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**: Ph.D. contract (100% funding) for 3 years with a starting date in July 2022 (negotiable)
**Supervisors**: Dr. Rowan Iskandar and Prof. Rudolf Blankart
**Place**: University of Bern and sitem-insel, Bern, Switzerland
**Deadline for applying**: March 2, 2022

The Ph.D. thesis is a part of a research project aimed to enhance public health decision-makers' capacity in utilizing limited evidence to inform policymaking during pandemics caused by a novel virus in Switzerland. 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, including measure 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 that are recommended by the envisioned decision-making framework. In addition to research, the student is expected to contribute to the ongoing activities at CoE-DAMHER and present work at international conferences and publish articles in peer-reviewed journals.

**Your profile**
- Master's degree in Operations Research, Applied Mathematics, Engineering, or Statistics, or a Bachelor's degree in Mathematics and a Master's degree in a quantitative discipline (e.g., Data Science or Economics)
- Strong interest in applying advanced and innovative quantitative methods to solve public health problems
- Knowledge of optimization methods and decision analysis/theory
- Familiarity with measure theory 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
- Opportunity to attend courses on a wide range of topics (e.g., www.sphplus-phd.ch)
- Salary according to the pay scales of the Swiss National Science Foundation for Ph.D. students
- Support for conference attendances and computing resources
- Flexible work arrangement

**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)
- Official transcripts from bachelor and master programs

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