

DENOMINAZIONE ATTIVITÀ FORMATIVA		SSD	CFU	ORE	DOCENTE/ESPERTO
STATISTICS and MACHINE LEARNING		SECS-S/01	12	96	Sabrina GIORDANO
Moduli coordinati	Contenuti				
Statistical models	Linear models Logit models Survival models Multilevel models	SECS-S/01	2	16	Anthony Cossari (UNICAL) Sabrina Giordano (UNICAL) Mariangela Zenga (UNIMIB)
Data analysis and statistical learning	Cluster Principal component analysis Discriminant analysis Mixture models	SECS-S/01	2	16	Salvatore Ingrassia (UNICT) Daniele Salvatore Tomarchio (UNICT)
Tree-based models	CART Random forest Boosting	SECS-S/01	2	16	Anna Gottard (UNIFI)
Data mining on social media	Social network analysis Performance indexes Customer segmentation	SECS-S/01	1	8	Michelangelo Puliga (LINKALAB) Milena Lopreite (UNICAL)
Text mining	Textual data acquisition Data processing and modelling	SECS-S/01	1	8	Michelangelo Misuraca (UNICAL) Maria Spano (UNINA)
Missing data	Imputation methods	SECS-S/01	1	8	Ilaria Amerise (UNICAL)
Bayesian and neural networks	Artificial neural networks for prediction, classification and modelling	SECS-S/01	2	16	Sara Franceschi (UNISI) Paolo Cozzucoli (UNICAL)
Deep learning on temporal data	Modelling and forecasting	SECS-S/01	1	8	Pier Francesco Perri (UNICAL)

PROGRAMMING LANGUAGES		SECS-S/01 ING-INF/05	5	40	Sabrina GIORDANO
Moduli coordinati	Contenuti				
Programming with R	ABC of language packages	SECS-S/01	2	16	Sabrina Giordano (UNICAL) Ilaria Amerise (UNICAL)
Programming with Python	ABC of language features	ING-INF/05	3	24	Francesco Lupia (OPEN KNOWLEDGE TECHNOLOGIES)

APPLIED MATHEMATICS, ECONOMICS and BUSINESS		SECS-S/06 MAT/09 SECS-P/06 SECS-P/05	6	48	Domenico DE GIOVANNI
Moduli coordinati	Contenuti				
Risk management	Financial and insurance econometrics	SECS-S/06	2	16	Domenico De Giovanni (UNICAL) Fabio Lamantia (UNICT) Massimiliano Menziatti (UNISA) Marco Pirra (UNICAL)
Revenue management	Capacity control Pricing techniques	MAT/09	1	8	Giovanni Giallombardo (UNICAL)
Machine learning in economics and business	Resampling Validation methods Model selection and regularization	SECS-P/06	2	16	Giuliano Resce (UNIMOL)
Advanced Economics	Methods for policy evaluations	SECS-P/01	1	8	Vincenzo Scoppa (UNICAL)

COMPUTER SCIENCE		ING-INF/01	9	72	Giorgio TERRACINA
Moduli coordinati	Contenuti				
Databases	Construction and query (SQL)	ING-INF/05	2	16	Cristian Molinaro (UNICAL) Irina Tributsyna (UNICAL)
Data warehousing	Methods and algorithms for multidimensional data	INF/01	2	16	Giorgio Terracina (UNICAL)
Business intelligence and performance	Business management tools	ING-INF/05	1	8	Alfredo Garro (UNICAL) Alberto Falcone (UNICAL)
Data mining	Algorithms for data mining, sentiment analysis	ING-INF/05	2	16	Giuseppe Manco (CNR) Eugenio Cesario (UNICAL)
Deep learning	Deep learning for text, video and images	INF/01	2	16	Gianluigi Greco (UNICAL) Carlo Adornetto (UNICAL)

DATA MANAGEMENT			4	32	Sabrina GIORDANO
Moduli coordinati	Contenuti				
Data management	Data sources, Data cleaning, Data visualization			16	Stefano Vena (ALTRAMA)
Data protection	New dimension of privacy: from the right to privacy to the protection of personal data			4	Sergio Niger (UNICAL)
Web data	Unconventional sources of data - web scraping			8	Carmelo Origlia (CONTESTI) Luca Gallo (WISH)

Errors in data	Measures and remedies of errors in data			4	Roberta Varriale (Sapienza), Simona Rosati (ISTAT)
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ADVANCED PROGRAMMING SKILLS					
Moduli coordinati	Contenuti	INF/01	8	64	Simona PERRI
Introduction to Java	ABC of the Java language	INF/01	2	16	Francesco Calimeri (UNICAL)
OOP	Introduction to Object Oriented Programming with Java	INF/01	2	16	Simona Perri (UNICAL)
Data Structures and Algorithms	Fundamentals on Data Structures and Algorithms in Java	INF/01	2	16	Jessica Zangari (UNICAL)
Advanced Topics	Persistence, serialization, exceptions, threads	INF/01	2	16	Carmine Dodaro (UNICAL)

DATABASES					
Moduli coordinati	Contenuti	INF/01	5	40	Giorgio TERRACINA
Database design	Conceptual and logical models for database design	INF/01	2	16	Mario Alviano (UNICAL)
Database querying	SQL: how to query databases	INF/01	2	16	Giorgio Terracina (UNICAL)
DBMSs	Overview of the main open source Database management Systems	INF/01	1	8	Marco Maratea (UNICAL)

ARTIFICIAL INTELLIGENCE		INF/01	6	48	Gianluigi GRECO
Moduli coordinati	Contenuti				
Introduction to Neural Networks	Basics of Neural Networks and Deep Neural Networks and Keras	INF/01	2	16	Gianluigi Greco (UNICAL)
Advanced topics on Neural Networks	Advanced architectures for Neural Networks	INF/01	2	16	Carlo Adornetto (UNICAL) Pierangela Bruno (UNICAL)
Knowledge Representation and Reasoning	Fundamentals of languages and systems for knowledge representation and automated reasoning	INF/01	1	8	Francesco Ricca (UNICAL)
Temporal Reasoning and Process Intelligence	Basics on Temporal Reasoning and Process Intelligence models and tools	INF/01	1	8	Valeria Fionda (UNICAL)

EXPERIENCE/LAB/CASES STUDY			4	72	Sabrina GIORDANO
Moduli coordinati	Contenuti				
Output management	Output visualization and dashboard: Tableau <i>et al</i>			4	Serena Formosa (AC TECHNOLOGY)
Data/output management	Data/Output visualization and web app: Shiny <i>et al</i>			4	Luigi Aceto (GENRE)
Case study	Measure and predict sales through econometric models			4	Nevio Leone (CORE ANALYTICS)

Case study	Data-driven for positioning and advertising plan			4	Enzo Bartalotta (ETHICA)
Case study	A survey on the black economy			4	Elena Console (TEA)
Case study	Business to data and data to business			4	Pierpaolo Cimirro (CERVED)
Case study	Digital marketing: strategic campaigns and advertising			4	Alberto Marra (DIGITOUCH)
Case study	Machine learning for healthcare			4	Alessia Sarica (UNICZ)
Case study	Data science and artificial intelligence for fashion industries			4	Saverio Gravina (DS TECH) Elvira Floridi (LIVETECH)
Case study	Enhancing market research with natural language process techniques			4	Gianluca Tiesi (Ti&Si)
Case study	Blockchain in data analytics			4	Michele De Buono (SCAILAB)
Case study	IoT smart system for energy efficiency			4	Francesco De Vito (ALMASOFT)
Business game	Contextual value analytics for companies			4	Alessandro Boaro (CRIF) Raffaele Anselmi (CRIF) Marco Balduini (CRIF)
Case study	Machine learning for public policies			4	Guido De Blasio (BANCA d'ITALIA)
Case study	Algorithms for fraud prevention and granting credit			4	Francesco Visalli (ALTILIA) Fausto Pupo (ALTILIA)
Case study	Distributed computing with Apache Spark			4	Aristide Cittadino (ACSOFTWARE)
Soft skills	Data storytelling/Team building			4	Lucia Moretti (GOODWILL)

Soft skills	How to prepare for a job interview			4	Alfonso Maggio (FIRE)
TIROCINIO				16	
PROVA FINALE				4	