

Master of Science (MS) in Data Science

Learning Outcomes: Knowledge and Understanding, Cognitive Skills, Practical Skills, Transferable Skills	
1. Knowledge and Understanding (outcomes, teaching, assessment):	
Learning Outcomes:	<ol style="list-style-type: none"> 1. Critically evaluate the techniques for storing and processing big volumes of data, including transaction business data, text data and images. 2. Analyze machine learning techniques to discover the most pertinent in a given problem.
Teaching/Learning Methods:	Lectures, demonstrations, workshops; Laboratory sessions; Group work and group discussions (tutor- and student-led); Supported self-study and directed reading of books and articles; Independent online- and library-based research and critical reading; Case studies analyses; Collaborative learning via asynchronous discussion boards and wikis with peers in Blackboard with tutor input/moderation; Presentation preparation; Individual assignment writing; Team or individual project planning and execution.
Assessment:	Written assignments; Examinations; Presentations (individual or team); Reports
2. Cognitive Skills (outcomes, teaching, assessment)	
Outcomes	<ol style="list-style-type: none"> 1. Articulate business problems using data science techniques. 2. Design a comprehensive data science solution and assess it both from a technical and a business perspective. 3. Successfully complete a research project in big data or in data science under constraints.
Teaching/Learning Methods:	Lectures, demonstrations, workshops and seminars; Laboratory sessions; Group work and group discussions (tutor- and student-led); Supported self-study and directed reading of books and articles; Independent online- and library-based research and critical reading; Case studies analysis; Collaborative learning via asynchronous discussion boards and wikis with peers in Blackboard with tutor input/moderation; Individual assignment writing; Research project planning and execution.
Assessment:	Written assignments; Exams; Presentation (individual); Reports; major projects.
3. Transferable Skills (outcomes, teaching, assessment)	
Outcomes	<ol style="list-style-type: none"> 1. Formulate ideas and arguments and communicate them effectively both in writing and orally in an academic or business context 2. Undertake programming at an advanced level: use advanced algorithms, practice distributed computing, use of no-SQL databases.
Teaching/Learning Methods:	Lectures; Labs; Supported self-study and directed reading of books and articles; Independent online- and library-based research and critical reading; Reflective learning tasks & blogs; Presentation preparation; Individual assignment writing; Research project planning and execution.
Assessment:	Written assignments; Exams; Presentations (individual); Reports.

4. Practical Skills (outcomes, teaching, assessment)

Outcomes	1. Design and implement a Data Science, Analytics or Machine Learning solution to a real-world problem using the appropriate tools. 3. Develop data visualizations.
Teaching/Learning Methods:	Lectures, demonstrations, workshops and seminars; Laboratory sessions; Group work and group discussions (tutor- and student-led); Supported self-study and directed reading of books and articles; Independent online- and library-based research and critical reading; Case studies analysis; Collaborative learning via asynchronous discussion boards and wikis with peers in Blackboard with tutor input/moderation; Individual assignment writing; Research project planning and execution.
Assessment:	Written assignments; Exams; Presentation (individual); Reports; major projects.