UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Matematica e Informatica
ACADEMIC YEAR	2020/2021
BACHELOR'S DEGREE (BSC)	MATHEMATICS
SUBJECT	OPERATIONS RESEARCH
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	10709-Attività formative affini o integrative
CODE	06263
SCIENTIFIC SECTOR(S)	MAT/09
HEAD PROFESSOR(S)	BAUSO DARIO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	96
COURSE ACTIVITY (Hrs)	54
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**BAUSO DARIO** Monday 18:00 19:00 Ufficio

DOCENTE: Prof. DARIO BAUSO

PREREQUISITES	Linear Algebra
LEARNING OUTCOMES	Knowledge and Understanding: Modeling of integer-programming problems and continuous-programming problems. The students should be familiar with the basic algorithmic solution methods of the models developed during the course. Applying knowledge and understanding: The students should be able to apply the models developed in class to transport problems, production and resource management and project management. Making judgments: The students should be able to develop and adapt the models proposed in class to specific problems. They should be able to estimate the degree of difficulty and the time required by the adopted algorithms to solve the problems under study. Communication skills: To express in a clear and unambiguous form the problems under exam. Direct language and ability to synthesise. Learning skills: Recognition and adaptation of the models proposed in class to specific situations.
ASSESSMENT METHODS	Written and oral exam 1. Assessment criteria for the written exam 5 tests including: 3 quizzes on the theory of mathematical modeling, models, relaxations, linear programs and simplex method, linear integer programs and branch and bound. 2. Assessment criteria for the oral exam An interview aiming at assessing skills and knowledge.
EDUCATIONAL OBJECTIVES	Developing skills for mathematical modeling and design of computational algorithms to solve optimization problems.
TEACHING METHODS	Frontal lessons, laboratories and courseworks
SUGGESTED BIBLIOGRAPHY	“Ricerca Operativa”, Hillier Liebermann, McGraw Hill Dispense del corso disponibili online

SYLLABUS

Hrs	Frontal teaching
2	Introduction to OR
10	Linear Program models
10	Simplex method
3	Duality theory
2	Introduction to Integer Linear program
8	Models of integer linear programs
5	Branch and Bound method
7	Linear program models, simplex and duality
7	Integer linear program models, branch and bound