

Short Course: **Molecular Epidemiology of Chronic disease and the Exposome**

Location: Utrecht / online

19-22 April 2022

Course Co-ordinators Roel Vermeulen & Jelle Vlaanderen (IRAS, Utrecht University)

(L) lecture, (P) practical, (CT) course text

Day		Topic	Speaker	Reading
Tuesday 19 April Morning	L 10:30	Design of molecular epidemiology studies Welcome, introductions, and practical matters	Vlaanderen	
	L 11:00	Exposome and health: where chemistry meets biology	Vermeulen	
	L 12:00	Molecular markers to assess the Exposome, early disease, and clinical disease (1/2).	Vlaanderen	
Tuesday 19 April Afternoon	L 14:00	Markers on the exposure disease continuum Molecular markers to assess the Exposome, early disease, and clinical disease (2/2).	Vlaanderen	
	L 15:00	Introduction into statistical methods to study the	Chadeau-Hyam (ICL)	
	L 16:00	Exposome Example of machine learning methods to study the exposome	Ghosh	
Wednesday 20 April Morning	P 10:00	From platform to application Practical I <ul style="list-style-type: none"> • <i>Introduction to R and OMICS dataset</i> 	Vlaanderen; Oosterwegel	
	L 11:00	Metabolomics to study the exposome	TBD	
	L 12:00	Microbiome	TBD	
Wednesday 20 April Afternoon	L 14:00	Preprocessing of OMICS data.	Vlaanderen	
	L 15:00	Practical II <i>Pre-processing and multiple comparisons</i>	Vlaanderen; Oosterwegel	

Day		Topic		Speaker	Reading
Thursday 21 April Morning	L	09:30	Discussion practical II	Vlaanderen	
	P	10:30	Practical III <ul style="list-style-type: none"> • <i>Variable selection methods (LASSO, E-NET)</i> 	Vlaanderen; Oosterwegel	
Thursday 21 April Afternoon	P	14:00	Journal club: discussion relevant exposome paper with exposome researchers	Vlaanderen / Ibi / Oosterwegel / Vermeulen	
	L	16:00	Hallmarks of environmental insults	TBD	
Friday 22 April Morning	L	09:30	Application of OMICS technologies; examples Bioinformatics	Vlaanderen	CT Chapter 27
	P	10:30	Practical work IV <i>Bioinformatics</i>	Vlaanderen; Oosterwegel	
Friday 22 April Afternoon	L	13:00	Discussion Practical IV	Vlaanderen	
	L	14:00	Wrap-up	Vermeulen	
	E	15:00	Exam		