

Applied Course on

# Advanced Process Data Analytics

15<sup>th</sup> – 17<sup>th</sup> June 2026 – Zurich, Switzerland

3 days, in person @ ETH Zurich

## Aim

This course provides an overview and practical demonstration of advanced data analytics and modeling methodologies for process data. Fundamental concepts to visualize, high-dimensional and highly correlated process and product quality data, to identify the important process drivers as well as forecast the process and product quality behaviour will be presented in lectures. Hands-on coding and brainstorming sessions will be used to solve industry case studies. After the course, the participants will be aware of relevant techniques and literature for process data analysis and will be able to evaluate different analysis paths for a given problem.

## Scope

- Special analysis techniques for process data
- Advanced multivariate data analysis techniques
- Machine learning techniques
- Hybrid process modeling based on process data and process know-how
- Model-based process understanding, optimization, monitoring & forecasting
- Application of techniques to industrial cases

## Who should attend?

Scientists and engineers from academia and industry who encounter or are working with (bio)process data.

The course shall motivate to utilize the presented techniques in ongoing and perspective projects. Previous experience in data analysis can be advantageous but is not mandatory.

## Format

This is an in-person course, hosted at ETH Zurich. The course takes the form of lectures, industry examples, and case studies as well as hands-on sessions with software tasks (Different software packages will be provided to the participant). Supervisors and graduate assistants will support the participants during the interactive workshops and data analysis sessions.

Participants have a unique opportunity to **join the Digital Bioprocessing Symposium on the 17<sup>th</sup> and 18<sup>th</sup> of June**, at no extra cost. Network and exchange with industry professionals and extend this learning opportunity.

## Principal Lecturers

**Michael Sokolov**, Ph.D., MBA  
COO of DataHow and Lecturer at ETH Zurich



Michael is an expert in bioprocess modelling and a regular speaker on the potential of smart digital pharma solutions at international conferences. He conducted his research in close collaboration with the pharma industry and co-authored more than 25 publications.

**Alessandro Butté**, Ph.D., MBA  
CEO of DataHow & Lecturer at ETH Zurich



Besides a long-standing research experience in polymer, separation, and biotechnological processes, Alessandro has several years of experience in the pharma industry. He is a co-author of more than 70 publications and 4 patents.

**Harini Narayanan**, Ph.D.  
Lead of Algorithms R&D at DataHow



Harini is an expert in machine learning and hybrid modeling for bioprocesses, with a strong academic career complemented by extensive industrial collaboration. She has co-authored numerous publications applying machine learning methodologies across a wide range of biomanufacturing applications.

## Venue and Organization

The course will be offered in person at the ETH Honggerberg campus in Zurich. The provided software from DataHow as well as the open-source packages can be used during and after the course. Despite the limitations of such a teaching format, it is our clear intention to deliver the content in similar comprehensibility to an in-person event and allow for many questions and discussion content.

**The participants are welcome to provide their own case studies to be solved in the brainstorming sessions as well as in dedicated Q&A sessions.**

## Course date and program

A preliminary program will be provided and the course outline is available at the link:

<https://datahow.ch/courses/summer-2026-advanced-process-data-analytics-course-eth-zurich/summer-2026-course-program/>

The course will be distributed over 3 days.

## Course fees

The course fees are:

- Industry: CHF 2'950.00 This course is tailored to professionals in (bio)processing spanning process development through manufacturing.
- Academia: CHF 1'750.00 The course is accessible to educators and researchers affiliated with universities.
- Students: CHF 700.00 The course is available to students upon request. Please send your request with confirmation of your university to our course management: [m.speich@datahow.ch](mailto:m.speich@datahow.ch)

The fee includes lecture and case study summaries in electronic formats as well as the cost of all communication platforms and software packages used in the course.

## Terms and Conditions

Confirmation: A signed confirmation of completion will be delivered to each participant after the course.

Number of participants: A minimum of 8 will be accepted in the course.

Cancellation policy: Cancellation of registration must be submitted in writing or via email to [m.speich@datahow.ch](mailto:m.speich@datahow.ch)

Cancellations made later than 3 weeks before the course start will be subject to a 30% cancellation fee. A colleague may be substituted without penalty. Full refunds will be made in the case that the course is cancelled, e.g., due to insufficient enrolment.

## Registration

Registration is binding unless the minimum of participants cannot be reached. When registering you agree to receive any information regarding the course and other marketing campaigns of DataHow.

In case of questions or for additional information  
please contact:

**Madleina Speich**

HR and Administration Manager

E-mail: [m.speich@datahow.ch](mailto:m.speich@datahow.ch)

We are looking forward to numerous registrations,  
a great knowledge transfer, and a great exchange  
with our experts.

Your DataHow-team.



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# Agenda of the Advanced Process Data Analytics Course

## Agenda of Summer 2026 Switzerland Edition:

### Monday, June 15: Advanced Course (Day 1)

09:00 – 12:40	<b>Multivariate Process Data Analysis (MVDA) Methods</b>
09:00 – 09:30	Introduction of the Lecturing Team and Participants
09:30 – 10:15	Motivation for Process Models and Process Data Specialties
10:15 – 10:45	Roles of Process Models
11:00 – 11:45	Data Unfolding and PCA
11:45 – 12:30	Hands-on Experience & Industrial Use Cases
13:30 – 18:00	<b>Advanced MVDA and Intro to Machine Learning (ML)</b>
13:30 – 14:15	MLR, PCR, PLSR
14:15 – 15:00	PLS2 and Variable Importance
15:15 – 16:30	Introduction to Machine Learning
16:45 – 18:00	Hands-on Experience & Industrial Use Cases
18:30 -	Social Program

### Tuesday, June 16: Advanced Course (Day 2)

09:00 – 12:30	<b>ML Method &amp; Knowledge Support</b>
09:00 – 10:15	Examples of Machine Learning Tools
10:15 – 11:15	Gaussian Processes
11:30 – 12:30	Basic Principles of Hybrid Models
13:30 – 18:00	<b>Hybrid Modeling</b>
13:30 – 14:30	Hands-on Experience & Industrial Use Cases
14:30 – 15:30	Industrial Examples of Hybrid Models - USP
15:45 – 16:45	Industrial Examples of Hybrid Models – DSP
16:00 – 18:00	Hands-on Experience & Industrial Use Cases
18:30 -	Social Program

### Wednesday, June 17: Advanced Course (Day 3)

09:00 – 12:30	<b>Applications of Smart Digital Solutions in Bioprocessing</b>
09:00 – 10:00	Bayesian Optimization for Experimental Design
10:00 – 10:45	Predictive Spectral Modeling
11:00 – 11:45	Digital Twins & Real Time Applications
11:45 – 12:30	Hands-on Experience & Industrial Use Cases
12:30 – 12:40	Feedback & Certification
13:00 – 18:00	<b>Digital Bioprocessing Symposium CH by DataHow @ ETH Hönggerberg</b>
18:00 -	Networking Dinner

----- Symposium participation **is included** for course participants.-----

### Thursday, June 18: Digital Bioprocessing Symposium CH by DataHow @ ETH Hönggerberg

08:30 – 18 :00      See: <https://discover.datahow.ch/symposium-2026>