IAB-Workshop

Nutzerschulungen: Bedarf und Umsetzung bei Datenanbietern – Beispiele aus der Praxis

12. April 2018

IPSDS project

survey-data-science.net

We are pleased to announce the launch of the International Program in Survey and Data Science (IPSDS). Fundamental changes in the nature of data, their availability, the way in which they are collected, integrated, and disseminated are a big challenge for all those working with designed data from surveys as well as organic data. IPSDS was developed in response to the increasing demand from researchers and practitioners for the appropriate methods and right tools to face these changes. We offer a multidisciplinary curriculum, world-class faculty, and a web-based learning environment that allows you to take courses from anywhere in the world.

AUFSTIEG DURCH BILDUNG >>

Problems we tried to solve – in brief

Key elements:

- Multidisciplinary curriculum
- Modularized – adapt to prior skills and work needs
- Mix of faculty from academia and industry

Project coordinators and funding

SPONSORED BY THE

Federal Ministry
of Education
and Research

The project on which this report is based was promoted with funds from the Federal Ministry of Education and Research under the reference number [16OH22064]. Responsibility for the contents of this publication les with the author.

IPSDS curriculum

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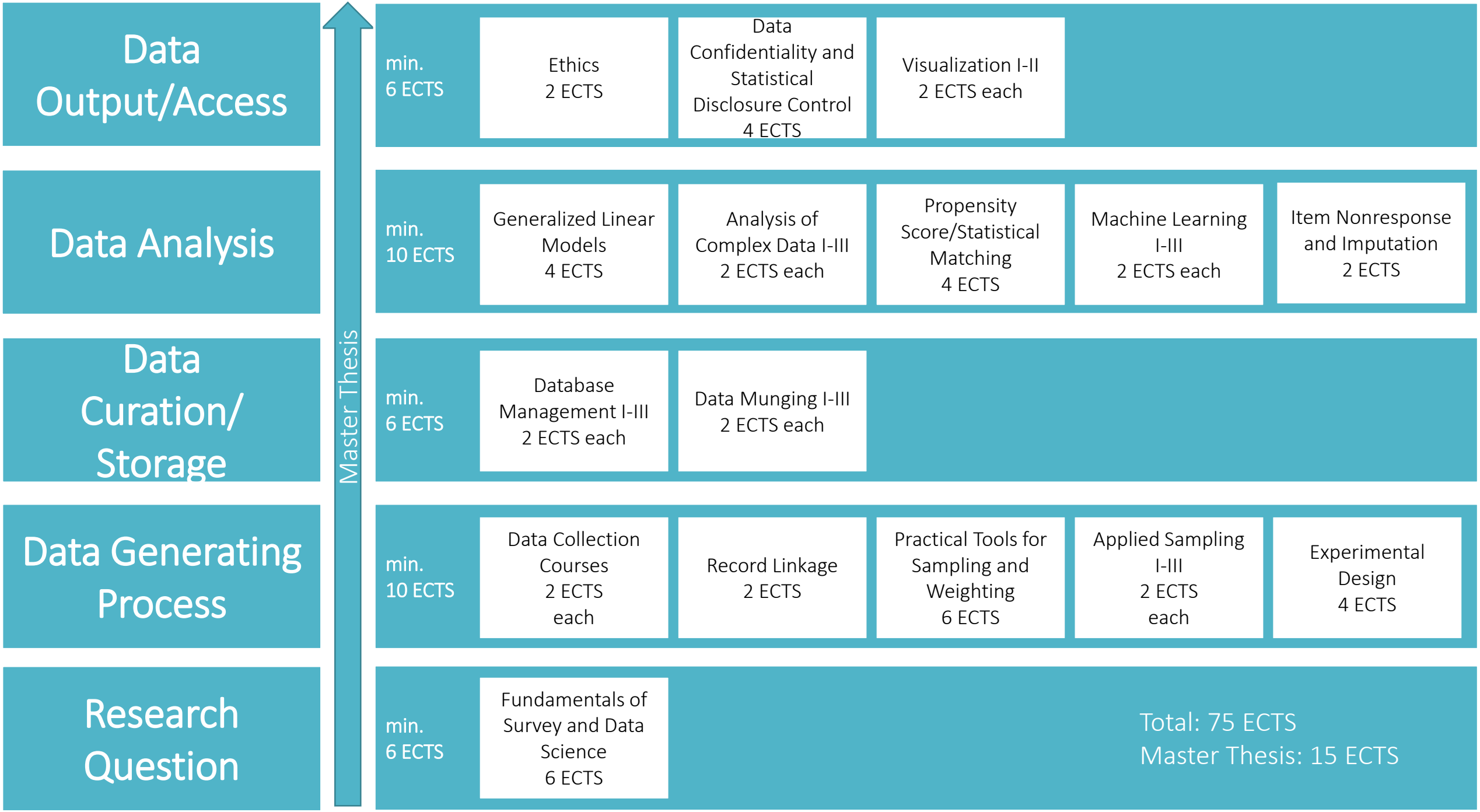
- Mix of faculty from academia and industry


Data Output/Access
min. 6 ECTS
Ethics 2 ECTS
Data Confidentiality and Statistical Disclosure Control 4 ECTS
Visualization I-II 2 ECTS each
Data Analysis
min. 10 ECTS
Generalized Linear Models 4 ECTS
Analysis of Complex Data I-III 2 ECTS each
Propensity Score/Statistical Matching 4 ECTS
Machine Learning I-III 2 ECTS each
Item Nonresponse and Imputation 2 ECTS
Data Curation/ Storage
min. 6 ECTS
Database Management I-III 2 ECTS each
Data Munging I-III 2 ECTS each
Data Generating Process
min. 10 ECTS
Data Collection Courses 2 ECTS each
Record Linkage 2 ECTS
Practical Tools for Sampling and Weighting 6 ECTS
Applied Sampling I-III 2 ECTS each
Experimental Design 4 ECTS
Research Question
min. 6 ECTS
Fundamentals of Survey and Data Science 6 ECTS
Master Thesis
Total: 75 ECTS
Master Thesis: 15 ECTS

IPSDS structure

Problems we tried to solve – in brief

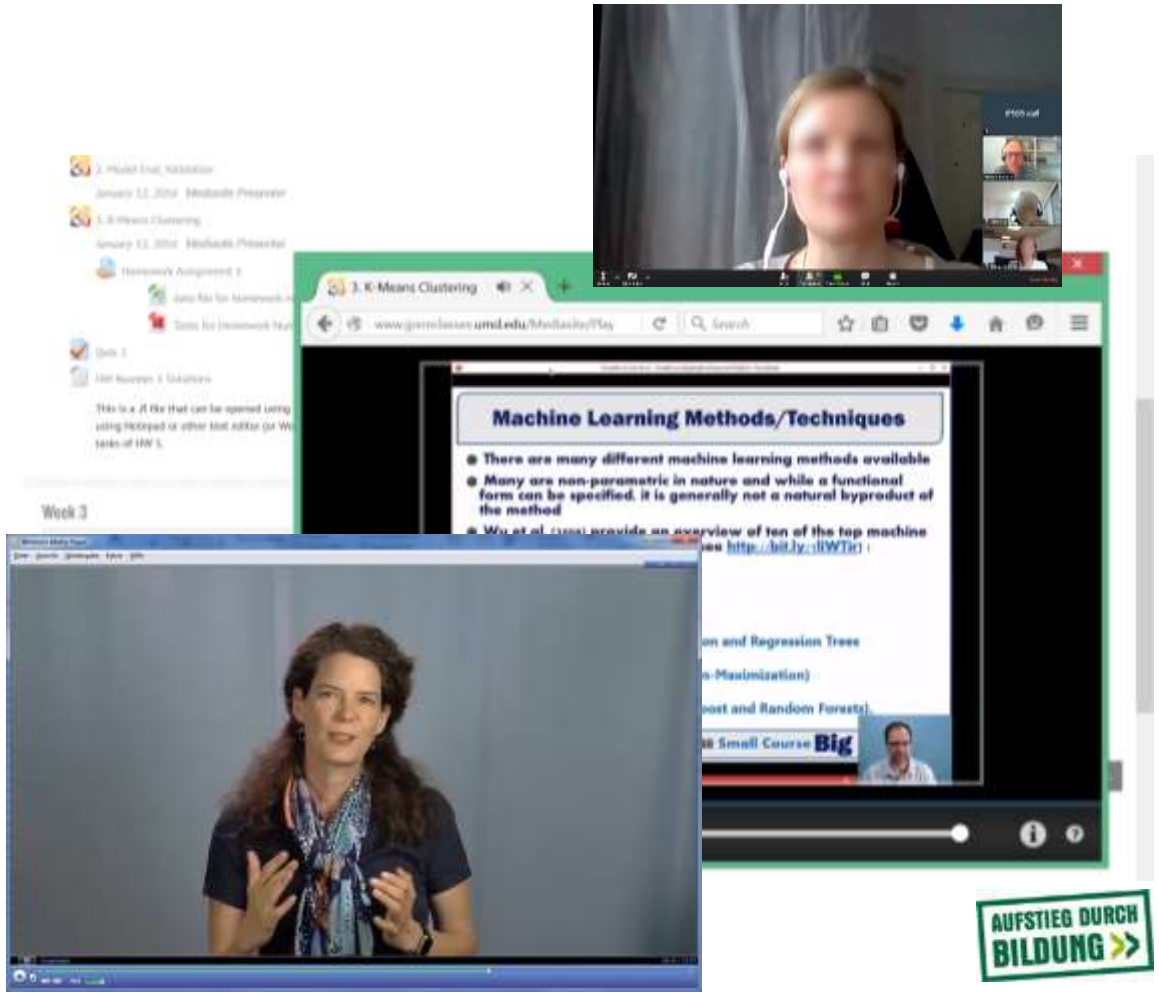
Key elements:

- Flexible web-based learning environment
- Live (video) interaction with faculty and students
- Face-to-face networking meetings

Onsite/Online

Onsite (Connect@IPSDS)

Online



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Asynchronous/Synchronous

Asynchronous

- Pre-recorded lectures
- Readings/Other materials
- Assignments/Quizzes
- Discussion forums

Synchronous

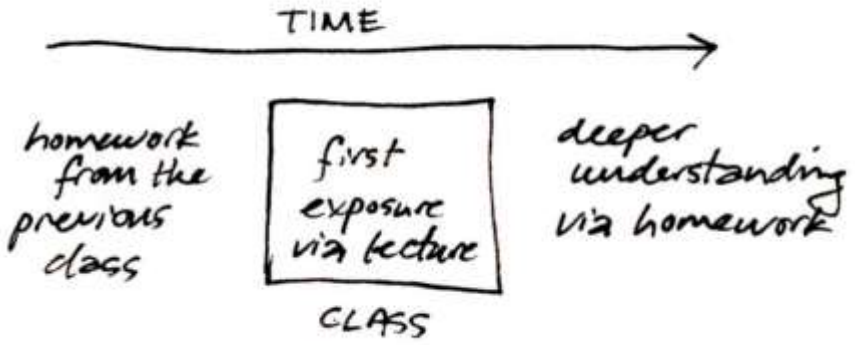
- Small virtual classrooms
- Weekly discussions led by the instructor
- Obligatory component

IPSDS courses

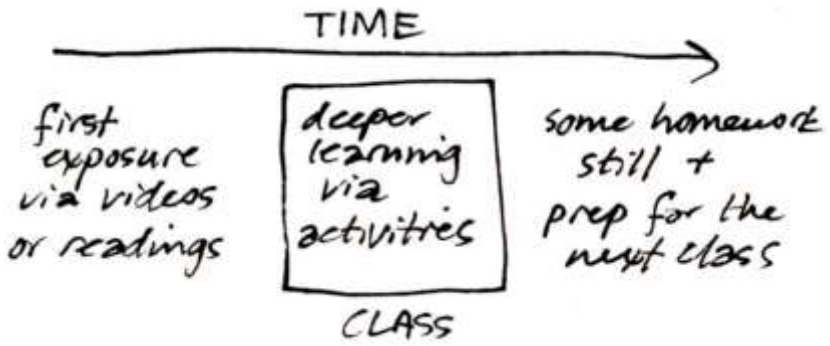
Courses

Advantages of Flipped Teaching

- more opportunities for interactivity in (online) discussions
- more personalized guidance
- more time for feedback
- deeper learning



Traditional classroom



Flipped classroom

Source: Derek Bruff at https://goo.gl/Nrt1xA

Further Design Features

Pacing of the instruction

- Course length: 4 to 12 weeks (2 to 6 ECTS)
- Theme based units per calendar week
- Weekly assessment of topic/progress

Assessment

- Submit questions for online discussions
- Quiz
- Programing assignment
- Presentation
- Etc.

Feedback Mechanisms

- Automated feedback in quizzes
- Detailed from instructor for assignments and in online discussions
- Peer to peer feedback in some classes

Level of Interaction

- Weekly meetings
- Feedback for assignments
- Discussion forum and/or e-mails
- Group assignment

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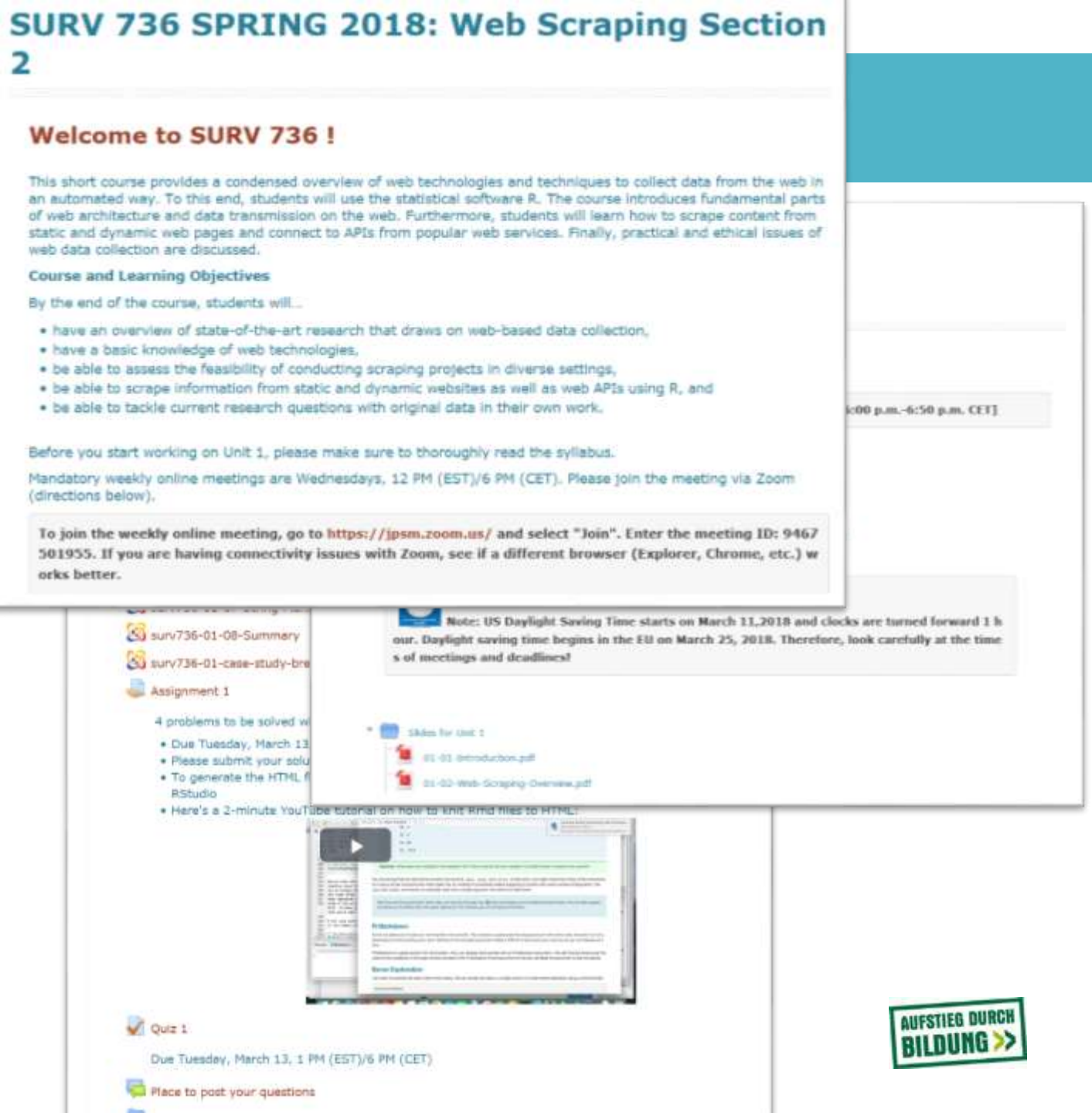
Moodle



- Course description/General Information
  Topics covered, syllabus, additional resources
- New units auto-display each week. Each unit includes:
  - Readings (Note reference to book chapter, URLs, PDFs)
  - Slides
  - Lecture videos
  - (Link to external resources)
  - (Additional material)
  - Zoom link for online meeting + date and time
  - Discussion forum for submitting questions/student-instructor interaction
  - Homework
    - Quiz (autograded)
    - Assignment submission (time restrictions)

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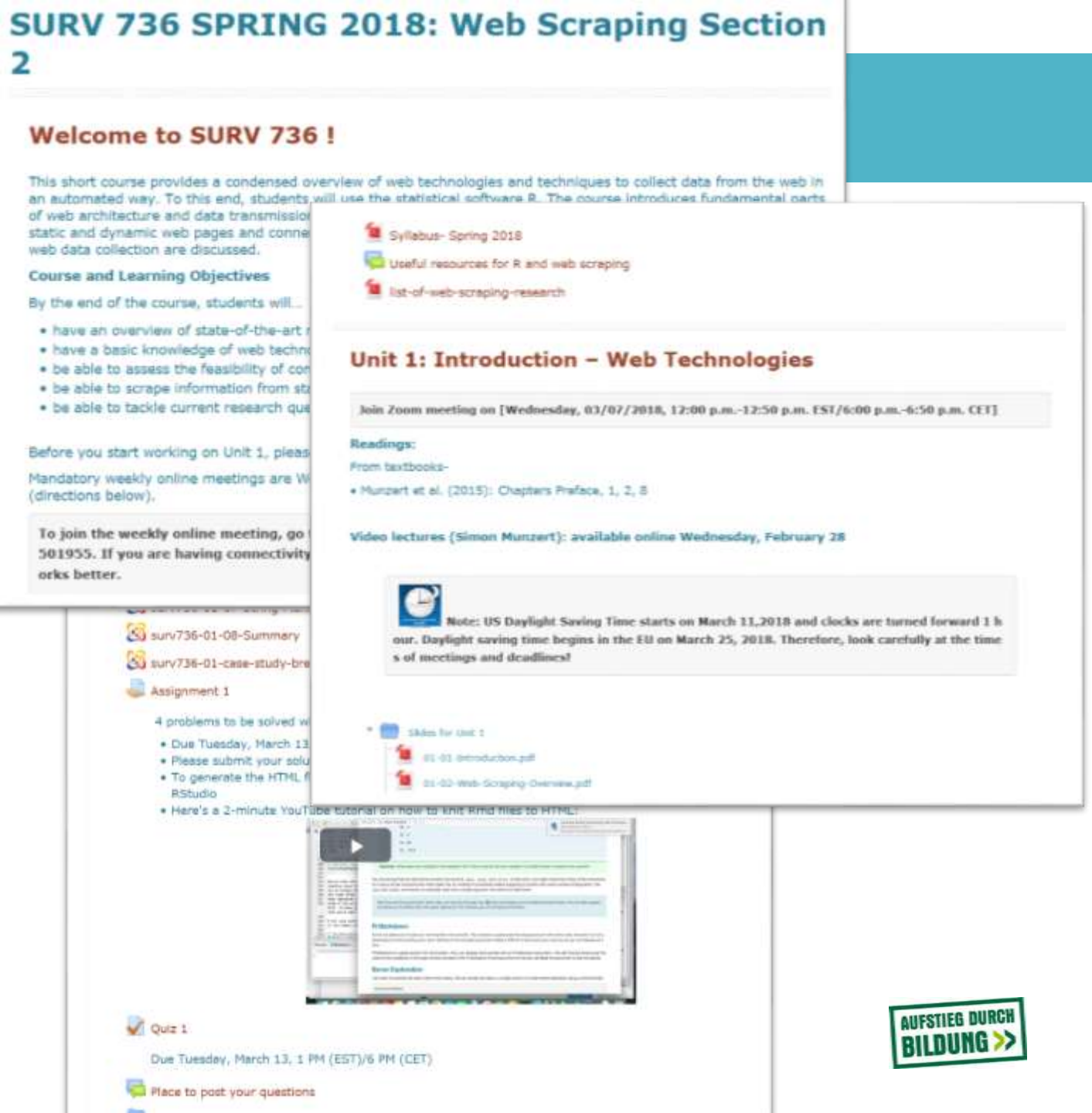

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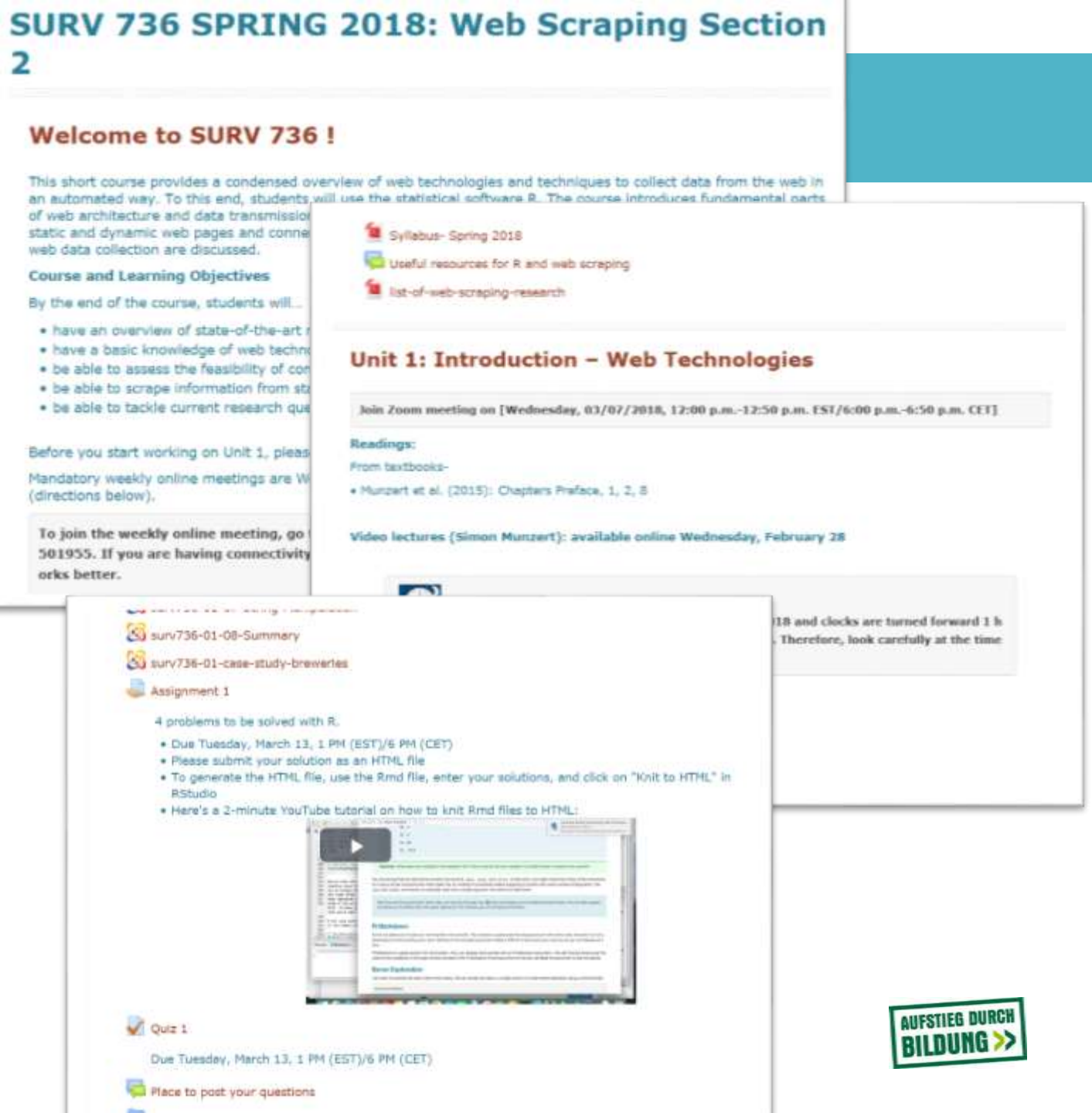

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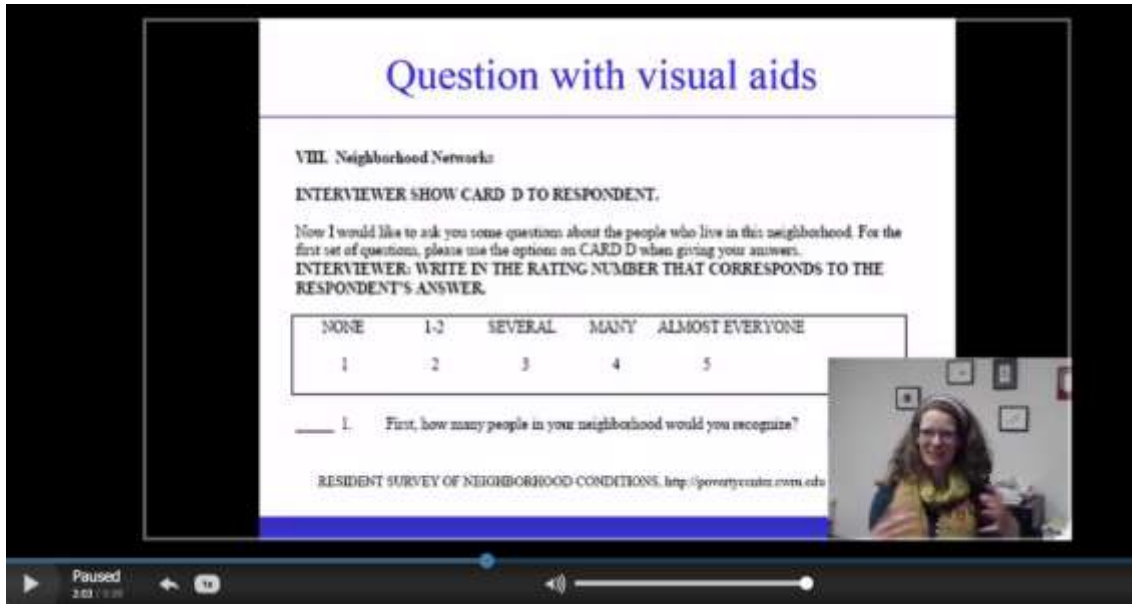
Videos

- Lectures, interviews and discussions with experts, demonstrations of specific techniques and software tools
- Lectures are broken into easily-digestible sessions to help students to better focus on the material.
- Students engage with the material at their own pace: e.g., replay parts that cover difficult concepts



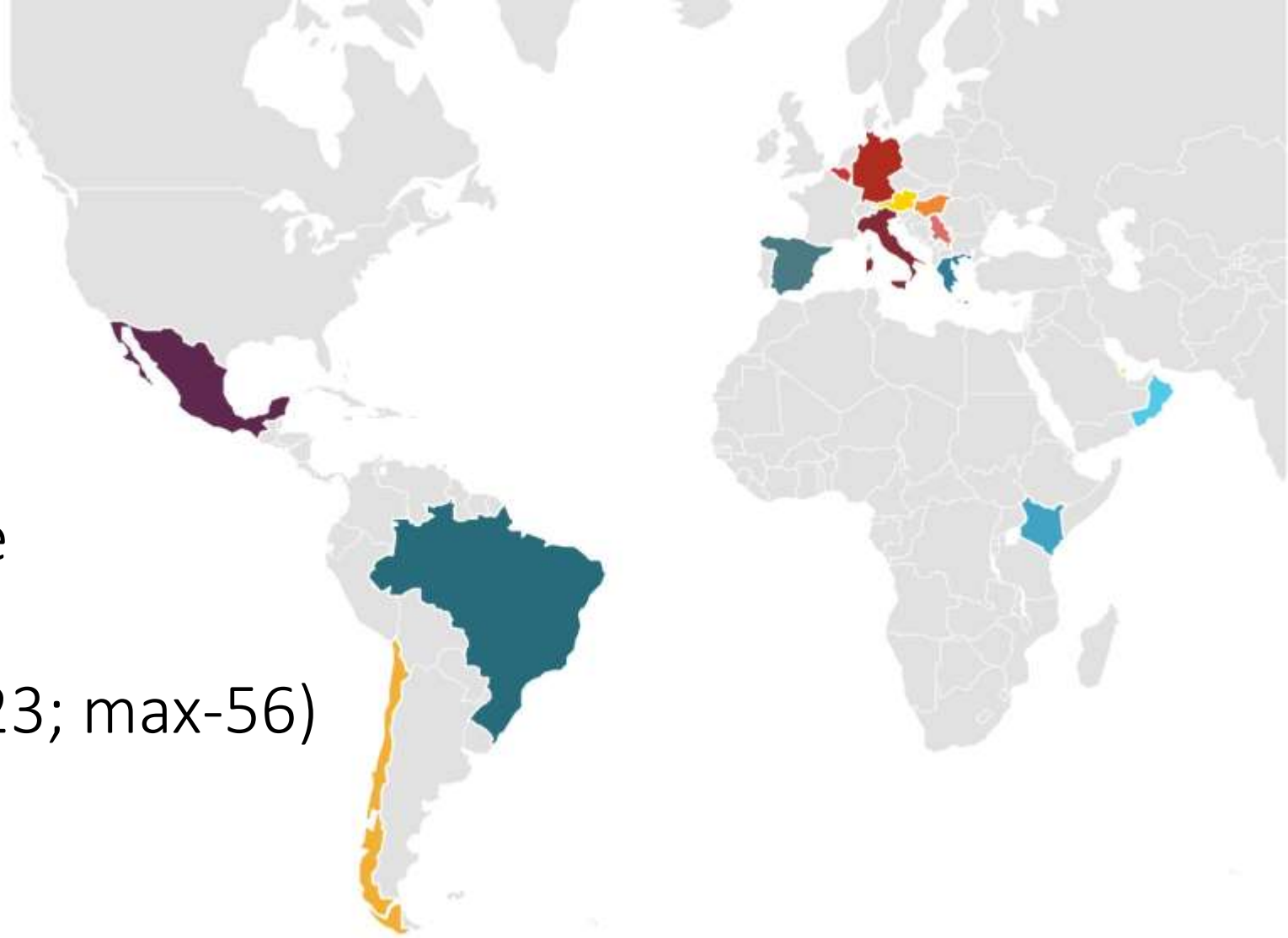
Virtual Classrooms

- Weekly mandatory online meetings (50 minutes)
- Discuss students' questions
- Review problems with assignments
- Collaborative problem solving
- Motivate students to persist in the course
- Break out rooms, (private and public) chats, polls …

IPSDS students

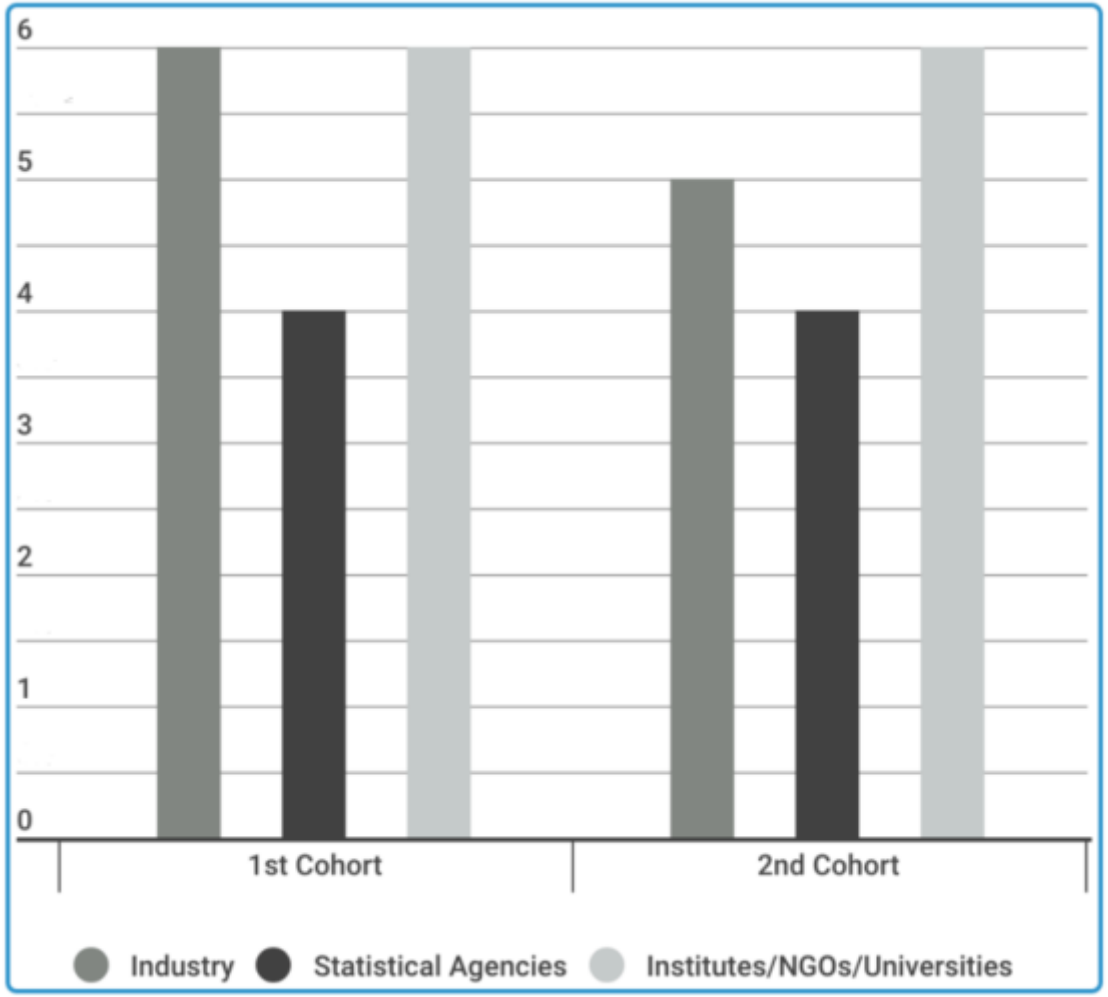
2 Test Cohorts

- 31 Participants
  (18 f + 13 m)
- 15 countries of residence
- Age: median=30,5 (min-23; max-56)



Test Cohorts 1 & 2

- **22** (71 %) M.A./M.S.
- **41** hours/week
  (Min-10; Max-55)
- 8 students with family duties



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IPSDS evaluations & studies

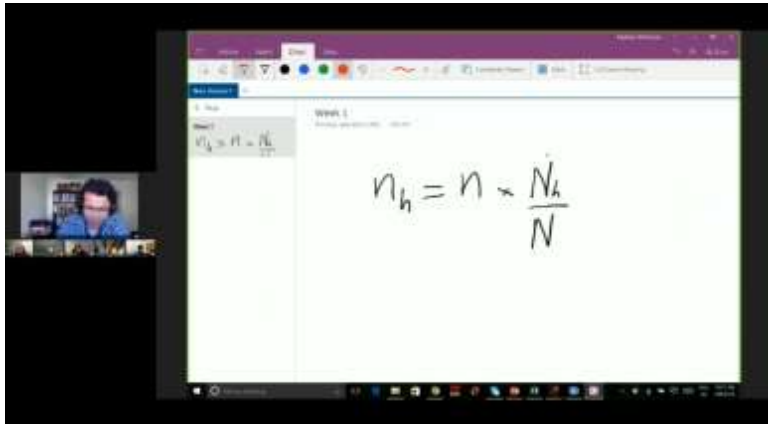
Evaluations

- Start of the program/yearly milestone survey/qualitative interviews of students
- Post-course student survey
- Learning analytics
- Qualitative interviews with instructors
- Pilot studies
- Curriculum and courses review

BMBF-Study: Online Communication

Synchronous Communication

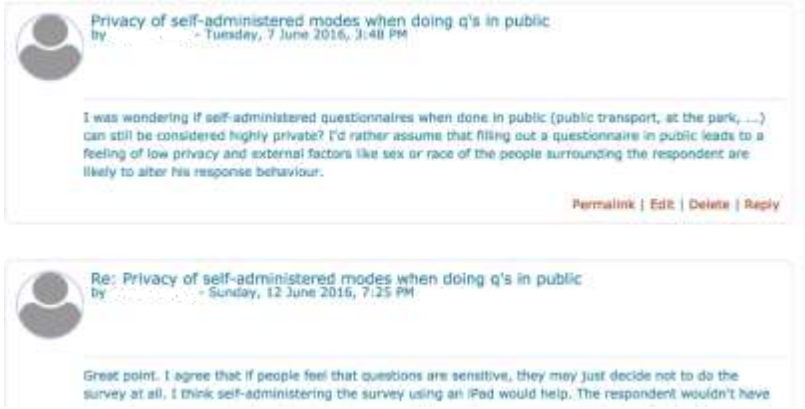
Fundamentals of Survey and Data Sc.



- 11 online discussions (mandatory)
- 16 students

Asynchronous Communication

Data Collections Methods



- 1 introductory online meeting
- Discussion forums
- 15 students

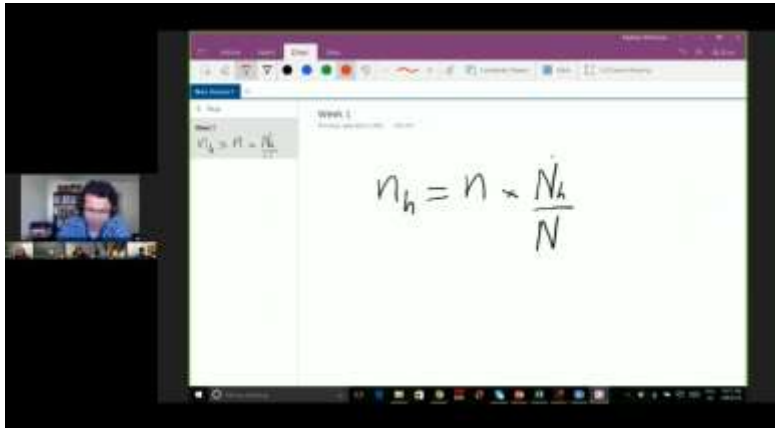
- 12 weeks/6 ECTS
- Post questions
- Answer/comment questions of other students

AUFSTIEG DURCH BILDUNG

BMBF-Study: Online Communication

Synchronous Communication

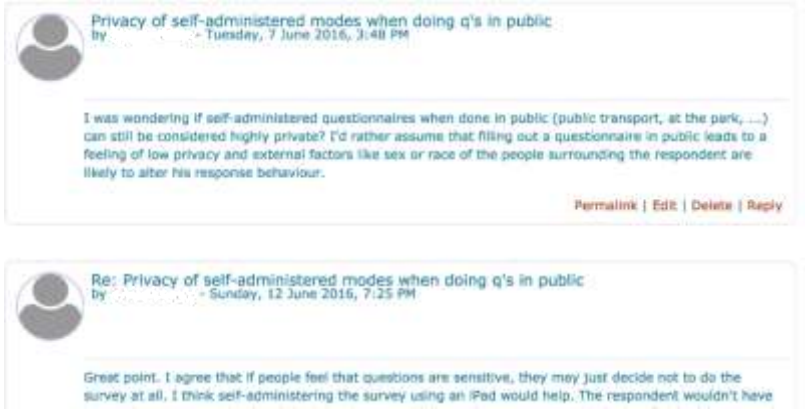
Fundamentals of Survey and Data Sc.



- Stronger sense of community and belonging
- Immediate feedback
- All students successfully finished the course

Asynchronous Communication

Data Collections Methods



- Greater flexibility
- More time for reflection
- Less workload
- 2 drop outs

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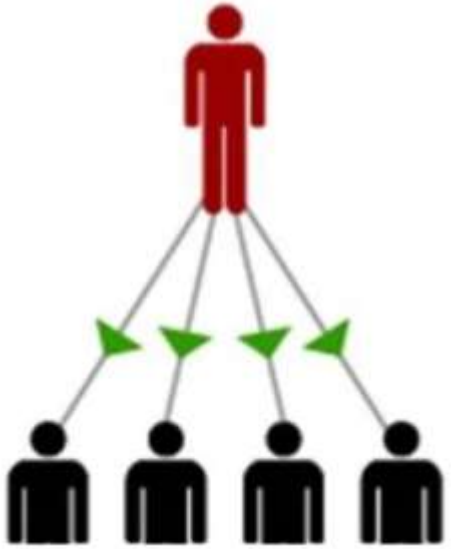
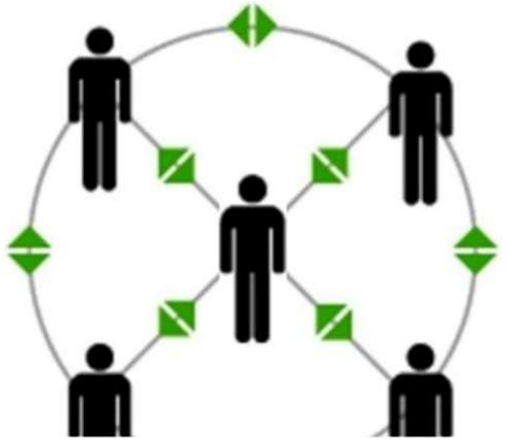
BMBF-Study: Flexibility

Instructor-Paced Format



- Weekly online meetings
- Set dates for all assignments and final exam

Self-Paced Format



- 4 ECTS/ 8 + 1 weeks
- 8 participants

- 1 introductory online meeting
- Only 1 deadline: all assignments and final exam due in the ninth week

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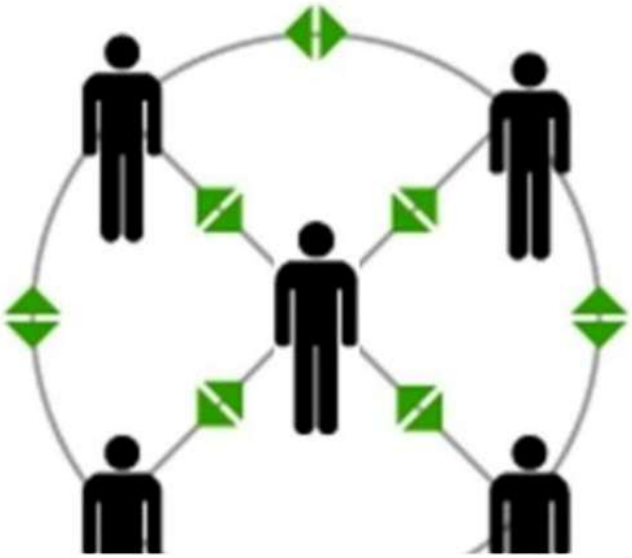
BMBF-Study: Flexibility

Self-Paced Format



- 4 drop outs
- Flexibility with deadlines for assignments appreciated
- Biggest challenge: time management

IPSDS lessons learning

Lessons Learning

- Modular approach much appreciated by working professionals
- Feasibility of combining studies with work and family (6 ECTS/term, 3 drop outs in 2 years)
- Biggest challenge: workload management (average workload: 10 hours/week)
- Balancing flexibility and consistency (time management, self-discipline)
- Workplace orientation:
- Hands-on application and working with data is key
- Project-oriented courses/working on real-world projects

your QUESTIONS

http://survey-data-science.net/

froessinger@uni-mannheim.de

#collaborations

Linguistics

Computer Science

Business

Mathematics

Political Science

Economics

Law

Psychology

Sociology

Partner

Universities

- University of Maryland
- University of Mannheim

- Catholic University of Santiago de Chile
- Australian National Unversity
- Beijing University
- Ashoka University (expressed interest)
- University of Capetown (planned)

Others

- SRO - Michigan
- PEW
- German Record Linkage Center
- GESIS
- Bureau of Labour Statistics
- U.S. Census Bureau
- Statistics Netherlands

Was haben wir gelernt?

Durchschnittlich 6 ECTS/Term

IPSDS ermöglicht Weiterbildung und Familie zu koordinieren:

- *7 Teilnehmer/innen mit Kindern*
- *3 Geburten während der ersten Förderphase*

Kurs-Design berücksichtigt Motivationsförderung:

- *synchrones Lernen*
- *Connect@IPSDS*
- *fest terminierter Kursrhythmus*

Nur 3 Studienabbrecher (nach 1. Jahr)

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IPSDS faculty

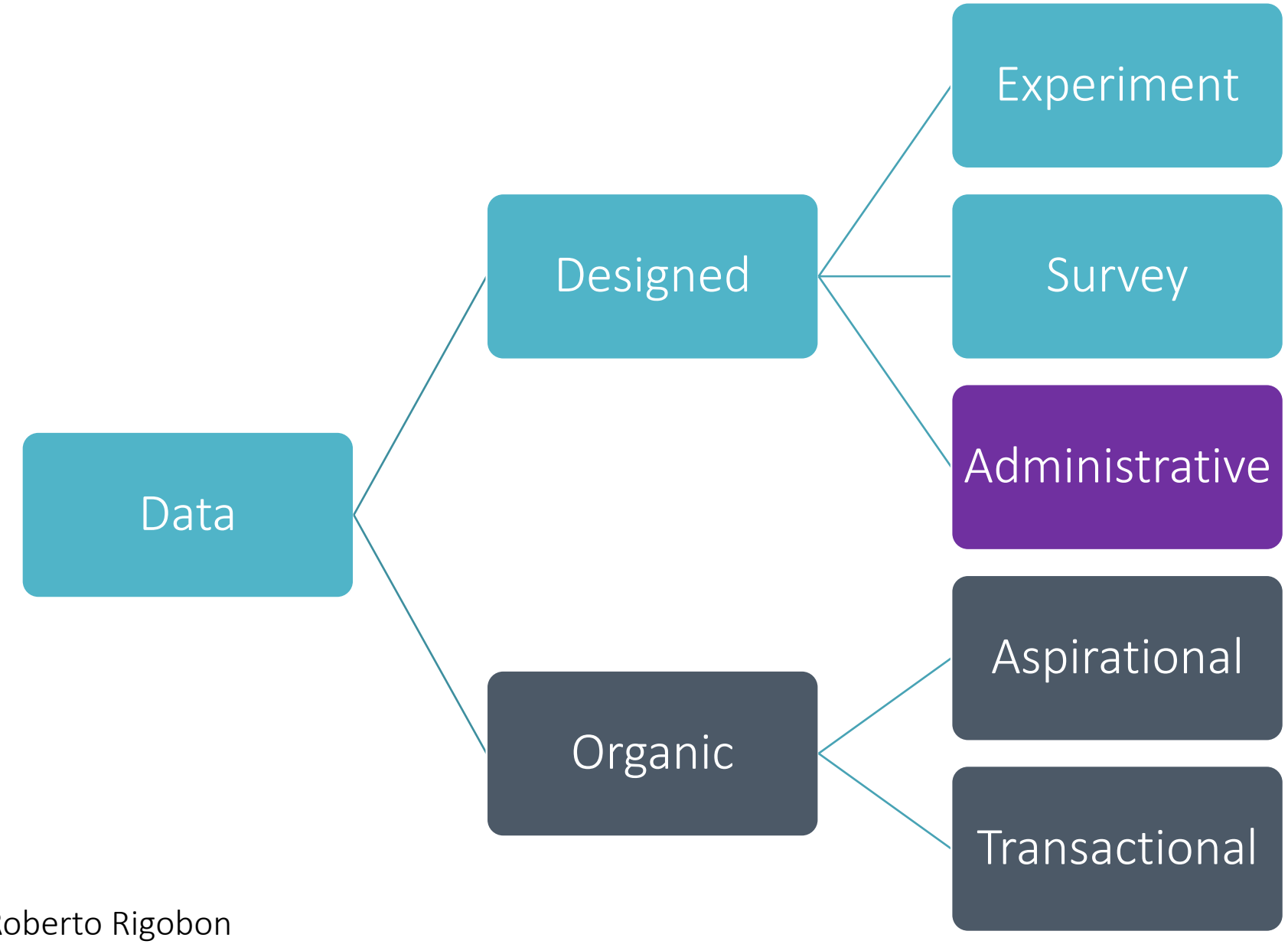
- ✓ **Manfred Antoni**
(German Institute for Employment Research)
- ✓ **Stefan Bender**
(Deutsche Bundesbank)
- ✓ **Trent Buskirk**
(Vice President at Statistics and Methodology at Marketing Systems Group/University of Massachusetts Boston)
- ✓ **Mario Callegaro**
(Google UK)
- ✓ **Frederick Conrad**
(University of Maryland/University of Michigan)
- ✓ **Jill Dever**
(RTI)
- ✓ **Jörg Drechsler**
(German Institute for Employment Research/LMU Munich)
- ✓ **Jeffrey Gonzalez**
(Bureau of Labor Statistics OSMR)
- ✓ **Steven Heeringa**
(University of Maryland/University of Michigan)
- ✓ **Matt Jans**
(UCLA Center for Health Policy Research/University of Maryland/University of Connecticut)
- ✓ **James Lepkowski**
(University of Maryland/University of Michigan)
- ✓ **Daniel Oberski**
(Utrecht University)
- ✓ **Louis Rizzo**
(Westat)
- ✓ **Jennifer Romano-Bergstrom**
(Facebook)
- ✓ **Joseph Sakshaug**
(University of Michigan/German Institute for Employment Research)
- ✓ **Richard Valliant**
(University of Maryland/ University of Michigan)

Team

Frauke Kreuter	Karin Frößinger	Daria Korfant	Evgenia Samoilova	Florian Keusch







Source: Roberto Rigobon

DOMAIN EXPERT

User, analyst, or leaders with deep subject matter expertise related to the data, its appropriate use, and its limitations

SYS ADMIN

Team member responsible for defining and maintaining a computation infrastructure that enalbes large scale computation

RESEARCHER

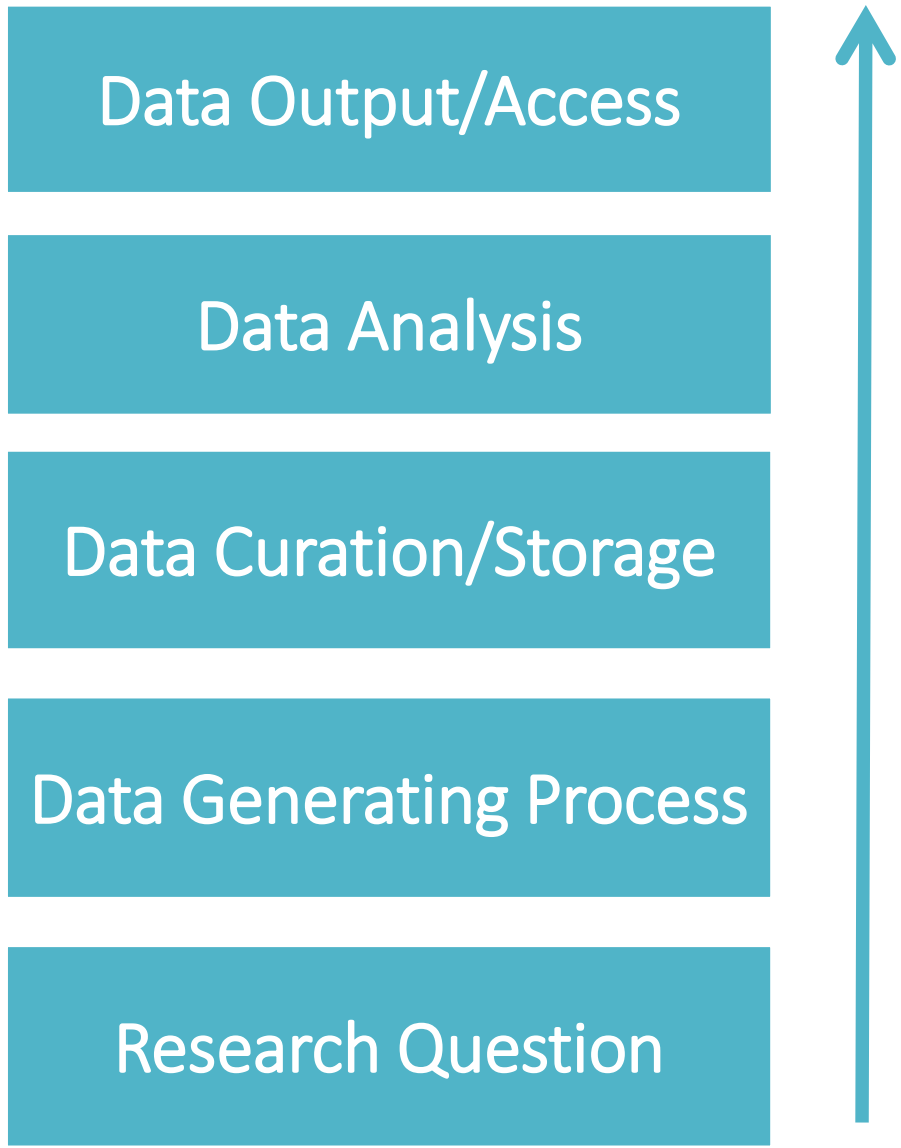
Team member with experience applying formal research methods, including survey methodology and statistics

COMPUTER SCIENTIST

Technically skilled team member with education in computer programming and data processing technology

Usher 2015

Modules



Learn how to communicate results, distribute and store your data; Ethics

Learn a variety of analysis methods suited for different data types

Learn how to curate and manage data

Understand how to collect data yourself, and how data are generated through administrative and processes.

Learn how to formulate your research goal and which data are best suited to achieve this goal.