

**TABLE 2: COURSE DISTRIBUTION PER SEMESTER**  
**BSc Data Science**

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>1<sup>st</sup> Semester</b>								
1.	Compulsory	Calculus and Applications	DS110	2	1,5 hours	13	26	6
2.	Compulsory	Probability and Statistics	DS111	2	1,5 hours	13	26	6
3.	Compulsory	Introduction to computing and programming	DS112	2	1,5 hours	13	26	6
4.	Compulsory	Programming for Data Science	DS113	2	1,5 hours	13	26	6
5.	Compulsory	English for Data Science I	LCE (DS) 114	2	1,5 hours	13	26	6
<b>2<sup>nd</sup> Semester</b>								
1.	Compulsory	Matrix Algebra and Computation	DS120	2	2 hours	13	26	6
2.	Compulsory	Inferential Statistics and regression analysis	DS121	2	1,5 hours	13	26	6
3.	Compulsory	Advanced Programming Concepts	DS122	2	1,5 hours	13	26	6
4.	Compulsory	Introduction to statistical data science	DS123	2	1,5 hours	13	26	6
5.	Compulsory	English for Data Science I	LCE (DS) 124	2	1,5 hours	13	26	6

A/ A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>3<sup>rd</sup> Semester</b>								
1.	Compulsory	Computational Optimization	DS210	2	1,5 hours	13	26	6
2.	Compulsory	Introduction to Econometrics	DS211	2	1,5 hours	13	26	6
3.	Compulsory	Artificial Intelligence and Machine Learning	DS212	2	1,5 hours	13	26	6
4.	Compulsory	Graph Theory and Networks	DS213	2	1,5 hours	13	26	6
5.	Elective	Elective course from Data Science or from the Department of Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies		2	1,5 hours	13	26	6
<b>4<sup>th</sup> Semester</b>								
1.	Compulsory	Management Science	DS220	2	1,5 hours	13	26	6
2.	Compulsory	Game Theory	DS221	2	1,5 hours	13	26	6
3.	Compulsory	Data Visualization	DS223	2	1,5 hours	13	26	6
4.	Elective	Elective course from Data Science or from the Department of Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet		2	1,5 hours	13	26	6

		Studies						
5.	Elective	Elective Course		2	1,5 hours	13	26	6

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>5<sup>th</sup> Semester</b>								
1.	Compulsory	Bayesian Modelling	DS311	2	1,5 hours	13	26	6
2.	Compulsory	Multivariate Methods and Statistical learning	DS312	2	2 hours	13	26	6
3.	Compulsory	Data bases	DS313	2	1,5 hours	13	26	6
4.	Elective	Elective course from Data Science or from the Department of Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies		2	1,5 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6
<b>6<sup>th</sup> Semester</b>								
1.	Compulsory	Data and text mining	DS320	2	1,5 hours	13	26	6
2.	Compulsory	Statistical Machine Learning	DS332	2	1,5 hours	13	26	6
3.	Elective	Elective course from Data Science or from the Department of		2	1,5 hours	13	26	6

		Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies						
4.	Elective	Elective course from Data Science or from the Department of Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies		2	1,5 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>7<sup>th</sup> Semester</b>								
1.	Compulsory	Computational Statistics and Econometrics	DS410	2	2 hours	13	26	6
2.	Compulsory	Advanced Topics in Data Science	DS411	2	2 hours	13	26	6
3.	Elective	Internship or two electives	DS400	2	1,5 hours	13	26	6
4.	Elective	Elective course from Data Science or from the Department of		2	1,5 hours	13	26	6

		Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies						
<b>8<sup>th</sup> Semester</b>								
1.	Compulsory	Advanced topics in Statistical Data Science	DS421	2	2 hours	13	26	6
2.	Compulsory	Advanced topics in Statistics	DS422	2	2 hours	13	26	6
3.	Compulsory	Thesis	DS450	2	1,5 hours	13	26	6
4.	Elective	Elective course from Data Science, CEI 467, CEI 524, CIS 456, CIS 458, CIS 459, CIS 473		2	1,5 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6

## ELECTIVE COURSES

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
1.	Elective	Advanced Linear Modelling and Classification	DS440	2	1,5 hours	13	26	6
2.	Elective	Linear and Generalised Linear Models	DS351	2	1,5 hours	13	26	6
3.	Elective	Stochastic Processes	DS350	2	1,5 hours	13	26	6
4.	Elective	Advanced Topics in Data Processing Systems	CEI467	2	1,5 hours	13	26	6
5.	Elective	Network Science	CEI524	2	1,5 hours	13	26	6
6.	Elective	Internet-based research methodologies	CIS306	2	1,5 hours	13	26	6
7.	Elective	Information Retrieval and Search Engines	CIS456	2	1,5 hours	13	26	6
8.	Elective	Internet of Things and Mobile Applications	CIS458	2	1,5 hours	13	26	6
9.	Elective	Natural Language Processing	CIS459	2	1,5 hours	13	26	6
10.	Elective	Collective Intelligence	CIS473	2	1,5 hours	13	26	6
11.	Courses on computing from the Department of Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies							

12.	Courses from Finance Direction
13.	Courses from Accounting Direction
14.	Courses from Data Science for Economics and Business direction

**TABLE 2: COURSE DISTRIBUTION PER SEMESTER**  
**BSc Data Science (for Economics and Business)**

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>1<sup>st</sup> Semester</b>								
1.	Compulsory	Calculus and Applications	DS110	2	1,5 hours	13	26	6
2.	Compulsory	Probability and Statistics	DS111	2	1,5 hours	13	26	6
3.	Compulsory	Programming for Data Science	DS113	2	1,5 hours	13	26	6
4.	Compulsory	Principles of Microeconomics	DS131	2	1,5 hours	13	26	6
5.	Compulsory	English for Data Science I	LCE (DS) 114	2	1,5 hours	13	26	6
<b>2<sup>nd</sup> Semester</b>								
1.	Compulsory	Matrix Algebra and Computation	DS120	2	2 hours	13	26	6
2.	Compulsory	Inferential Statistics and regression analysis	DS121	2	1,5 hours	13	26	6
3.	Compulsory	Principles of Macroeconomics	DS132	2	1,5 hours	13	26	6
4.	Compulsory	Principles in Accounting	DS141	2	1,5 hours	13	26	6
5.	Compulsory	English for Data Science I	LCE (DS) 124	2	1,5 hours	13	26	6



A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>3<sup>rd</sup> Semester</b>								
1.	Compulsory	Computational Optimization	DS210	2	1,5 hours	13	26	6
2.	Compulsory	Introduction to Econometrics	DS211	2	1,5 hours	13	26	6
3.	Compulsory	Principles of Finance	DS214	2	1,5 hours	13	26	6
4.	Compulsory	Intermediate Microeconomics	DS231	2	1,5 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6
<b>4<sup>th</sup> Semester</b>								
1.	Compulsory	Management Science	DS220	2	1,5 hours	13	26	6
2.	Compulsory	International Economics	DS230	2	1,5 hours	13	26	6
3.	Compulsory	Introduction to Statistical Data Science	DS123	2	1,5 hours	13	26	6
4.	Compulsory	Intermediate Macroeconomics	DS232	2	1,5 hours	13	26	6
5.	Elective	Elective Course		2	1,5 hours	13	26	6

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
<b>5<sup>th</sup> Semester</b>								
1.	Compulsory	Financial Econometrics	DS310	2	1,5 hours	13	26	6

2.	Compulsory	Economics of the Firm	DS330	2	1.5 hours	13	26	6
3.	Compulsory	Introduction to computing and programming	DS112	2	1,5 hours	13	26	6
4.	Elective	Multivariate Methods and Statistical learning	DS312	2	2 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6
<b>6<sup>th</sup> Semester</b>								
1.	Compulsory	Public and Welfare Economics	DS331	2	1,5 hours	13	26	6
2.	Compulsory	Financial Risk Management	DS322	2	1,5 hours	13	26	6
3.	Compulsory	Advanced Programming Concepts	DS122	2	1,5 hours	13	26	6
4.	Elective	Data Visualization	DS223	2	1,5 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6

<b>A/A</b>	<b>Course type</b>	<b>Course title</b>	<b>Course code</b>	<b>Periods per week</b>	<b>Period duration</b>	<b>Number of weeks/ Semester</b>	<b>Total periods/ Semester</b>	<b>Number of ECTS</b>
<b>7<sup>th</sup> Semester</b>								
1.	Compulsory	Empirical Labour Economics	DS430	2	1.5 hours	13	26	6
2.	Compulsory	Data bases	DS313	2	1.5 hours	13	26	6
3.	Elective	Internship or two electives	DS400	2	1,5 hours	13	26	6

4.	Elective	Elective course		2	1,5 hours	13	26	6
<b>8<sup>th</sup> Semester</b>								
1.	Compulsory	Data and text mining	DS320	2	1.5 hours	13	26	6
2.	Compulsory	Statistical Machine Learning	DS332	2	1.5 hours	13	26	6
3.	Compulsory	Thesis	DS450	2	1,5 hours	13	26	6
4.	Elective	Elective course		2	1,5 hours	13	26	6
5.	Elective	Elective course		2	1,5 hours	13	26	6

## ELECTIVE COURSES

A/A	Course type	Course title	Course code	Periods per week	Period duration	Number of weeks/ Semester	Total periods/ Semester	Number of ECTS
1.	Elective	International Money Markets	DS333	2	1,5 hours	13	26	6
2.	Elective	Money and Banking	DS334	2	1,5 hours	13	26	6
3.	Elective	Economics of Risk and Uncertainty	DS431	2	1,5 hours	13	26	6
4.	Elective	Economic Growth and Development	DS432	2	1,5 hours	13	26	6
5.	Elective	Political Economy	DS433	2	1,5 hours	13	26	6
6.	Elective	Introduction to Marketing	DS335	2	1,5 hours	13	26	6
7.	Courses on computing from the Department of Electrical Engineering and Computer Engineering and Informatics or the Department of Communication and Internet Studies							
8.	Courses from Finance Direction							
9.	Courses from Accounting Direction							
10.	Courses from Data Science							