

Syllabus

Descrizione corso

Titolo insegnamento	Metodi Quantitativi per il Management
Codice insegnamento	30190
Titolo aggiuntivo	
Settore Scientifico-Disciplinare	STAT-04/A
Lingua	Tedesco
Corso di Studio	Corso di laurea in Management del Turismo, dello Sport e degli Eventi
Altri Corsi di Studio (mutuati)	
Docenti	dott. Benjamin Weißing, Benjamin.Weissing@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/35796
Assistente	
Semestre	Secondo semestre
Anno/i di corso	3
CFU	6
Ore didattica frontale	36
Ore di laboratorio	-
Ore di studio individuale	-
Ore di ricevimento previste	18
Sintesi contenuti	This course introduces students to essential quantitative techniques for informed decision-making in management. It covers foundational concepts in data analysis and optimisation (including linear and integer programming), with an emphasis on practical application. Students will gain experience using software tools such as Python to model and interpret quantitative problems.
Argomenti dell'insegnamento	Teoria delle decisioni e massimizzazione dell'utilità Ottimizzazione lineare, intera e non lineare

	Teoria dei grafi e reti Pianificazione dei progetti Statistica e teoria della probabilità Modelli stocastici Regressione e modellizzazione Analisi delle serie temporali
Parole chiave	Ottimizzazione, statistica, modellizzazione matematica, processo decisionale
Prerequisiti	Conoscenze di base di algebra lineare e statistica.
Insegnamenti propedeutici	A requirement for taking the exam is the completion of any additional requirements (OFA) that may have been assigned (see the course description 'OFA Mathematics').
Modalità di insegnamento	Lezioni frontali ed esercitazioni in presenza, in tempo reale.
Obbligo di frequenza	-
Obiettivi formativi specifici e risultati di apprendimento attesi	ILO (Intended Learning Outcomes) ILO 1 - Knowledge and understanding ILO 1.1 The concept of uncertainty and the basic elements of probability theory. ILO 1.2 The fundamentals of linear programming in economics and management. ILO 1.3 The fundamentals of order theory, in particular partial and total (linear) order relations. ILO 1.4 The effects of non-total order relations on decision models ILO 2 – Ability to apply knowledge and understanding ILO 2.1 Formally define economic problems; find (optimal) solutions based on existing theories and interpret results. ILO 2.2 Use mathematical tools to analyse static and dynamic models. ILO 2.3 Mathematical problems and models as well as ideas for solving them. ILO 2.4 Use mathematical tools to analyse static and dynamic models with multiple variables. ILO 2.5 Use algorithms/applications to solve linear programmes and their dual problems. ILO 2.6 Solve zero-sum games between two people using linear programming.

	ILO 2.7 Solve linear programmes for business problems: cost and revenue optimisation, logistics design and optimisation, inventory flow planning, etc. ILO 2.8 Use mathematical methods to model risks (uncertainties) and solve expected utility maximisation problems. ILO 2.9 Distinguishing between decision situations with complete and incomplete preferences and then using the appropriate model. ILO 3 - Making judgements ILO 3.1 Identify the most important variables to be used in decision-making in complex situations. ILO 3.2 Report analytically and critically on information, empirical values and data in order to make adequate business decisions. ILO 3.3 Select the most appropriate quantitative and qualitative analysis tools to support decision-making. ILO 3.4 Find necessary additional information in databases, legal documents and scientific sources; ILO 3.5 Find solutions by using logical conclusions and combining information and analytical tools ILO 4 - Communication skills ILO 4.1 The educational activities in the first year include courses in all three official languages of instruction, covering communication and presentation strategies and techniques, as well as the acquisition of various skills for the cultural environment related to language. The second year includes a language course in a fourth language. Case studies, projects and exercises within the courses, as well as the written exams at the end of each course, also contribute to the development of students' communication skills. ILO 4.2 The achievement of this objective is assessed by means of written exams, group work, homework assignments, the presentation of case studies and projects, and the final thesis. ILO 5 - Learning skills ILO 5.1 the ability to retrieve and utilise information from databases, research studies, legal texts, regulations and standards that are required in their professional life; ILO 5.2 the ability to analyse, critically evaluate and integrate data,
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	information and experience; ILO 5.3 the ability to develop possible solutions to problems in economic and operational areas relating to those work contexts that represent potential career prospects for graduates.
Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.)	
Modalità di esame	Esame scritto con domande aperte sugli argomenti trattati durante il corso (ILO 1-5). L'esame è lo stesso sia per gli studenti che frequentano le lezioni sia per quelli che non le frequentano.
Criteri di valutazione	Correttezza e comprensibilità delle risposte fornite durante l'esame.
Bibliografia obbligatoria	• Canela, Miguel Ángel; Alegre, Inés; Ibarra, Alberto. <i>Quantitative Methods for Management: A Practical Approach</i>. Cham: Springer Nature Switzerland, 2019. ISBN 978-3-030-17554-2 (eBook). • Bankhofer, Udo. <i>Pianificazione aziendale quantitativa: metodi matematici ed esempi di applicazione aziendale</i>. Wiesbaden: Springer Fachmedien Wiesbaden, 2022. ISBN 978-3-8348-2466-0 (eBook). • Werners, Brigitte. <i>Fondamenti di ricerca operativa: con esercizi e soluzioni</i>. 3a edizione. Berlino/Heidelberg: Springer Gabler, 2013. ISBN 978-3-642-40102-2 (eBook).
Bibliografia facoltativa	
Altre informazioni	
Obiettivi di Sviluppo Sostenibile (SDGs)	Istruzione di qualità