Department of Biotechnology  
Van der Maasweg 9  
2629 HZ Delft, The Netherlands



## COURSE REGISTRATION

Please register via the website to attend the course. Deadline for application is 25 August 2025. We can host a limited number of participants. A short motivation letter can be requested after registration, before we can confirm your participation.

## COURSE FEE

€ 3.000 in case of registration before 7 July 2025 or

€ 3.250 in case of registration after this date. In the event of cancellation before 21 July 2025, a full refund will be granted. After this date, a 25% fee charge can be made.

The fee for SME companies is € 2.250 and for SME of Biotech Campus Delft is € 1.750.

To facilitate enrolment of young PhD-students from universities, a limited number of fellowships is available. The course fee with fellowship is € 1.750. To apply, please include a copy of your registration as a PhD-student from your university.

The fee includes course materials, lunches, the drinks on Monday and course dinner on Thursday. The fee does not cover other meals and lodging.

When the number of participants is too low to have a fruitful course, BioTech Delft will cancel the event no later than six weeks before the start of the course. The course fee will be reimbursed within three weeks after cancellation.

In case a speaker will not be able to present his/her lecture due to unforeseen circumstances, BioTech Delft will arrange an equivalent replacement.

Preparatory texts will be sent after receipt of the course fee, a month before the start of the course. The complete digital course book will be supplied at the start of the course.



**BioTech Delft** organises biotechnology education at postgraduate level. BioTech Delft closely cooperates with the department of Biotechnology of Delft University of Technology. Since its foundation, in 1987, BioTech Delft has very successfully organised various types of postdoctoral education.

Currently BioTech Delft offers Advanced Courses given each year, covering the multidisciplinary spectrum of biotechnology. The courses have a long track-record dating back to 1988.

- *Microbial Physiology and Fermentation Technology (1988)*
- *Downstream Processing (1989)*
- *Biocatalysis and Protein Engineering (1999)*
- *Bioprocess Design (2014)*
- *Modelling and Computation for Microorganisms in Bioprocesses (2018)*
- *Integrated Multi-Omics approaches for Improvement of Industrial Microbes (2020)*
- *Cellular Agriculture (2024)*
- *EPS for Resource Recovery (2025)*
- *Biopharmaceutical Bioprocessing (2025)*

## FURTHER INFORMATION

Jenifer Baptiste, BA

Course coordination

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