

Scientific Advisory Board

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Leiden, the Netherlands

Prof. Jeroen Hugenholtz
NIZO Food Research, Ede, the Netherlands

Prof. Jack Pronk
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Department of Biotechnology,
Delft, the Netherlands

Kluyver Centre Lecturers

Dr. Jean-Marc Daran
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Dr. Johan van Hylckama Vlieg
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Dr. Aljoscha Wahl
Delft University of Technology,
Department of Biotechnology,
Delft, the Netherlands

Prof. Han de Winde
Delft University of Technology,
Department of Biotechnology,
Delft, the Netherlands

Guest Lecturers

Dr. Dave Archer
University of Nottingham,
School of Biology, Nottingham,
United Kingdom

Dr. Marco van den Berg
DSM Anti Infection,
Delft, the Netherlands

Dr. Wim de Boer
DSM Food Specialties,
Delft, the Netherlands

Dr. Eric Johansen
Christian Hansen A/S,
Hørsholm, Denmark

Dr. Herman Pel
DSM Food Specialties,
Delft, the Netherlands

Dr. Hans Roubos
DSM Food Specialties,
Delft, the Netherlands

Dr. Harald Ruijsenaars
TNO, Delft, the Netherlands

Prof. Uwe Sauer
ETH, Zürich, Switzerland

Dr. Peter Schaap
Wageningen University,
Wageningen, the Netherlands

Dr. An Tanghe
Katholieke Universiteit Leuven,
Leuven, Belgium

Dr. Mike Walsh
Heineken Technical Services BV,
Zoeterwoude, the Netherlands

Course Director

Prof. Han de Winde
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Department of Biotechnology,
Delft, the Netherlands

Course Coordination

Ms. Ger Aggenbach
Biotechnology Studies Delft Leiden,
Delft University of Technology,
Department of Biotechnology,
Delft, the Netherlands

Kluyver Centre for Genomics of Industrial Fermentation

The Kluyver Centre for Genomics of Industrial Fermentation is one of the five Centres of Excellence of the Netherlands Genomics Initiative, which pursue the highest standards in genomics research. It is a consortium of Delft University of Technology, Wageningen University Research Centre, Leiden University, Utrecht University, Top Institute Food and Nutrition, Groningen University, Free University Amsterdam and NIZO Food Research.

The Kluyver Centre employs microbial genomics to improve micro-organisms for use in industrial fermentation processes. Fermentation is used in the production, from renewable feedstocks, of food products and ingredients, beverages, pharmaceutical compounds, nutraceuticals, and fine and bulk chemicals. The research covers five programmes: yeast fermentation, fungal fermentation, lactic acid fermentation, biocatalysis and genomics tools including bioinformatics.

VLAG (acronym for the Dutch "Voeding, Levensmiddelen-technologie, Agrobiotechnologie en Gezondheid") is a graduate school founded as a joint initiative of the Universities of Wageningen, Maastricht, Nijmegen and Utrecht and five Research Institutes on Food, Feed and Health (Agrotechnology & Food Innovations, RIKILT-Institute of Food Safety, NIZO Food Research, TNO Nutrition and Food Research Institute, and RIVM (National Institute of Public Health and the Environment)). VLAG's comprehensive and challenging PhD programme trains its graduate students as highly qualified researchers in the areas of food technology, agrobiotechnology, nutrition and health sciences.

Biotechnological Sciences Delft Leiden (BSDL) is a graduate school founded as a joint initiative in biotechnological research and education of Delft University of Technology and Leiden University. It is supported by special funds supplied by the two universities, the Dutch government and the European Union. The BSDL postgraduate educational programme features PhD studies and special two-year postgraduate programmes for those who wish to tailor their own specialisation to the needs of multidisciplinary biotechnological research and design.

The latter programmes are offered by the Institute for Biotechnology Studies Delft Leiden (Institute BSDL) and lead to the degree of 'Professional Doctorate in Engineering'. It also includes participation in a series of Advanced Courses covering the multidisciplinary spectrum of biotechnology:

- MICROBIAL PHYSIOLOGY AND FERMENTATION TECHNOLOGY
- DOWNSTREAM PROCESSING
- ENVIRONMENTAL BIOTECHNOLOGY
- BIOCATALYSIS
- APPLIED GENOMICS OF INDUSTRIAL FERMENTATION
- QUALITY MANAGEMENT IN PHARMA AND BIOTECH

Further information

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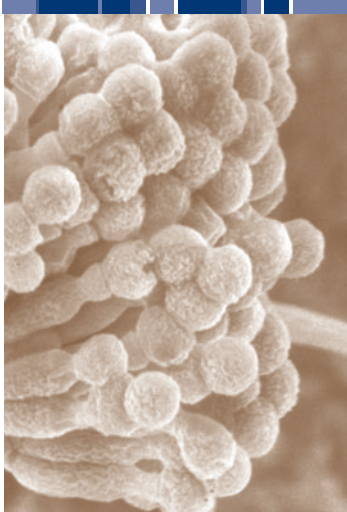
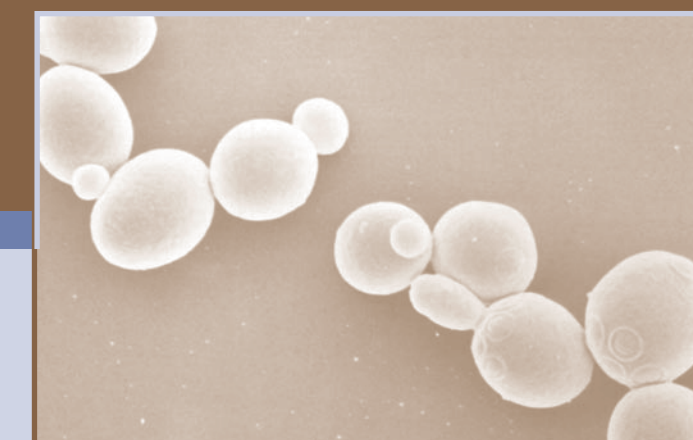
Address

Institute Biotechnology Studies Delft Leiden (BSDL)
Delft University of Technology, Department of Biotechnology
Julianalaan 67, 2628 BC Delft, the Netherlands

Advanced Course

APPLIED GENOMICS OF INDUSTRIAL FERMENTATION

13-17 October 2008



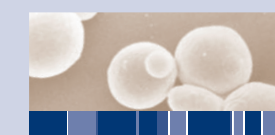
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The Netherlands



Kluyver | CENTRE | Kluyver Centre for Genomics of Industrial Fermentation



Aim

The Advanced Course on "Applied Genomics of Industrial Fermentation" aims at familiarizing industrial and academic research professionals (i.e. MSc, PhD) with the modern concepts of Genomics, their use in microbial research and development, and their utility in contemporary biotechnological industry. The Course is organised through the Kluver Centre for Genomics of Industrial Fermentation (described on the back of this brochure), and is instrumental in the dissemination of the results of this Centre of Excellence.

Applied Genomics is defined as the singular and combined utilization of the modern molecular research tools transcriptomics, proteomics, and metabolomics to elucidate cellular regulatory mechanisms of sensing and signalling, metabolic flux and physiology. Mathematical tools are indispensable to analyze, interpret and model the experimental data. In combined approaches, these tools offer unprecedented possibilities for industrial fermentation research.

Experts will present lectures on genome analysis and -interpretation, genome-wide gene expression analysis (DNA micro arrays, transcriptomics), whole-organism protein expression and activity analysis (proteomics), and metabolic pathway analysis (metabolomics). Data handling and bioinformatics are key to the successful application of Applied Genomics and hence, will be an integral part of the course. Application of these technologies in industrial R&D (modelling, network analysis and metabolic engineering) will be illustrated with real-life examples. The necessary links between theory and practice will be provided in interactive case studies and demo-workshops. In addition, there will be ample opportunity to interact and discuss with the expert lecturers in several small-group, round-table discussions.

Duration & Location

This Advanced Course will be given on **Monday, 13 October - Friday, 17 October 2008**. The course will be held at the **Conference Centre 'De Wageningse Berg'**, **Generaal Foulkesweg 96**, **6703 DS Wageningen**, **The Netherlands**.
P +31-317-495911
F +31-317-418208
E info@wageningseberg.nl
W www.wageningseberg.com

Please note: registration is handled by BSDL at the address on the back of this brochure!

Course description

This intensive, high-diversity, one-week course is aiming at active participation of those attending. To this end, the course is built with an alternating programme of expert lectures, case studies, workshops and round table discussions.

Morning programme

Expert lectures (except the closing lecture) are scheduled in the mornings. Attention will be on a variety of themes:

- Genome sequencing and annotation
- Molecular cell biology
- Transcriptomics technology
- Proteomics technology
- Metabolomics technology
- Bioinformatics
- Metabolic engineering & network analysis
- Biodiversity & classical genetics
- Evolutionary engineering
- Regulation, legislation and society
- Examples from biotechnology industry

Afternoon programme

In the afternoons (except on the final day) several case studies and workshops illustrate the utility and utilization of Genomics in modern biotechnology. The expert lecturers will be available for round-table discussions with small groups on selected themes.

Hand outs and supplementary material will be made available to the participants. The official course language is English.

Who should attend ?

This Advanced Course is aimed both at participants from industry, who want to up-date and extend their theoretical knowledge and practical insight in this field and at participants from universities and research institutions with a wish to evaluate practical implications of their research.

The course is intended for postgraduates (MSc, PhD), with a sound background in microbiology, microbial physiology, molecular cell biology, biochemistry or biochemical engineering, with a basic working knowledge in some of the other disciplines. Having some basic insight into one or more of the Genomics technologies or in bioinformatics is not compulsory, but certainly is an advantage.

	13 October 2008	14 October 2008	15 October 2008	16 October 2008	17 October 2008
THEME	GENOME SEQUENCE & ANALYSIS	ANALYTICAL TOOLS	METABOLIC ENGINEERING	GENOMICS AND STRAIN IMPROVEMENT	GENOMICS IN INDUSTRIAL PERSPECTIVE
LECTURES (AM, PM WHERE INDICATED)	<ul style="list-style-type: none"> ■ Registration ■ INTRODUCTION: Genomics - Fashion or Fact? Han de Winde ■ Microbial genome sequencing: past, present & future Johan van Hylckama Vlieg ■ Comparative Genomics Peter Schaap ■ Why sequence genomes of industrial micro-organisms? Marco van den Berg 	<ul style="list-style-type: none"> ■ Transcriptomics: a technology review Jean-Marc Daran ■ Proteomics: a technology review Peter Verhaert ■ Metabolomics Aljoscha Wahl ■ Linking the -omes Pascale Daran-Lapujade 	<ul style="list-style-type: none"> ■ Metabolic engineering: an introduction Sef Heijnen ■ Quantification of yields & fluxes Sef Heijnen ■ Analysis and modification of regulatory networks Han de Winde ■ Analysis and modification of metabolic networks Uwe Sauer 	<ul style="list-style-type: none"> ■ Biodiversity: nature's opportunities Cees van den Hondel ■ Classical genetics & strain selection An Tanghe ■ Evolutionary engineering and inverse metabolic engineering Jack Pronk ■ Regulatory & societal aspects of strain improvement Patricia Osseweijer 	<ul style="list-style-type: none"> ■ Industrial Genomics: pro's & con's Han de Winde ■ Genomics in the Dairy Industry Eric Johansen ■ Genomics for bulk and fine chemicals production Harald Ruijssenaars
INTERACTIVE	<p>CASE The <i>Aspergillus niger</i> and <i>Penicillium chrysogenum</i> genome projects: strategy, challenges, benefits & IPR Herman Pel / Wim de Boer</p> <p>DISCUSSION GROUPS Small round table groups, with speakers of the day</p>	<p>■ INTRODUCTORY LECTURE Bioinformatics, datahandling & visualization Bas Teusink</p> <p>COMPUTER DEMO'S Bioinformatics: massive data-handling, statistics, interpretation and visualization Douwe Molenaar / Hans Roubos / Bas Teusink</p> <p>DISCUSSION GROUPS Small round table groups, with speakers of the day</p>	<p>SHOWCASE Selected presentations by course participants</p> <p>DISCUSSION GROUPS Small round table groups, with speakers of the day</p>	<p>EXCURSION NIZO, Ede</p> <p>DISCUSSION GROUPS Small round table groups, with speakers of the day</p>	<ul style="list-style-type: none"> ■ Genomics for protein production Dave Archer ■ A brewer's view on Genomics Mike Walsh <p>CLOSING LECTURE ■ Towards Systems Biology Bas Teusink</p> <p>CLOSING CEREMONY</p>

Admission & Submission of Abstract

This course does not have a selection procedure, but the candidates are asked to submit a resume including their scientific background and experience to evaluate the suitability of this course for the candidate. Participants are required to submit an abstract and to bring a poster for the presentation & poster session on the afternoon of Wednesday, 15 October 2008.

Fees & Registration

Please complete and return the attached form if you are interested to attend the course or would like to receive information on following or other courses. Applications will be handled in order of the date of receipt.

The regular fee is:
 € 2750 if the payment is received before **1 September 2008** or
 € 3000 if the payment is received after this date.

To facilitate enrollment of PhD students, a limited number of fellowships is available covering part of the course fee. In that case the reduced fee is € 1500. To apply, please include a curriculum vitae and a copy of your university registration as a PhD student.

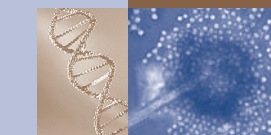
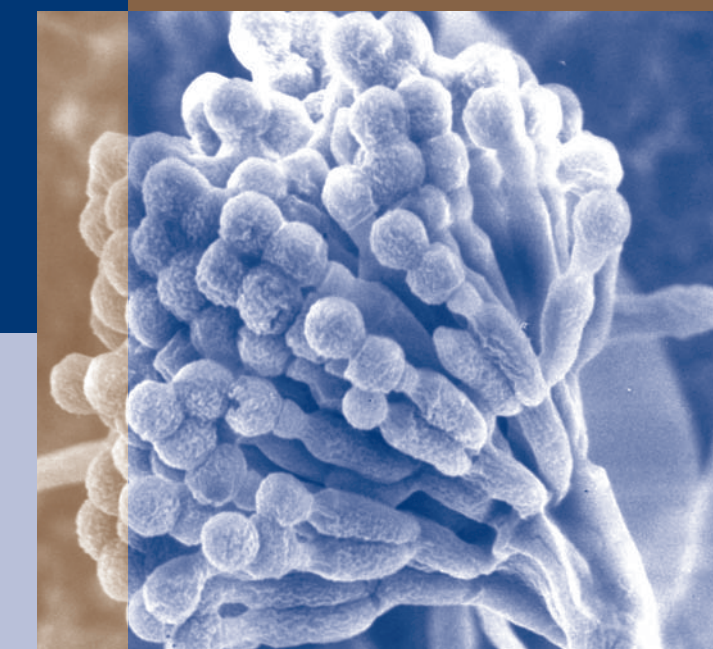
PhD students working in the Research Programmes Kluver Centre for Genomics of Industrial Fermentation or B-BASIC (Bio-Based Sustainable Industrial Chemistry), or in the Research Schools VLAG or BSDL (more information on the back of this brochure), may apply for the special reduced fee of € 1000. To apply, please include a curriculum vitae and a copy of your registration as a PhD student in these Research Programmes or Schools.

The fee includes course materials, meals (5 lunches and 4 dinners) and accommodation (4 nights including breakfast) in "De Wageningse Berg".

Advanced Course Applied Genomics of Industrial Fermentation

- I wish to attend the course of 13-17 October 2008
- I would like to receive information of the other courses of BSDL
- Please send me announcements for the future **Advanced Course Applied Genomics of Industrial Fermentation**

Family name, title, Mr/Mrs _____ First name _____
 Organisation/Company _____
 Address _____
 Phone _____
 Fax _____
 Email _____
 Educational background _____
 Diet wishes _____
 Date / Signature _____



In the event of cancellation before **1 September 2008**, a full refund will be granted. After this date, a 25% fee charge will be made.

Enterprises in the Netherlands can apply for the "Extra belastingaftrek (120%) van bedrijfsinvesteringen in scholing" (www.belastingdienst.nl) or in English: Additional tax deduction (120%) for company investment in education.

Preparatory texts will be sent after receipt of the course fee. The complete course book will be supplied at the start of the course.