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.

BioTechDelft
POSTGRADUATE EDUCATION

TU Delft

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

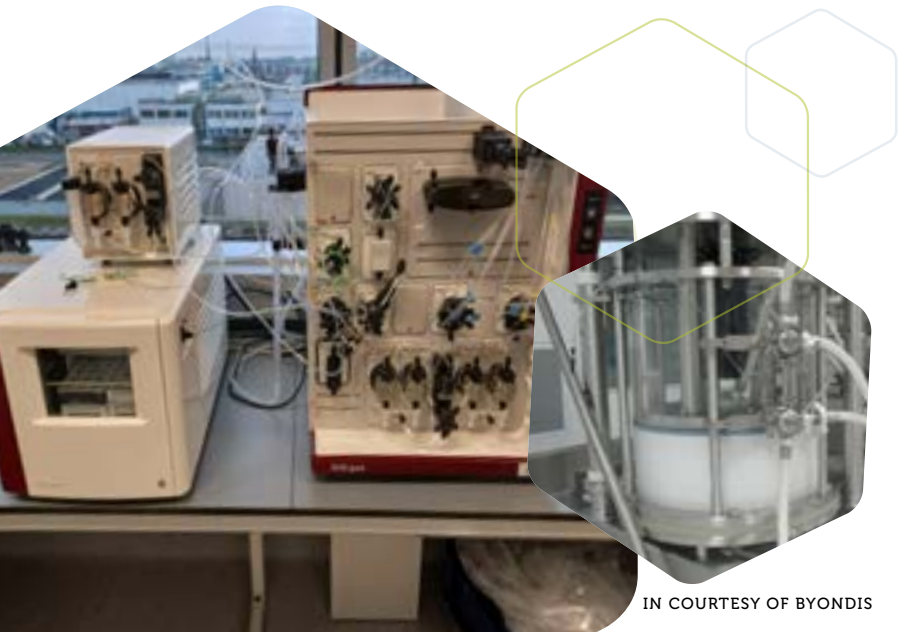
Invited lectures are scheduled on e.g. examples of successful bioprocesses, downstream processing, upstream processing, patient perspective, regulatory, drug development and economic aspects of bioprocessing.

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, pharmaceutics or biochemistry and a basic working knowledge of the other disciplines is expected.



IN COURTESY OF BYONDIS

COURSE BOARD

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TU DELFT

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COURSE COORDINATION

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LECTURERS

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Eef Dirksen
Ingrid Overes
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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

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 Innovations in Cell Line Development
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 Modelling of mammalian cell metabolism
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

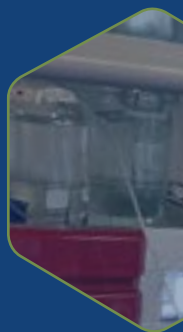
Theme: Analytics & Process Economics

09:00 Introduction to PAT
Marieke Klijn
09:30 Monitoring and control (PAT)
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 ot 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. 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

The course fee can be found on the website. 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 Micro-organisms 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

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Advanced Courses in Biotechnology

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