# AH2173 Public Transport 7.5 credits

Attractive, efficient and reliable public transport systems are fundamental in promoting sustainable growth developments in metropolitan areas. The need to integrate and operate increasingly complex, diverse and technology-oriented transit services poses challenges to both planners and operators.

The course will provide knowledge on planning and operations of public transport systems and their analysis and evaluation through various measures of performance.

## Learning outcomes

- Understand the four step transport planning process
- Discuss the primary stakeholders and factors influencing public transport development
- Understand and compare alternative organizational structures in the public transport sector
- Compare alternative public transport service patterns and network structures
- Calculate and interpret measures of service and network performance
- Express mode choice and route choice as a discrete choice model
- Apply methods for frequency determination, timetable design and vehicle scheduling
- Identify the sources of service uncertainty and their impact on service performance

## Course main content

- Introduction to public transport systems: history, current state and trends
- Strategic planning
- Network design
- Public transport sector organization
- Service quality assessment
- Public transport performance, analysis and modeling
- Operations planning
- Service reliability and control
- Data collection methods and advanced public transport systems

## Disposition

The course consists of lectures, a study journey, study visits, a workshop, exercises and two project assignments.

- The study journey involves making a trip in Stockholm's public transport system and documenting and discussing the experiences and findings. There are two different assignments, depending on whether or not you have previously taken course AH1025 Kollektivtrafiksystem, bussar och spårtrafik.

1

- The workshop is designed to highlight and discuss various current topics in public transport policy.
- Project I involves investigating the public transport system of a particular city and compare the fare schemes in two different cities, and is documented in a written report and an oral presentation.
- Project II involves designing and carrying out an empirical analysis of a particular phenomenon related to public transport operations and is documented in a written report.

## *Eligibility*

For admitted students to the Master of Science in Civil Engineering and Urban Management (CSAMH) or the Master of Science in Transport and Geoinformation Technology (TTGTM), there are no additional requirements.

For other students:

A completed bachelor's degree in civil engineering, urban planning, geomatics, geography, engineering physics, computer science, statistics, economics, and/or mathematics, with at least 60 university credits (hp) in mathematics, physics, statistics and/or computer science; and English language proficiency equivalent to (the Swedish upper secondary school) English course B/6.

## *Literature*

Ceder (2007). Public Transit Planning and Operations – Theory, Modeling and Practice.
Vuchic (2005). Urban Transit – Operations, Planning and Economics.
Vuchic (2007). Urban Transit - Systems and Technology.
A selection of research articles.

## *Examination*

PRO1 - Project, 3.5 credits, grade scale: A, B, C, D, E, FX, F
TEN1 - Examination, 4.0 credits, grade scale: A, B, C, D, E, FX, F

## *Requirements for final grade*

Written examination (4,0 cr), and projects I and II (3,5 cr). Completion of study journey and participation in role play are required to pass the Project part.

## *Offered by*

ABE/Div. of Transport Planning, Economics and Engineering

### *Contact*

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### *Examiner*

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