

# Course: Applied Enzymology 2024

8-12 April – Groningen Campus; Energy Academy Building (posters in the Greenery in the same building)  
Research institutes ENTEG & GBB, Groningen University; Graduate school VLAG, Wageningen University and Research  
in co-operation with the 6<sup>th</sup> European Summer School on Industrial Biotechnology (ESSIB)  
Course directors: Prof. Marco Fraaije, Dr. Edita Jurak, Prof. Willem van Berkel,  
Dr. Mirjam Kabel, Prof. Jürgen Pleiss, Prof. Marina Lotti  
Local organisers: Prof. Marco Fraaije, Dr. Edita Jurak, Dr. Andy-Mark Thunnissen, Sandra Haan

## Monday, 8 April 2024 - BASIC PRINCIPLES OF ENZYMOLOGY & BIOCATALYSIS

09:00	<i>Registration &amp; coffee</i>	
09:30-09:40	Welcome, short introduction to the program	Prof. Marco Fraaije (RUG, NL)
09:40-10:30	Basic principles of enzymology	Prof. Willem van Berkel (WUR, NL)
10:30-11:20	What enzymes can be used as biocatalysts?	Prof. Marco Fraaije (RUG, NL)
11:20-11:40	<i>Break</i>	
11:40-12:30	Biocatalysis: enantioselectivity & promiscuity	Prof. Gerrit Poelarends (RUG, NL)
12:30-13:30	<i>Lunch (group photo)</i>	
13:30-17:00	<b>POSTER SESSION</b> with poster pitches	

## Tuesday, 9 April 2024 - ENZYME ENGINEERING & COMPUTATIONAL APPROACHES

09:00-09:45	Developments in enzyme engineering for biocatalysis	Dr. Max Fürst (RUG, NL)
09:45-10:30	Designer enzymes	Dr. Clemens Mayer (RUG, NL)
10:30-11:00	<i>Break</i>	
11:00-11:45	Protein engineering to <i>bring progress to life</i> <sup>™</sup>	Dr. René de Jong (dsm-firmenich, NL)
11:45-12:30	Digitalization of biocatalysis: the data exchange format EnzymeML	Prof. Jürgen Pleiss (Uni Stuttgart, DE)
12:30-13:30	<i>Lunch</i>	
13:30-18:00	Computational approaches: demonstrations (FireProt, CAVER, etc.)	Dr. Sérgio Marques / Prof. Jiri Damborsky (Masaryk Uni, CZ)

## Wednesday, 10 April 2024 - BIOMASS-VALORIZING ENZYMES

09:00-10:30	Glycoside hydrolases: structure, function, and CAZY	<i>To be announced</i>
10:30-11:00	<i>Break</i>	
11:00-11:45	Diversity of plant biomass degrading enzymes in fungi	Prof. Ronald de Vries (WI, NL)
11:45-12:30	Novel insights in LPMOs	Dr. Mirjam Kabel (WUR, NL)
12:30-13:30	<i>Lunch</i>	
13:30-18:00	Computational approaches: hands-on exercises on visualization or docking	Dr. Hein Wijma & Dr. Andy-Mark Thunnissen (RUG, NL)

## Thursday, 11 April 2024 - BIOMASS-VALORIZING ENZYMES & INDUSTRY

09:00-09:45	Mining Polysaccharide Utilization Loci (PULs) for enzyme discovery	Dr. Edita Jurak (RUG, NL)
09:45-10:30	Laccases and DyP-type peroxidases	Dr. Lígia Martins (ITQB, PT)
10:30-10:50	<i>Break</i>	
10:50-11:40	Proteases in biotechnology	Dr. Ana Toplak (FK-EnzyPep)
11:40-12:30	<i>Biocatalysis at company X</i>	<i>To be announced</i>
12:30-13:30	<i>Lunch</i>	
13:30-17:00	<i>Company visits</i>	
18:00-21:00	<i>Course dinner (place to be defined)</i>	

## Friday, 12 April 2024 - ENZYMES IN INDUSTRY

09:00-09:45	Enzyme immobilization	Prof. Willem van Berkel (WUR, NL)
09:45-10:30	Upscaling enzyme-based applications	Prof. John Woodley (DTU, DK)
10:30-10:50	<i>Break</i>	
10:50-11:35	Introduction to intellectual properties	Prof. Marc van der Maarel (RUG, NL)
11:35-12:20	Enzymes in malting and brewing	Dr. August Bekkers (Heineken, NL)
12:20-12:30	Closing remarks and certificates	
12:30	<i>Farewell Lunch</i>	