Graduate program in Analytics and Data Engineering

Structure

1st year

Course	Scientific area*	Duration	Period	Elective?	ECTS
Linear algebra and analytic geometry I	M	Semiannual	1st	No	6
Calculus IE	M	Semiannual	1st	No	6
Introduction to logic and discrete mathematics	M	Semiannual	1st	No	6
Introductory programming for science and engineering	I	Semiannual	1st	No	6
Operative systems: execution environments and tools	I	Semiannual	1st	No	3
Programming languages and environments	I	Semiannual	2nd	No	6
Linear algebra and analytic geometry II	M	Semiannual	2nd	No	6
Calculus IIE	M	Semiannual	2nd	No	6
Data Analytics for Engineering I	M	Semiannual	2nd	No	6
Probability theory and applications	M	Semiannual	2nd	No	6
Soft Skills for Science and Technology	CC	Quarterly	2nd Q	No	3

* M: Mathematics, CS: Computer Science, CC: Transferable skills

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2nd year

Course	Scientific area*	Duration	Period	Elective?	ECTS
Statistical inference and applications	M	Semiannual	1st	No	6
Introduction to computer systems	CS	Semiannual	1st	No	9
Operational research	M	Semiannual	1st	No	9
Digital society: problems and concepts	CSA	Semiannual	1st	No	3
Sampling and Sample Surveys	M	Semiannual	2nd	No	3
Data Analytics for Engineering II	M	Semiannual	2nd	No	6
Databases	CS	Semiannual	2nd	No	9
Generalized linear models and applications	M	Semiannual	2nd	No	6
Linear optimization	M	Semiannual	2nd	No	6
Society, sustainability and digital transformation	CHS	Quarterly	2nd Q	No	3

* M: Mathematics, CS: Computer Science, CHS: Social Sciences and Humanities, CSA: Applied Social Sciences

3rd year

Course	Scientific area*	Duration	Period	Elective?	ECTS
Foundations of artificial intelligence	CS	Semiannual	1st	No	6
Software development methods	CS	Semiannual	1st	No	6
Statistics learning models	M	Semiannual	1st	No	6
Multivariate models	M	Semiannual	1st	No	6
Time series and forecast models	M	Semiannual	1st	No	3
Network analysis	M	Semiannual	2nd	No	6
Nonlinear optimization	M	Semiannual	2nd	No	6
Data analysis and engineering project	M	Semiannual	2nd	No	6
Systems for data processing	CS	Semiannual	2nd	No	6
Unrestricted elective	ASA	Semiannual	2nd	Yes	6
Undergraduate research opportunities program // Undergraduate practice opportunities program	M	Quarterly	2nd Q	Yes	3

* M: Mathematics, CS: Computer Science, ASA: Any Scientific Area