

NORDFORSK-FUNDED RESEARCH COURSE: Register-based epidemiology

PART 1 – NORWAY

Place: University of Oslo, Frederik Holst hus, in Auditorium 124

<https://www.uio.no/english/about/getting-around/areas/geitmyrsveien-ulleval/gv05>

<https://www.uio.no/english/about/getting-around/getting-to-uio/find-your-way-to-frederik-holst-house.html>

Course leaders: Lau Caspar Thygesen, Øystein Ariansen Haaland, and Tone Kristin Omsland

Day 1 –Monday October 7th

	Title	Scientific content	Lecturer(s)
10.15-12.00	Welcome and introduction to register-based research	10.15-10.30 Introduction to course (Tone) 10.30-10.40 Introduction to the Nordic register system (Lau) 10.40-11.00 Birth registries (Lau) 11.00-11.20 Cause of death registries (Lau) 11.20-11.40 Hospitalization/patient registries (Tone) 11.40-12.00 Socioeconomic/demographic/census/population registries (Tone) Strengths and limitations What is in common between countries? What is different between countries?	Lau, Tone
12.00-12.45	Lunch		
12.45-14.15	Study design I	Cross-sectional, cohort, case-cohort, randomized trials where outcome is collected from registers	Tone
14.30-17.00	Group exercises and discussion	Get problem and try to solve it using registries	Lau, Tone
	Preparation for tomorrow	Read webpages on data management (https://snd.gu.se/en/data-management/data-management-resources)	

Day 2–Tuesday October 8th

	Title	Scientific content	Lecturer(s)
9.15-10.00	Data management I	Working with large data “housekeeping” and documentation.	Inger Johanne Bakken
10.15-11.00	Data management I	Defining exposures, outcomes and auxiliary variables in register data (with examples from specific registers).	Inger Johanne Bakken
11.15-12.00	Computer exercises	Exercises in R, STATA and SAS	Tone, Lau
12.00-12.45	Lunch		
12.45-14.45	Study design II	Introducing information bias, selection bias, and confounding in register-based studies	Lau
15.00-16.00	Group exercises and discussion	Return to problems from Monday and critically revise solutions with the different biases in mind	Lau, Tone
	Preparation for tomorrow	Williamson EJ, Aitken Z, Lawrie J, Dharmage SC, Burgess JA, Forbes AB. Introduction to causal diagrams for confounder selection. <i>Respirology</i> (Carlton, Vic). 2014;19(3):303-11.	

Day 3–Wednesday October 9th

	Title	Scientific content	Lecturer(s)
9.15-10.15	DAGs - introduction	How to draw a DAG	Cecilie
10.15-12.00	Group exercises and discussion - DAGs	Draw DAGs for own projects	Cecilie, Øystein
11.15-12.00	Group exercises and discussion - DAGs	Draw DAGs for own projects cont.	Cecilie
12.00-12.45	Lunch		
12.45-14.00	Data management II	Error search; Variables of poor quality. Individuals with excess missing data. Variables with contradictory information, duplicates. Missing ID number. Impossible values etc.	Øystein
14.00-16.00	Computer exercises	Exercises in R, STATA and SAS	Øystein, Maria Magnus
	Preparation for tomorrow	Read selected papers: <ul style="list-style-type: none"> - Brøndum-Jacobsen (2013): Skin cancer as a marker of sun exposure associates with myocardial infarction, hip fracture and death from any cause - Andersen (2016): Association Between Tracheal Intubation During Pediatric In-Hospital Cardiac Arrest and Survival 	

Day 4- Thursday October 10th

	Title	Scientific content	Lecturer(s)
9.15-10.00	Computer exercises, data management II	Exercises in R, STATA and SAS	Øystein, Tone
10.15-11.00	Study design III	Typical systematic errors that can occur when using register based data (for example left truncation and «immortal time bias»)	Tone
11.15-12.00	Group exercises and discussion	Exercise – discuss paper titled “Skin cancer as a marker of sun exposure associates with myocardial infarction, hip fracture and death from any cause”	Tone, Øystein
12.00-12.45	Lunch		
12.45-13.30	Study design IV	Significance vs. relevance. Multiple testing/p-hacking/fishing.	Øystein
13.45-14.30	Individual exercises	Exercise – discuss paper titled “Association Between Tracheal Intubation During Pediatric In-Hospital Cardiac Arrest and Survival”	Tone, Øystein
14.45-15.30	Group exercises and discussion	Discuss answers from individual exercises within groups and between groups	Tone, Øystein
	Preparation for tomorrow	Ludvigsson (2015): Ethical aspects of registry-based research in the Nordic countries	

Day 5 - Friday October 11th

	Title	Scientific content	Lecturer(s)
9.15-10.00	Research integrity in health registry research	The principles forming the basis of the laws that govern health registry research	Heidi Beate Bentzen
10.15-12.00	Laws and regulations - workshop	Students have submitted two slides with legal and ethical aspects of their own projects. <ul style="list-style-type: none"> - Ethical approvals (e.g., local ethical committee, from data owner) - Legal necessities (e.g., notify all participants) - Choices of variables (e.g., everything vs. only what is strictly needed) - Level of detail (e.g., birth date vs. birth year) - Other legal or ethical issues Students present slides to all the students from the same country. Each country choses one project to be presented. Plenary discussions with input from teachers.	Ina Nepstad Øystein
12.00-12.45	Lunch		
12.45-13.30	Individual exercises	Combine register data from more Nordic countries to improve own project	Ina Nepstad Øystein
13.45-15.00	Group exercises	Combine register data from more Nordic countries to improve own project	Ina Nepstad Øystein
15.00-15.30	Answer questionnaire and wrap up the week. Go through what is expected by the students before Copenhagen		Tone