The aim of this course is to provide individuals with an introduction to fermentation concepts in industrial settings and their successful implementation for bioproductions at industrial scale. The course will be lecture-based with visual aids to help the attendees to understand the fermentation principles discussed.

The course will be structured into sections based upon the topics presented. The first section (“Industrial Fermentation Basics”) will address topics on bioreactor design including aspects such as ratios, agitator design, sparger design and sterilization of equipment and media. The second section (“Successful Industrial Scale-up Stories”) will deal with actual operational issues of industrial fermentation processes that also covers issues involved in scale-up to production size bioreactors.

Discussions about microorganisms employed, culture media, foam control strategies, shear, mixing, aeration, feeds and different types of fermentations and the controls involved will be also addressed.
# SYNPOL´s Course on *Industrial Fermentation Processes*

**Venue**

Auditorio Marie Curie  (Main Building)  
Parc Científic Universitat de València  
C/ Catedrático Agustín Escardino nº 9  
46980 Paterna (Valencia), Spain

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## Morning session: “Fermentation Basics”

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<th>Time</th>
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| 09:00 | Opening Announcements  
Prof. José Luis García  
(SYNPOL Project Coordinator; CIB-CSIC, Spain) |
| 09:15 | Introduction to Bacterial Fermentation: Aerobic & Anaerobic Mode  
Prof. Peter Dürre  
(University of Ulm, Germany) |
| 09:55 | Microbial Growth & Biotechnological Productions in Bioreactors  
Dr. Kevin O´Connor  
(University College Dublin, Ireland) |
| 10:35 | Bioreactor Design  
Dr. Daniel Egger  
(INFORS AG, Switzerland) |
| 11:45 | Basic Operations with Bioreactors – Process Control  
Prof. Manfred Zinn  
(HES-SO, Switzerland) |

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## Afternoon session: “Successful Industrial Scale-up Stories”

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<th>Time</th>
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| 14:30 | Recombinant Protein Production Technology at BIOPOLIS  
Dr. Marta Tortajada  
(Biopolis S.L., Spain) |
| 15:00 | Biopolymer Composites Processing Technology and Applications – A View from BIOPLASTECH  
Dr. Ramesh Babu  
(Bioplastech Ltd., Ireland) |
| 15:30 | The OWS Bioreactor Technology for Anaerobic Digestion of Different Waste Streams into Biogas  
Bruno de Wilde  
(Organic Waste Systems N.V., Belgium) |
| 16:00 | Probiotics Production Technology with *Bifidobacterium longum* Designed for People with Celiac Disease  
Prof. Daniel Ramón  
(Biopolis S.L., Spain) |
| 16:30 | Course Evaluation & Learning Outcomes Survey  
Prof. José Luis García  
(SYNPOL Project Coordinator; CIB-CSIC, Spain) |
| 16:45 | Closing of the course |

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## Registration

Registration contact before course: drzyzga@cib.csic.es  
Attention: No course fee, but limited access!  
08:30 on-course Registration Opening

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## Course management

Chairman: Prof. José Luis García  
(SYNPOL Project Coordinator; CIB-CSIC, Spain)  
Moderator: Dr. Oliver Drzyzga  
(SYNPOL Project Manager; CIB-CSIC, Spain)