Head:	Prof. Dr. Eva Heinen
Topic:	**Calibration of Cantonal Bike model based on various data sources**
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Registration:	www.ivt.ethz.ch/en/studies/downloads/assignments.html#registration

The recently published Transport Model of the Canton of Zurich successfully assigned bike traffic to the network but could not be properly calibrated due to the lack of sufficient bike counters. Today, however, various alternative data sources, such as cellphone tracks, Strava tracks, travel diaries, and counts at individual intersections (from transport projects), are available and could be utilized for model calibration without the need for extensive new data collection. These data provide valuable insights into cycling behaviour, route preferences, and trip volumes, offering a more detailed picture of bike traffic in Zurich. With this information, the model can finally be calibrated accurately and used to evaluate and optimize future bike infrastructure investments.

Tasks:

- Literature review on methods for calibrating transport models, with a focus on cycling traffic. Explore the challenges related to the availability and reliability of data sources for calibration and validation.
- Data collection and preparation: Identify and obtain relevant datasets. Assess the quality, resolution, and coverage of each data source for bike traffic calibration.
- Exploratory data analysis: Perform an initial analysis of the datasets to understand cycling patterns, identify gaps, and determine how each source could complement the others.
- Model calibration: Calibrate the model using the selected data sources. Compare different calibration approaches (e.g., using single or combined data sources) to determine which method leads to the most accurate representation of bike traffic.
- Validation of the calibrated model: Validate the model against observed data where possible (e.g., existing bike counts).
- Discussion of results: Reflect on the quality and limitations of using alternative data sources for model calibration. Discuss how this approach could be improved.

Links:	https://www.zh.ch/de/mobilitaet/gesamtverkehrsplanung/verkehrsgrundlagen/gesamtverkehrsmodell.html (German)
Additional remarks:	Prior experience with the programming languages R or Python and PTV Visum is helpful.
Minimum credits:	8 ECTS
Recommended lectures:	• Transport Planning Methods • Laboratory Transport and Spatial Planning • GIS