

The Swedish Interdisciplinary Graduate School in Register-Based Research (SINGS)

New call - deadline for application is May 17, 2021 at 14:00

Registration number: **UTB 3-1689/2021**

Context and aim

Swedish registers constitute a unique resource for research, and thus contribute to better public health and welfare. Individual-level data, so-called microdata, includes vital events, health aspects, and demographic and socioeconomic indicators for the entire population over decades. These features make these data an indispensable and powerful resource for answering a multitude of research questions in a time- and cost-effective manner. However, when using these properties for research purposes, ethical and legal considerations must be encompassed to the full.

The Swedish Interdisciplinary Graduate School in Register-Based Research (SINGS) is funded by the Swedish Research Council and included in the Swedish Network for Register-Based Research (SWE-REG), a collaboration between eight nodes – seven research environment and the graduate school SINGS in register-based research. SINGS is coordinated by Karolinska Institutet and six other Swedish higher education institutions take part: University of Gothenburg, Stockholm University, Lund University, Linköping University, Umeå University and Uppsala University.

Participation in SINGS aims to develop deeper knowledge and skills regarding how different sources of data can and should be utilised in research, in preparation for a career within academia or elsewhere. The SINGS programme has a truly interdisciplinary profile and is of relevance to all quantitative research fields that use registers in research, such as epidemiology, public health, sociology, demography, psychology, statistics, health economics, and other medical and social sciences.

At this call, approximately 25 students will be admitted. Announcement of admission will be in early June 2021.

Objectives

The overall objectives, which are further specified in intended learning outcomes (ILOs) for the courses, are formulated so that after successfully completing the programme the student shall be able to:

- demonstrate thorough knowledge of existing registers,
- demonstrate an ability to identify and formulate problems of relevance for register-based research,
- demonstrate an ability to use appropriate methods to undertake research-based research,
- demonstrate a capacity to perform and assess register-based research, following laws and research ethical principles,
- demonstrate methodological and practical skills when undertaking register-based research, and
- demonstrate insight into the possibilities and limitations of register-based research.

Programme overview

The structured programme includes a minimum of 12 higher education credits (HEC) and runs for two years, beginning fall semester 2021 (1.5 HEC corresponds to one week of full-time studies). Courses represent the major part and include seven core courses as well as elective courses on a variety of topics and at different levels to enable the tailoring of individualised study plans. The courses are to be followed in a logical order. Students are expected to take all core courses and a minimum of one elective course.

The educational activities focus on methodological, practical, ethical, and legal aspects related to register-based research. Besides courses, also retreats, workshops, and seminars will be arranged

regularly, where issues will be highlighted from theoretical, applied, methodological and practical perspectives. The programme activities provide unique opportunities for networking and aim at facilitating communication between students and researchers as well as with authorities and other data-owner groups.

Each semester, one to three core courses and a few elective courses will be arranged. Several of the educational activities will be done in collaboration with international researchers. All activities will be in English. Most of the educational activities will be arranged at Karolinska Institutet, but some will be held elsewhere. E-learning activities will also be used. Travel costs and lodging will be covered in relation to educational activities arranged by the school. Salaries cannot be paid by the school.

Courses

Core courses

"Key concepts and principles for design and critical interpretation of register-based studies" (4.5 HEC)

This course covers central concepts and principles for design and critical interpretation of register-based studies, taking ethical considerations and legal principles into consideration, and is divided into three aligned modules.

Module 1, week 1:

"Central concepts, designs and methods in epidemiological and sociological life course research"

Dates: November 22-26, 2021

Module 2, week 2:

"Identification of data and analysis of bias in registers"

Dates: Spring semester 2022, dates announced early fall 2021

Module 3, week 3:

"Ethical and legal aspects on using personal information in register based research"

Dates: Spring semester 2022, dates announced early fall 2021

"Data science for register-based research"

Number of higher education credits: 1.5

Dates: Fall semester 2022

"Causal inference from observational data"

Number of higher education credits: 1.5

Dates: Preliminary fall semester 2022

"Writing and presenting successful grant applications"

Number of higher education credits: 1.5

Dates: Preliminary spring semester 2023

"Longitudinal research methods: panel, growth curve, and sequence analysis"

Number of higher education credits: 1.5

Dates: Preliminary fall semester 2023

Elective courses, examples

"Introduction to R"

Number of higher education credits: 1.5

Dates: Preliminary, given every spring semester

"Advanced course in SAS programming"

Number of higher education credits: 1.5

Dates: Preliminary, given every fall semester

"Introduction to spatial methods"

Number of higher education credits: 1.5

Dates: Fall semester 2022

"Introduction to machine learning methods for analysis of large-scale register datasets"

Number of higher education credits: 1.5

Dates: Preliminary fall semester 2022 or spring semester 2023

"Statistical analysis of twin and family based studies"

Number of higher education credits: 1.5

Dates: Preliminary spring semester 2022 and fall semester 2023

"Methods for life course epidemiology"

Number of higher education credits: 1.5

Dates: Preliminary spring semester 2022 or fall semester 2023

"Causal inference from observational data: emulating a target trial"

Number of higher education credits: 1.5

Dates: Preliminary, given every spring semester

"Fundamentals of statistical modeling"

Number of higher education credits: 1.5

Dates: Preliminary, given every spring semester

Target group and eligibility

The target group is doctoral students involved in register-based research within their research training. Eligible applicants are doctoral students registered at a Swedish higher education institution or who will be registered latest November 1, 2021.

Assessment

The application is evaluated by an interdisciplinary review panel where the members have considerable experience of conducting research using data from registers. The evaluation of the application is made based on four criteria (Scientific quality of the proposed research, Novelty and originality, Merits of the applicant, Feasibility). The criteria are assessed on a seven-grade scale (i.e., Outstanding, Excellent, Very good to excellent, Very good, Good, Weak, Poor), except for feasibility, which is assessed on a three-grade scale (i.e., Feasible, Partly feasible, Not feasible). In addition, the application is also evaluated using an additional criterion (The project's relevance for the area of register-based research) on a three-grade scale (i.e., Relevant, Partly relevant, Not relevant).

Examples of aspects that is considered regarding the doctoral project:

- The project's relevance for the area of register-based research.
- The project's novelty, originality, design and relation to research forefront.
- The project's potential to create new knowledge, new ideas and approaches.
- If the project is ethically and legally acceptable.
- If presented material and methods are relevant for the research question under study.
- If the general design, including time schedule is optimal for the project.
- The project's strengths and limitations as well as alternative approaches.
- The experience and skills of the supervisors and the supervisors' scientific merits.
- Available support for the doctoral project, such as statistical support, Post-doctoral students or other researchers as well as facilities, infrastructures and other necessary resources.

Examples of aspects that is considered regarding the applicant:

- The applicant's merits and competence.
- The applicant's motivation for attending the graduate school. The supervisor's motivation will

also be considered.

- The applicant's ability to describe the doctoral project.

Application

Deadline for application is May 17, 2021 at 14:00. [Apply via Prisma.](#)

The application should be written in English and include the following documents:

1. Personal letter of motivation to participate in school activities (not exceeding one A4 sized page).
2. Description of ongoing doctoral project (not exceeding three A4 sized pages).
3. CV doctoral student (not exceeding one A4 sized page).
4. CV main supervisor and co-supervisors (not exceeding two A4 sized pages/person).
5. List of all publications from main supervisor.
6. Letter of motivation from the main supervisor which should state that the student is recommended and permitted to take part in courses and other activities (with the exceptions of emergencies), (not exceeding one A4 sized page).

In the application form in Prisma, do not fill in anything in the tabs "Participants" and "CV".

Contact

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Websites

The Swedish Interdisciplinary Graduate School in Register-Based Research (SINGS), local website: <http://ki.se/en/imm/swedish-interdisciplinary-graduate-school-in-register-based-research-sings>

The Swedish Network for Register-Based Research (SWE-REG), website: <http://swe-reg.se/>