

Percorso Autonomo Autorizzato

Title	Methods and Models for the Decision Making
Chief	(DMAT, PoliMi): prof. Roberto Lucchetti
Collaborators	(DEIB, PoliMi): prof. Edoardo Amaldi, prof. Nicola Gatti; (DMAT, PoliMi): prof. Norma Zagaglia
International contacts	<ul style="list-style-type: none"> • Lamsade Paris VI, Francia • UPC Manresa, Spagna • Carnegie Mellon University (USA) • London School of Economics (UK) • Université Libre de Bruxelles, Belgio • RWTH Aachen University, Germania • Ecole Polytechnique, Montréal, Canada • University of Oxford, UK • CIRRELT (Centre interuniversitaire de recherche sur les réseaux d'entreprise, la logistique e les transports), Montréal, Canada
Description and goals	The decision making in complex situations is a field of a relatively recent but fast growing interest, due to the progress in software and hardware, allowing today to deal with problems which were intractable since few years ago. Analysing such situations requires not only new algorithms, but more importantly new theoretical tools and modeling approaches. The goal of this track is to provide students with a solid background, both from a theoretical and an algorithmic point of view, in the broad setting of the decision theory, especially as far as complex decision processes are concerned.
	<p>The study plan is part of the PSPA (Major) of “Statistics”. Beyond mandatory exams, the following are specific of the track:</p> <ol style="list-style-type: none"> 1) <i>093735 – Graph optimization</i> (5 CFU, mandatory): a master course of Ing. Inf, da to be selected in autonomous plan at the place of a course in the Table SC; 2) <i>089214 – Artificial intelligence</i> (5 CFU, mandatory): a master course of Ing. Inf, da to be selected in autonomous plan at the place of a course in the Table ENG; 3) <i>089169 – Autonomous agents and multiagent systems</i> (5 CFU, mandatory): a master course of Ing. Inf, da to be selected in autonomous plan at the place of a course in the Table ENG; 4) <i>095972 – Optimization</i> (8 CFU, mandatory): to be selected in “effective” in table MTM; 5) <i>095974 – Game theory</i> (8 CFU, , mandatory): to be selected in “effective” in table MTM; 6) <i>097676 – Economics and computation systems</i> (6 CFU, mandatory):): a master course of Ing. Inf, da to be selected in autonomous plan at the place of a course in the Table ENG; 7) <i>097683 – Machine learning systems</i> (5CFU, mandatory):): a master course of Ing. Inf, da to be selected in autonomous plan at the place of a course in the Table ENG; 8) <i>One between 093269 – Discrete mathematics</i> (5 CFU), <i>097681 – Discrete dynamical models</i>:): a master course of Ing. Inf (IM), to be selected in autonomous plan at the place of a course in the Table SC;
Theses in progress	<ul style="list-style-type: none"> • Games and applications • Optimization of investments
Available theses	Theses in the setting of decision theory, game theory, utility theory, social choice, both from a theoretical and from a more algorithmic point of view. Theses from Operation Research problems and graph optimization problems. For the first type theses see also www.gametheory.polimi.it

Training	ATM Milano IBM Softline MAIOR s.r.l. Banks Consulting agencies
Specific jobs	Agencies and firms working in complex problems, web firms, consulting groups.

Politecnico di Milano – LM in Ingegneria Matematica – 22/09/2015