Downstream Processing: Chromatography

Learn the most suitable purification operation for your process and find out about new technologies on the horizon

27 – 30 NOVEMBER 2017

Held at the Department of Biochemical Engineering, UCL, London, UK
Who should attend?

This course is intended for engineers, chemists, biologists, biochemists and biotechnologists who are interested in the biochemical engineering aspects of chromatography. Each concept and topic covered will be explained for the beginner – without assuming detailed prior knowledge.

Typically, delegates are: R&D scientists, engineers or managers who need to learn more about scale-up, scaledown and operation of chromatographic methods in a production environment.

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Duration: 4 Days Location: UCL, London

This module focuses on product purification and, through a series of lectures, case studies and a pilot plant session, will enable you to:

- Understand the principles of different methods of process chromatography, including Packed Bed, Monoliths, Expanded Bed.
- Select the appropriate media for, and predict the performance of, chromatography separations upon scale-up.
- Assess the suitability of affinity separation as a product purification operation and gain awareness of advances in rational ligand design for difficult separations.
- Determine appropriate strategies for the maintenance of column and process hygiene.
- Consider how chromatography is changing at industrial scale, and which new technologies will have an impact in the future.
- Network with sector leaders and subject matter experts.

Previous Expert Speakers Include

- Daniel Bracewell, UCL (Module Leader)
- Bo Forsberg, CMC Biologics
- Iwan Roberts, Puridify
- John Emerson, Sartorius-Stedim
- Jon Baker, GE Healthcare
- Sunil Chhatre, Sartorius-Stedim
- Carsten Voss, Bio-Rad Laboratories
- Edward Close, Process Systems Enterprise
- Patrick Gurgel, Prometic Biosciences
- Hans Johansson, Purolite
- David Johnson, Pall
- Thijs Groenewegen, Proxys
- Bas Stevens, Proxys
- Tomas Kostelec, BIA Separations
- Ajoy Velayudhan, UCL

Course costs include materials, lunches and refreshments. Accommodation is not included, but we have negotiated special rates at nearby hotels. Details will be sent with registration pack.

University College London reserves the right to cancel any module which does not attract sufficient interest up to 48 hours before the start of the module. Delegates are responsible for the arrangement and payment of their own travel and accommodation. University College London claims no responsibility for delegates’ commitments made with travel agencies and hotels in the event of a module being cancelled.
Programme

Emphasis is on teaching through interactive problem solving case studies in small classes for effective learning.

**DAY 1**

- Chromatography fundamentals
- Models and scale-up
- Role of adsorption isotherms in chromatography
- Radial flow chromatography

**DAY 2**

**PILOT-PLANT STUDIES: Chromatography**

- Packing and operation of radial flow column
- Automation and scale-down for chromatography screening using robotic systems
- Calculations of productivity and throughput for process chromatography

- Continuous chromatography in biopharmaceutical industries
- Design and manufacturing of chromatography resins
- Affinity separation
- Process-scale separations with monolith chromatography
- The challenges of large scale chromatography

**DAY 3**

- Process hygiene and column maintenance

**CASE STUDY: mAb purification, considerations for elution and wash-buffers**

- The use of chromatography membranes for the development and scale-up of biopharmaceutical processes. Case studies and new trends in the use of membrane adsorbers
- Micro scale-down technologies for high throughput development of chromatographic separations
- Digital design of chromatographic bioseparations
- Scale-down and process economics for packed bed bioprocesses
- Nanofibres as flexible, single use alternate to traditional chromatography

**DAY 4**

- Mixed mode chromatography – understanding interactions and developing purifications
- Design of biomimetics for affinity separations

**CASE STUDY: Where and when to apply chromatography?**

- Where will further improvements in Chromatography come from?

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“Good interactive sessions relevant to wide spectrum of lab/commercial scale/development scale processes.”

Course Delegate

“The case studies were the best part of the course as I learned how to apply knowledge gained in the lectures to solve problems.”

Course Delegate

“High quality of the speakers and the case study sessions.”

Course Delegate
The award winning Modular Training Program for the Bioprocess Industries (MBI®) is acknowledged as the leading international provider of innovative UCL-accredited short courses in bioprocessing. These courses are designed to support continued professional and technical development within the bioindustry. Stakeholder impact is high with over 70 senior industrial experts contributing to the design and delivery of cutting-edge modules each year. MBI® plays a central role within the context of our larger knowledge transfer continuum which ensures cutting edge research is undertaken to capture the value of integrating engineering with complex and fast moving biology so that we can keep the global industry ahead in manufacturing. Modules are designed for flexible professional and technical development with options for achieving Certificate, Diploma or Masters level qualifications.

For further information and bookings please contact:
E: mbi-training@ucl.ac.uk
T: +44 (0) 20 7679 9619
www.ucl.ac.uk/mbi

Other Short Courses and CPD from the UCL Advanced Centre for Biochemical Engineering:

**MBI® Courses**

October 2017
NEW Antibody Targeted Therapies (on-line MBI module)

2 – 4 October 2017
Principles of Fermentation Processes

16 – 18 October 2017
Rapid Fermentation Process Design

13 – 16 November 2017
Downstream Processing – From Cell to Column

27 – 30 November 2017
Downstream Processing – Chromatography

22 – 24 January 2018
Current Challenges in Mammalian Cell Processing

26 February – 1 March 2018
Quality by Design for Effective Bioprocess Characterisation and Validation

12 – 14 March 2018
Design of Experiments for Bioprocess Optimisation

23 – 26 April 2018
Analytical Data Analysis for the Bioprocessing Industry

16 – 18 May 2018
Vaccine Bioprocess Development and Commercialisation

4 – 7 June 2018
Bioprocess Design & Economic Evaluation

25 – 28 June 2018
Bioprocess Facility Design

9 – 11 July 2018
NEW Advancing Cell & Gene Therapy Bioprocessing and Manufacture

COMING SOON
Industrial Biotechnology: Biocatalysis through to Synthetic Biology (on-line MBI module)
Contact us for 2017/18 course dates

**VISION Leadership Training**

4 – 6 October 2017
UCL VISION Leadership Course
Held at KGI, USA

Autumn 2018
UCL VISION Leadership Course
Held at UCL, UK
Contact us for course dates

Bespoke courses are also available
Please contact mbi-training@ucl.ac.uk to discuss your requirements.