

The [Center of Excellence in Decision-Analytic Modeling and Health Economics Research](#) (CoE-DAMHER) at the Swiss Institute of Translational and Entrepreneurial Medicine (sitem-insel), led by Dr. Rowan Iskandar, and the Professorship of Regulatory Affairs of the KPM Center for Public Management, held by Prof. Rudolf Blankart, are looking for:

## PhD studentship opportunity: Uncertainty Quantification Methods in Decision-Analytic Modeling

Period: PhD contract (100%) for 3 years with a starting date no later than July 2022

Supervisors: Dr. Rowan Iskandar and Prof. Rudolf Blankart

Place: University of Bern and sitem-insel, Bern, Switzerland

Deadline for applying: **February 8, 2022**

The Ph.D. thesis is a part of a research project aimed to enhance decision-makers' capacity in utilizing limited evidence to inform policymaking during pandemics caused by a novel virus. Under the supervision of Dr. Iskandar, the student will engage in method research, specifically, in the development of (1) a decision-making framework that is amenable to various data sparsity situations and (2) probabilistic and non-probabilistic approaches for characterizing and quantifying uncertainty under different degrees of data incompleteness. This method work will draw upon approaches from quantitative disciplines such as probability theory, decision analysis, and operations research. The student will also conduct applied research, specifically in demonstrating the utility of the decision-making framework by re-simulating the decision-making problems faced by Swiss policymakers during the ongoing COVID-19 pandemic and evaluating whether the actual decisions made are consistent with the available level of evidence and the decisions recommended by the envisioned decision-making framework.

### Your profile

- Master's degree in Operations Research, Mathematics, or Statistics, or a Bachelor's degree in Mathematics and a Master's degree in a quantitative discipline
- Knowledge of dynamic programming and other optimization methods, and copula modeling
- Familiarity with decision analysis and infectious disease epidemiology/modeling is a plus
- Strong mathematical foundation for acquiring necessary skills in advanced quantitative methods
- Experience with R and/or Python
- Excellent English proficiency in writing and speaking

### We offer

- Inter-disciplinary research environment addressing pertinent public health topics using mathematics
- Highly connected research network within the University of Bern and innovation-driven ecosystem at sitem-insel
- Preparation for a research career
- Salary according to the pay scales of the Swiss National Science Foundation for Ph.D. students
- Support for conference attendances and computing resources

### Application requirements

- CV
- A letter of motivation highlighting your relevant experience and skills for the Ph.D. project (max two pages)
- A writing sample (published work or Master's thesis)
- Two letters of reference (sent directly to [rowan.iskandar@sitem-insel.ch](mailto:rowan.iskandar@sitem-insel.ch) by the referees)
- Official transcripts from bachelor and master programs

Please send the above documents (except for the letters) as a single PDF to [rowan.iskandar@sitem-insel.ch](mailto:rowan.iskandar@sitem-insel.ch). For informal inquiry about the opportunity, please contact Dr. Rowan Iskandar ([rowan.iskandar@sitem-insel.ch](mailto:rowan.iskandar@sitem-insel.ch)).