

Concept for the Establishment of a Section "Medical Data Science" as Part of the Campus Institute Data Science

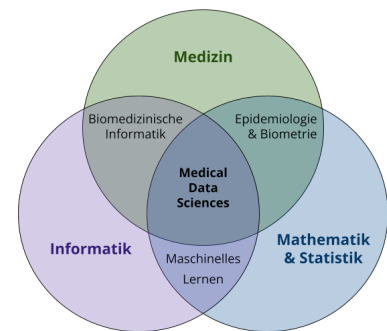
Version 1.3 vom 23.01.2024

Background

With the establishment of the Campus Institute for Data Science (CIDAS) in 2019, a new central scientific institution was created to consolidate and coordinate research, teaching, and transfer in the field of Data Science for the university, including UMG. At the University Medicine Göttingen, there are currently four institutes (Medical Informatics, Medical Statistics, Medical Bioinformatics, and Genetic Epidemiology) which are closely related to the methodological areas of Data Science by conducting methodological research in this field and working in medical application areas. Furthermore, medical data from research and clinical practice is an important application field of Data Science and is generated at various clinics, institutes, and departments conducting medical research at UMG. Increasingly, working groups and professorships are being established at these clinics, institutes, and departments that are closely related to data sciences. Many of the professorships, group leaders, and members of these groups are already active members in CIDAS. Additionally, there is research related to medical data sciences at other faculties. Currently, there is no center at UMG/university-wide that consolidates activities in the field of medical data sciences. Accordingly, MeDaS will be established as the section "Medical Data Science" of CIDAS. Concurrently, an internal UMG "Center for Medical Data Science" (CeMeDaS) will also be established, which represents a central part of MeDaS and consolidates UMG's internal activities.

Definition of Medical Data Science

Data Sciences are defined very differently, from the very generic "the science of generating knowledge from data" to definitions involving specific methods and approaches such as Machine Learning or Big Data. A commonly used definition considers an intersection between computer science, mathematics, statistics, and the science domain - in our case, medicine - which we largely agree with. Thus, Medical Data Sciences encompass methods, tools, and infrastructures to use biomedical data for research and healthcare provision. The clinical-methodological disciplines of Medical Informatics, Medical Bioinformatics, Medical Statistics, and Epidemiology already represent the intersections between computer science, mathematics, and statistics on one side and medicine on the other..



Need for a Center

The disciplines of data sciences are gaining importance in both medical research and clinical applications in healthcare provision. The field of medical data sciences is to be understood as an interdisciplinary field to which various methodological sub-disciplines such as medical statistics, medical informatics, medical bioinformatics, and epidemiology contribute. At the University Medicine Göttingen, these disciplines are handled in various independent institutes, clinics, and departments. Some institutes and clinics are also establishing further working groups that partly fall into areas of medical data sciences and overlap with these disciplines. The goal of the section is to coordinate joint activities of the working groups in the field of Medical Data Science in Göttingen. Joint activities can include areas such as teaching, research, and service, and also contribute to the acquisition of joint third-party funds. Medical aspects such as prevention and screening, imaging diagnostics and image-guided therapy, laboratory diagnostics, therapy, clinical decision-making, aftercare, study planning, or similar may play a role. Furthermore, aspects of basic medical research such as data-driven quantitative life sciences, systems biology, or systems medicine can be jointly addressed. In the area of teaching, modules are offered in many different degree programs. One goal here is to avoid redundancies and provide common or sequential modules. In the area of research, in addition to joint third-party funding projects, support for other

consortium activities on campus is also a topic here; often, expertise from various sub-disciplines is needed, hence good coordination and networking are important for such applications. Similarly, in the service area, different services in the field of Data Science in medical areas are offered; here, common infrastructures should be built. The area of science transfer would also greatly benefit from closer cooperation and better coordination of activities in this area to optimally support transfer partners with diverse expertise. Moreover, a joint external representation of these activities is sought..

Objectives

The Medical Data Science section

- coordinates activities for cooperative research, teaching, and science transfer in the field of Medical Data Science,
- supports the acquisition of third-party funds, especially in the area of joint research,
- coordinates teaching in the field of Medical Data Science in the subject of Medicine, the application subject Medical Data Science of the Master's program in Applied Data Science, as well as in further bachelor's and master's programs and doctoral studies.

Planned Governance

- The section has its own section management from which a section spokesperson and a deputy are elected.
- Section board:
 - The section board consists of five professorial members of the section, at least three of whom must be professors from the methodological institutes in the field of Data Science at UMG, and at least three of the professorial members must also be members of CIDAS. At least one of the members should come from medical application disciplines.
 - Additionally, the board should include a doctoral student and one person each from the scientific and technical staff.
 - For all board members, a deputy is elected.
 - Until the first election, Prof. Dr. Tim Beißbarth, Prof. Dr. Tim Friede, Prof. Dr. Dagmar Krefting, Prof. Dr. Heike Bickeböller, and Prof. Dr. Joachim Lotz will act as the interim section management. In case of an early or delayed new election of the section board, the current section board remains in office until a new election has taken place.
 - The term of office for the section management is two years.
 - At least every three months, a meeting of the section management takes place.
 - The section management decides upon application on the admission of new members to the section and also decides on the exclusion of members from the section.
- Section Member Assembly:
 - Initial members of the section are listed below or can be admitted informally by the section management or can leave again.
 - Members of the "Center for Medical Data Science" (CeMeDaS) are automatically also members of the CIDAS Medical Data Science section (MeDaS).
 - All members of the section form the section member assembly.
 - The section members elect the section board within the framework of the section member assembly.
 - The section member assembly takes place at least once a year.