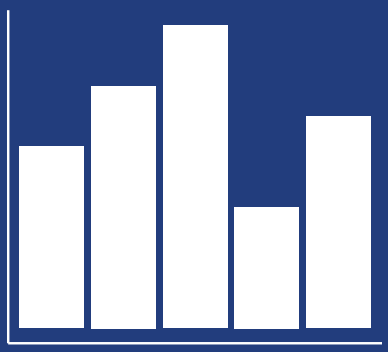
University of Zurich[UZH]

2024



```
multilevel = lmer(y ~ x + (1 | country),
                  data = df)
```

X

β

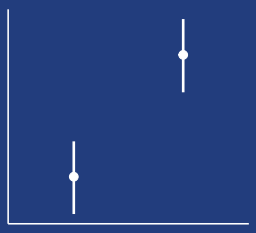
α

ε

StatGuide

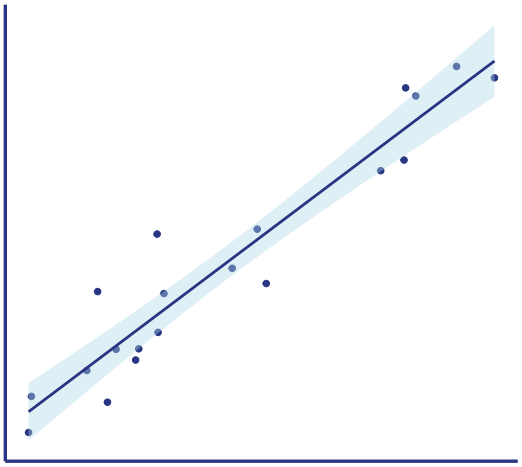
δ CAPSTONE

e^x



```
logit = glm(y ~ x, family = „binomial“,
            data = df, weights = weight)
```

y



```
ologit = polr(y ~ x, data = df)
```

StatGuide

Creating a digital platform for personalized methods education

Capstone Course

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Yves Bruchez
Benjamin Schlegel

What is this course about?

Collaborate with the StatGuide initiative to create a novel digital e-learning platform for quantitative methods.

In this capstone course, we will jointly conceptualize, write, and design the e-learning content for Stat Guide's platform. Specifically, we will work as a team to develop step-by-step guides to help future generations of students understand and apply common quantitative methods. The guides we develop will be published on the StatGuide platform, to serve as a personalized digital learning resource for students.

How do you benefit from this course?

1. Deepen your knowledge of quantitative methods
2. Co-develop a novel digital platform for personalized education
3. Contribute to advancing the teaching at UZH
4. Take responsibility for planning and executing project tasks
5. Publish your work results as a new learning resource

Key facts

- Course No.: 06SM615k601
- Duration*:* FS 24 & HS 24
- Credits*:* 12 ECTS
- Track: Political Data Journalism. Students outside of the track are also welcome
- Proof of performance*:* Portfolio (written e-learning contents, team participation)
- Course dates*:* Irregular, few times per semester. Dates are scheduled according to student preferences where possible
- Booking*:* Apply through the module booking tool. Please kindly submit your current CV, transcript of records, and a brief motivation statement (0.5 pages max.)
- Contact: benjamin.schlegel@uzh.ch

Enroll now – and get in touch if you want to know more!

Course Description

Many students find it difficult to navigate through the complicated world of statistical models. To address this challenge, IPZ collaborates with the StatGuide initiative - a project to create a novel digital learning platform for quantitative methods.

The StatGuide platform facilitates the planning and the execution of empirical analyses by offering interactive and adaptive model guides on constructing statistical analyses at varying levels of proficiency. Using various kinds of decision-support tools and knowledge assets, StatGuide is leading students from data to results. Lowering the learning barrier for empirical methods, students are enabled to gain a deeper understanding of statistical concepts and to develop methodological strategies with greater confidence. The goal of this course is to develop the contents for the platform in close collaboration between students and the course instructors.

Emphasis is placed on the acquisition of methodological skills and project management competencies, deemed essential in both academic and professional contexts. Each student's primary contribution will manifest itself through the creation of instructional guides that explain how to apply a certain statistical model, slated for publication on the StatGuide website. These guides will comprise of various text sections, including theoretical, practical, and R-code components. Specifically, the students will generate text and code snippets, contributing to the creation of dynamic guides explaining how to apply a statistical model. Throughout this process, students will receive extensive support and encouragement to provide their own feedback, actively shaping the content and ensuring its relevance and comprehensiveness.

Organization

A capstone course is a chance to gain insight into applied research and project management. This is achieved by giving students more responsibilities and creative space than in other curricular modules. They are thus expected to demonstrate a high degree of independence and self-organization. Following initial guidance on project objectives and desired outcomes by the project leads during the first course meetings, students autonomously undertake the development of platform content. Throughout both semesters, a series of structured meetings and review sessions are scheduled to assess progress and facilitate a discourse on ideas, suggestions, and any uncertainties that may arise. Additionally, students will benefit from several in-class didactic coaching sessions, where they will systematically analyze and discuss their progress in dedicated workshops. This approach ensures a comprehensive and supportive learning environment, empowering students to thrive in their capstone experience.

Credits and Evaluation

The capstone course is structured with a total of 12 ECTS credits, allocating 6 ECTS credits per semester. The assessment consists of the evaluation of the written work results (70%) and the participation in team work sessions (30%). This course is part of the track "Political Data Journalism", but open to students of all specializations.

Course Timeline

Due to the remarkably high level of student involvement, the course structure is subject to adjustments based on students' availability. Apart from essential introductory sessions, students have the freedom to decide when and how often they meet. Nevertheless, they can always rely on the support of supervisors throughout the course.

The tentative timetable below outlines essential milestones for the first of two semesters, with a primary emphasis on project initiation and the creation of an initial batch of content. The second semester will leverage the experience gained in the initial phase, focusing on the continued production of additional platform content.

- February 22, 10:00 - 12:00 & 13:00 - ~15:00 (AFL H-376)
  - **Course introduction**: The students are introduced to the StatGuide project and its philosophy. They learn about the scope and relevant topics of the course and the expected goals of this semester. The course instructors will introduce their expectations and explain the collaborative approach of the capstone course.
  - **First inputs from students**: The course participants already have the possibility to give their first feedback and impression about the StatGuide platform prototype.
  - **Introduction model guides & content modularization**: The students gain further insights regarding the technical functioning of the platform. They are introduced to the fundamental concepts and components of StatGuide, as well as the joint project work process.
  - **Workshop - user journey & workflow**: In a joint working session, we will analyze and document the typical workflow for applying a quantitative method step by step, from data to results. This will guide us in defining the e-learning contents we will create.
- February 29, 09:30 - 12:00 (AFL H-376)
  - **Assignment of priority content bricks to authors**. The linear regression model will be our first focus topic. We will jointly define who will write which e-learning contents in creating the model guide.
  - **Workshop - didactics 1**: Experts provide guidance and best practices on how to write online learning resources.
- Time to write the drafts of the bricks for the linear regression.

- March 28, 10:00 - 12:00 (AFL H-376)
  - **Peer review session of draft content bricks.** We will collect and exchange feedback on the draft contents created, and we will jointly define the need for improvement and expansion of contents to finalize the e-learning resources of the linear regression model.
  - **Workshop - didactics 2**: Analyzing and improving the draft content produced with the guidance of didactic experts.
  - **Feedback round on necessary adjustments** to the work process for the remainder of the semester (what works, what doesn't, what is missing).
- Time to finalize the bricks for the linear regression.
- April 18, 10:00 - 12:00 (AFL H-376)
  - **Workshop - content consolidation & harmonization** to combine the texts written by all authors into a coherent and complete guide with a consistent writing style. The remaining need for enhancements is identified jointly.
  - **Workshop - didactics 3**: Analyzing and improving the produced content with the guidance of didactic experts.
- April 25, 10:00 - 12:00 (AFL H-376)
  - **Workshop - model selection & prioritization**: The course participants are involved in the planning of content production. In-scope quantitative methods (i.e. model types, such as logit, probit, multinomial, etc.) are prioritized to decide which models (other than linear regression) we will create e-learning resources for.
  - **Workshop - model selection criteria & decision tree design**: The students are introduced to the decision tree – a core mechanism of the platform that allows users to identify the most applicable quantitative methods for their data analysis.
  - **Assignment of priority content bricks to authors**. After creating the e-learning resources for the linear regression model together, we will write additional model guides (on other models, such as logit, probit, etc.) in small teams. We will jointly define who will write which e-learning contents.

The other dates and deadlines will be discussed in class. The current idea is that there will be three rounds of writing each times different models in groups with the total of about 2 models per person. There will be possibilities for group individual feedback rounds during the writing process. We also plan to make a wrap-up session at the end of the first semester or in June.

Application and Contact

Submit your application through the module booking tool. Kindly include your current CV, transcript of records, and a concise motivation statement (maximum 0.5 pages). For further information about the scope, details, and contents of the course, please do not hesitate to contact the course instructors: benjamin.schlegel@uzh.ch.