

**LEHRSTUHL FÜR STEUERUNG INNOVATIVER
UND KOMPLEXER TECHNISCHER SYSTEME
PROF. DR. SOFIA PAGLIARIN**



Education Program SS 2020

**(Main-)Seminar: Governance of Complex Systems III
Many Eyes on Earth: the governance of satellite technological
development and an introduction to geographic information systems
(GIS)**

Room: F-21/03.02 and RZ/00.06

Time: Blockseminar:

Introduction: Fr. 24.04.2020 (F-21/03.02) 14-15 h

/ Fr. 08.05.2020 (F-21/03.02) / Fr. 22.05.2020 (F-21/03.02) /

Fr. 19.06.2020 (RZ00.06) / 03.07.2020 (RZ00.06) - always 14-
18 h

Short Description:

We use Google Maps every day to move around the city and find shops and restaurants, and we are used to send each other our approximate locations through instant messaging apps to give people our “coordinates”. We also give for granted that satellites are orbiting around the globe – we even have a Tesla orbiting in space. However, despite its current ordinariness, satellite technology was a revolution: back in the 1960s, a marginal NASA program on a side of the more important “rush to the Moon” project gifted us with what we now call “global observation systems” (earth observing systems and remote sensing). Simultaneously, software was developed to use computer technology to digitally process, store and modify the big amount of satellite data that were received. Since the 1990s, we call this software “geographic information system” (GIS). But both technological developments (satellites and GIS) were not at all an easy or a linear process: conflicts and cooperation between a variety of government and private actors, as well as scientists and other users, produced the unique development history of satellite and GIS as socio-technologies.

In this course, we will examine the complexity of actor governance in the development of satellite technology as an innovation, and connect it to the development of geographic information system (GIS) as a way to handle the complexity of reality. The course also includes a practical introduction through lab sessions on digital tools for spatial analysis (Google Maps, Google Earth, Stata *shp2dta*, Esri ArcMap).

Course structure:

The course is organised as a block seminar composed of four sessions. Sessions 1 and 2 are mostly theoretical, while sessions 3 and 4 are mostly practical. In the first block seminar session, we will introduce the course, discuss what a map is and perform the first exercises in Google Maps and Google Earth. In the second block seminar session, we will examine how satellite technology has been developed, and introduce the structure and basic workings of ArcMap as a widespread GIS. The third and fourth block seminar sessions will be devoted to the learning of ArcMap by means of exercises, and students will also have the chance to present their paper ideas and receive feedback. Please note that the course is taught in English.

Course evaluation:

The evaluation of the course includes 1) the submission of 2 assignments (15% of the grade; one assignment to be submitted after the first session, and one after the second session) and 2) the submission of a graded term paper (85% of the grade) analyzing an area chosen by the student, and including also an informed comment on the spatial data used. The paper will be in a form of a report including e.g. demographic data, employment data, transportation data, represented spatially.

Students will have the opportunity to present their paper ideas during the third and fourth block seminar sessions, where they will receive comments and remarks on their on-going papers.

Besides, students will be given exercises to do at home after all the block seminar sessions to keep track of their learning. Active participation when in class and discussion on the reading material is expected.

Course literature:

The reading material (in English) will be provided on the VC. As the course is based on discussion (i.e. not only on frontal lectures), students are expected to read the assigned material prior to each of the block seminar sessions. The software we will use in the lab sessions is freely provided to the students through the Uni-Bamberg license.

Course Syllabus:

The detailed Syllabus of the course will be provided in due time.

Notes:

The seminar will be taught in English.

Speaking hours:

Thursdays, 14:00-16:00 (also by appointment)

Mail: sofia.pagliarin@uni-bamberg.de