

Kursbeskrivning doktorandkurs i psykologi

Detta är en mall för beskrivning av doktorandkurser i psykologi vid Psykologiska institutionen, Stockholms universitet. Vänligen fyll i kursinformationen i blåmarkerade fält.

Course description doctoral course psychology

This is a template for the description of doctoral courses in psychology at the Department of Psychology, Stockholm University. Please fill in the blue-highlighted fields.

Kurstitel	Course title
	Machine Learning for Social Scientists
Max 120 tecken	Maximum 120 characters

Högskolepoäng (hp)	Course credits (ECTS)
hp	7.5 ECTS

Kurskod	Course code
PS	PS
Exempel på kurskod: PSAWF01. Om du saknar kurskod, lämna detta fält tomt.	Example of course code: PSAWF01. If you have no course code, leave this field empty.

Gäller från termin	Valid from semester
	HT24
Ange först termin som kursen ges	Indicate the first semester the course is given

Behörighetskrav	Entry requirements
	There are no formal entry requirements, but experience with programming in Python will be assumed. Students who have no experience with Python are advised to take the course 'Python Programming for Social Scientists' that runs right before this course.
Om specifika behörighetskrav finns, ange dessa. Om innga särskilda krav finns, ange "antagen till forskarutbildning i psykologi".	If there are specific entry requirements, state these. If there are no specific requirements, state "admitted to doctoral studies in psychology".

Lärandemål	Learning outcomes
	To pass the course, the student should be able to - Define and differentiate between supervised and unsupervised learning methods. - Apply regression and classification algorithms to analyze social science data, including linear and logistic regression, k-NN, SVM, decision trees, and random forests.

	<ul style="list-style-type: none"> - Implement clustering techniques and dimensionality reduction methods for unsupervised learning tasks. - Develop and train basic neural network architectures, and evaluate their performance.
<p>De förväntade studieresultaten i punktform. Exempel: För godkänt resultat på kursen ska studenten kunna:</p> <ul style="list-style-type: none"> - definiera... - beskriva... - redogöra för... - analysera... - problematisera... 	<p>Expected learning outcomes in point form. Example: To pass the course, the student should be able to</p> <ul style="list-style-type: none"> - define... - describe... - account for... - analyze... - problematize...

Kursinnehåll	Course content
	<p>The course consists of an introduction lecture and five half-day workshops. Each workshop starts with a lecture and is followed by a lab session in which students work on exercises under guidance of the course leader. The course concludes with a seminar in which students present their final projects and discuss them with the other students and the course leader.</p> <p>The course covers both theory and practical applications of machine learning in social science, with a focus on the latter.</p> <p>Introduction Lecture: What is Machine Learning? Workshop 1: Supervised Learning – Regression Workshop 2: Supervised Learning – Classification Workshop 3: Unsupervised learning Workshop 4: Introduction to Neural Networks Workshop 5: Advanced Neural Networks and Deep Learning Seminar: Student Presentations of Final Projects</p>
<p>Beskriv kortfattat kursens innehåll. Fokus bör ligga på vad som behandlas på kursen, på vilka kunskaper som förmedlas och på vad studenten kan förväntas lära sig.</p>	<p>Briefly describe the content of the course. The focus should be on what is covered in the course, what knowledge is imparted and what the student can be expected to learn.</p>

Obligatoriska moment	Mandatory
	<p>Students must attend at least four of the five workshops, as well as the seminar with project presentations.</p>
<p>Ange om det finns obligatorisk närvaro, obligatoriska uppgifter, obligatorisk närvaro, etc.</p>	<p>Indicate whether there is compulsory attendance, compulsory tasks, compulsory attendance, etc.</p>

Examinationsformer	Examination
0	<p>Each workshop is accompanied by a take-home assignment with practical exercises. Students hand in reports of their solutions, which are graded with pass/fail (in case of fail, an opportunity is provided to complement the report). There is a take-home exam (final project) at the end of the course, which will also be graded with pass/fail.</p>

THIS IS A DRAFT – FINAL PLAN MAY LOOK DIFFERENT

	To pass the course, a student needs to have a passing grade on every workshop assignment and on the final project.
Ange samtliga examinationsformer som används	Please specify all forms of examination on the course

Arbetsformer	Forms of teaching
	The teaching consists of an introduction lecture and five half-day workshops, each of which starts with a short lecture and is followed by a seminar during which students work through a number of exercises.
Ange vilka former av undervisning (inte specifika aktiviteter) som förekommer på kursen. Exempel: Undervisningen utgörs av... föreläsningar, seminarier, övningar, grupparbete, handledning, och laborationer. För läskurs, ange "läskurs".	Indicate which forms of teaching (not specific activities) occur on the course. Example: The teaching consists of ... lectures, seminars, exercises, group work, supervision, and laboratory work. For reading course, state "reading course".

Kursansvarig	Course leader
	Ronald van den Berg