Planning and Decision Analysis

Study plan for third-cycle subject

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

Subject title

Planning and Decision Analysis (Planering och beslutsanalys)

Subject description and programme outcomes

Scientific field

The subject of Planning and Decision Analysis at doctoral level includes scientific studies that aim to improve the basis for planning and decisions, especially decisions having major long-term consequences. Theories and data from many different fields of knowledge are used in such studies. The subject-specific skills developed within the doctoral programme are intended for the critical evaluation and integration of such theories and data, and the assessment of their relevance and uncertainties. The theoretical basis is taken from e.g. planning theory, decision theory, environmental systems analysis and theory of science.

Description of possible specialisation

1. Common for all specialisations
2. Urban and regional studies
3. Environmental strategic analysis
4. Risk and Safety

Specification of how the programme outcomes are to be achieved

The educational goals are achieved by following the individual study plan with the support of the supervisors; taking courses, attending seminars, participate in national and international conferences.

Common for all specialisations

Description of the specialisation

The following text consists of information common for all specialisations.
Current research

Programme structure

Doctoral studies consist of a course component and a dissertation/thesis part. The course component may consist of lectures, literature studies and problem-solving, and active participation in seminars. Courses may be studied at KTH or in collaboration with other Swedish or foreign research institutions.

Doctoral studies are conducted under the direction of a main supervisor, along with at least one assistant supervisor, in accordance with an individual study plan. Students' individual study plans will be adapted to their prior knowledge and the area of the dissertation/thesis. The Director of Third Cycle Education of the school will establish, and at least once a year review, the individual study plan. The main supervisor and the student will together draw up a document in the form of a proposal for a study plan prior to reviews.

A licentiate degree may be taken as part of a doctor's degree. Courses and dissertation work included in the licentiate degree may also be credited towards a doctor's degree. The licentiate degree consists of a course component of 30-37.5 ECTS and a dissertation part of 82.5-90 ECTS, totaling 120 ECTS. A doctor's degree consists of a course component of 60-75 ECTS and a thesis of 165-180 ECTS, giving a total of 240 ECTS. Further requirements are stated in the description of each area of specialisation.

Seminars and conferences

Doctoral students will present and discuss their texts in regular seminars. They will also participate in national and international conferences in their field. Doctoral students are encouraged to present their results annually at an international scientific conference.

Compulsory and recommended courses

For a doctor's degree in the subject of Planning and Decision Analysis, the following three shared compulsory courses must have been taken; see below.

For a licentiate degree, at least one of the courses Theory and Analysis of Decision-making and Theory and Methodology of Science must have been completed.

Additional requirements for compulsory courses are made for each area of specialisation.

The course in Theory and Methodology of Science can also be studied as:

- AK3024 Introduction to Theory of Science and Research Methodology, for Graduate Students in Technology and Natural Sciences 4.5 ECTS / 1N5112 Intro to Theory of Science and Research Methodology, Social Science 4.5 ECTS AND AG3165 Self-reflexive Methodology for the Scientific Study of Complex Social Phenomena 3.0 ECTS

Or

- Corresponding course in theory of science such as Faculty course in Theory of Science at the Department of Philosophy (7.5 ECTS), Stockholm University.
Doctoral students who earlier completed 7.5 ECTS in Theory of Science are not obliged to take the course in theory of science again but they are not allowed to count any credits for their previously completed course.

Doctoral students who teach at first or second level must have completed initial university teacher training.

**Compulsory in-depth courses**

- FAG3006 Theory and Analysis of Decision-making 7.5 hp.

**Compulsory research proficiency courses**

- F1N5113 Theory of Science and Research Method, Technological and Natural Sciences 7.5 hp.
  Alternatively 1N5114 Theory of Science and Research Methodology, Social Science
- F1N5105 Essay in Popular Science 3.0 hp.

**Thesis**

The dissertation/thesis is a compulsory part of doctoral studies. The dissertation/thesis should normally be written as a collection of scientific articles but may also be written as a monograph. There should be a specific written summary essay in a dissertation/thesis consisting of a collection of scientific articles.

A licentiate thesis should contain new theoretical or empirical research results in the chosen subject area or the application of existing scientific knowledge in a new area that the student has developed through theoretical or empirical research work. It should also include an overview of previous research in the chosen subject area. It must be of such quality and scope that it could be the basis of at least two research articles published in internationally recognized journals with peer review. If the student has written articles with other authors, his or her contribution must be clearly distinguishable.

A thesis for a doctor's degree must contain new theoretical or empirical research results in the chosen field of study which the student has developed through theoretical or empirical research. It should also include an overview of previous research in the chosen subject area. It must be of such quality and scope that it could be the basis of at least four research articles published in internationally recognized journals with peer review.

If the student has written articles with other authors, the student's own contribution must be clearly distinguishable. An internal quality audit must be carried out prior to a licentiate seminar or viva voce.

Doctoral theses and licentiate dissertations are normally written in English. The licentiate dissertation may be included as part of a doctoral thesis.

**Urban and regional studies**

**Description of the specialisation**

The area of specialisation *Urban and regional studies* consists of the analysis of phenomena and processes that may be affected by overall urban and regional planning. The focus is on sustainable development and
management of society, land and the built environment. It includes a view of planning as a changing and
democratic process over time in which players with different resources and motives interact with each
other. An important perspective in all research in this subject is to see society as an expression of different
social, cultural, economic and ecological driving forces, in which changes in one part often have
consequences in other parts as well as the whole. A focus is linked to the study of players who in various
ways seek to influence society and the built environment; their power resources and institutional
conditions, the division of roles between them and forms of collaboration and conflict management. The
area’s scientific tools are taken from the technical, scientific, humanistic and social science disciplines.
Particular emphasis is on theories and methods for the study of sustainable development of society.

Current research

Programme structure

See Common for all specialisations.

Compulsory and recommended courses

The licentiate degree consists of a course component of 30 ECTS and a dissertation part of 90 ECTS,
giving a sum of 120 ECTS. A doctor’s degree consists of a course component of 60 ECTS and a thesis of
180 ECTS, giving a total of 240 ECTS.

For a doctor's degree in the area of specialisation Urban and regional studies, all three of the compulsory
courses for the subject must have been completed together with the compulsory course for the
specialisation, AG3164 Planning Theory, 7,5 ECTS.

For the licentiate degree, 15 ECTS from the compulsory courses for the doctor's degree must have been
completed, including either Theory and Analysis of Decision-making or Theory and Methodology of
Science. It is often appropriate to read both Theory and Analysis of Decision-making and Theory and
Methodology of Science early in the programme.

Other courses are selected mainly from the following recommended subject areas:

- Players, planning and planning processes
- Housing quality, trade and service
- Discourse analysis
- Case study methodology
- Governance and institutional capacity
- Sustainable development
- Cultural heritage and management
- Environmental justice and gender theory
- Mobility and transport
- Educational methodology
- Place analysis and habitat
- Regional planning and development
- Space, power, meaning
- Urban and regional economics
- Urban and regional infrastructure
- Urban planning and design
Current list of courses being offered can be found in the course and programme catalogue at KTH.

**Compulsory in-depth courses**

- FAG3164 Planning Theory 7.5 hp.

**Thesis**

*See Common for all specialisations.*

**Environmental strategic analysis**

**Description of the specialisation**

The area of specialisation *Environmental Strategic Analysis* is the analysis of long-term solutions and knowledge-building on major strategic environmental problems that require long-term solutions. The research focuses on environmental problems that are strategically important globally and/or in Sweden, but may also include environmental problems that are strategically important for an industry, a company or an authority. A systemanalytical perspective is applied in this research, in which a social context is taken into account regarding technological development, infrastructure and processes of change. Broader studies of social and economical sustainable development may also be included in the research. Research in the area of environmental strategic analysis includes futures studies and tools for environmental assessment and environmental management. Processes of change are also studied, which include research on behaviour, lifestyles and policies.

**Current research**

**Programme structure**

*See Common for all specialisations.*

**Compulsory and recommended courses**

A licentiate degree consists of a course component of 30 ECTS and a dissertation part of 90 ECTS, equal to 120 ECTS. A doctor’s degree consists of a course component of 60 ECTS and a thesis part of 180 ECTS, giving a total of 240 ECTS.

For a doctor's degree in the area of specialisation *Environmental Strategies Analysis*, all three of the compulsory courses for the subject have to be completed together with the compulsory course for the specialisation; 1N5008 Environmental Strategic Methods 7.5 ECTS.

For a licentiate degree, 15 ECTS of required courses for the doctor's degree must have been completed, including either Theory and Analysis of Decision-making or Theory and Methodology of Science. It is often appropriate to read both Theory and Analysis of Decisionmaking and Theory and Methodology of Science early in the programme.

Other courses are selected mainly from the following recommended subject areas:
• Case study methodology
• Futures studies and forecasts
• Geographic information systems
• Infrastructure finance and public finance
• Qualitative methods
• Life cycle analysis
• Environmental justice and gender theory
• Mobility and transport
• Educational methodology
• Planning theory
• Regional environment and development planning
• Risk philosophy
• Space, power, meaning
• Social-ecological systems
• Game theory and negotiations
• Systems analysis
• Theory of urban areas and transport systems
• Sustainable transport and urban systems

Current list of courses being offered can be found in the course and programme catalogue at KTH.

Compulsory in-depth courses

• F1N5008 Environmental Strategic Methods 7.5 hp.

Thesis

See Common for all specialisations.

Risk and Safety

Description of the specialisation

The area of specialisation Risk and Safety consists of risk analysis, reliability, vulnerability and security in technical and socio-technical systems. Such analyses aim at providing a basis for decisions on risk prevention and safety promotion measures. Research in this area benefits from knowledge in different areas such as technology, natural science, medical science, social science and behavioral science, which contribute to assessing risk and safety. The subject specific skill lies in analyzing such data in an integrated way that gives a balanced picture for decision-making purposes. The chosen method is highly dependent on the type of risk and safety issues to be treated. A combination of quantitative and non-quantitative methods is often appropriate. This subject area also includes studies of risk perception and risk communication, as well as the social processes in which risk and safety issues are addressed.

Current research

Programme structure
See Common for all specialisations.

Compulsory and recommended courses

A licentiate degree consists of a course component of 37.5 ECTS and a dissertation part of 82.5 ECTS, totalling 120 ECTS. A doctor’s degree consists of a course component of 75 ECTS and a thesis of 165 ECTS, giving a total of 240 ECTS.

For a doctor’s degree in the area of specialisation Risk and Safety all three of the compulsory courses for the subject have to be completed together with the three compulsory courses for the specialisation;

1N5125 Philosophy of risk 7.5 ECTS seminar course
AK3008 Seminar participation in risk and safety, part1 7.5 ECTS
AK3009 Seminar participation in risk and safety, part2 7.5 ECTS

Of these, Theory and Methodology of Science, Philosophy of Risk and Seminar participation in the risk and safety, part 1 are also compulsory for the licentiate degree. It is often appropriate to read Theory and Analysis of Decision-making early in the programme.

Other courses are selected mainly from the following recommended subject areas:

- Eco toxicological risk assessment
- Exposure analysis
- Crisis management
- Medical risk assessment
- Environmental medicine
- Environmental risk analysis
- Modelling
- Human and organizational factors in safety analysis
- Optimization science
- Probabilistic safety analysis
- Risk communication
- Risk perception
- Safety engineering
- Statistics and probability theory
- Reliability theory
- Toxicological risk assessment

Current list of courses being offered can be found in the course and programme catalogue at KTH.

Compulsory courses

- FAK3008 Seminar Participation in Risk and Safety, Part 1 7.5 hp. Seminar course
- FAK3009 Seminar Participation in Risk and Safety, Part 2 7.5 hp. Seminar course

Compulsory in-depth courses

- F1N5125 Philosophy of Risk 7.5 hp.
Thesis

See Common for all specialisations.

Entry requirements and selection

General and special admission requirements and prior knowledge

KTH’s general eligibility requirements for admission to doctoral studies are applied.

Applicants are expected to read and write scientific English and speak English fluently. Applicants must also have the general ability required to fit the programme.

Admission to doctoral studies in Planning and Decision Analysis is decided by the school director at the School of Architecture and the Built Environment.

Selection rules and procedures

In addition to eligibility, the degree of maturity and capacity for independent judgement and critical analysis will form the basis of selection of applicants. Of particular interest in this assessment are previous study results in advanced courses at undergraduate level or independently conducted scientific studies. Specific prior knowledge that a doctoral student may require to carry out certain doctoral work may be a criterion for selection. A number of applicants are interviewed as part of the selection process.

The programme’s degrees and examinations

Degree of Licentiate and Degree of Doctor (PhD)

The licentiate dissertation may be included as part of a doctoral thesis. Coursework and dissertation work included in the licentiate degree may also be included in the doctor’s degree. A licentiate degree consists of a course component of 30 - 37.5 ECTS and a dissertation part of 82.5 - 90 ECTS, totalling 120 ECTS. A doctor’s degree consists of a course component of 60 - 75 ECTS and a thesis of 165 - 180 ECTS, giving a total of 240 ECTS. In the description of each specialisation additional requirements are made.

The programme’s examinations

Doctoral studies in the subject area of Planning and Decision Analysis include examinations, which may be written or oral. Examinations shall be designed so that examiners can be satisfied that a student has assimilated the full course content.