Санкт-Петербургский филиал федерального государственного автономного образовательного учреждения высшего образования "Национальный исследовательский университет "Высшая школа экономики"

Факультет Санкт-Петербургская школа социальных и гуманитарных наук Национального исследовательского университета «Высшая школа экономики» Департамент социологии

Рабочая программа дисциплины
Базы данных (преподается на английском языке)

для образовательной программы «Социология и социальная информатика» направления подготовки 39.03.01 «Социология» уровень бакалавр

2 курс
Разработчики программы:
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Согласована методистом ОСУП
«30» августа 2017 г.

Т.Г. Ефимова   _____

Утверждена Академическим советом образовательной программы

«30» августа 2017 г., № протокола ___1____

Академический руководитель образовательной программы

Д.А. Александров   _____

Санкт-Петербург, 2017

Title of the course	**Databases (offered in English)**		
Title of the Academic Programme	BA "Sociology and Social Informatics"		
Type of the course	Elective		
Prerequisites	Information Systems, Algebra and Analysis, Probability and Mathematical Statistics		
ECTS workload	6		
Total indicative study hours	Directed Study	Self-directed study	Total
	70	158	228
Course Overview	This course introduces database design and querying in different DBMS. Emphasis is both on DB design and on applications of databases to analytical tasks. We will cover database theory, characteristics of contemporary DBMS landscape, Relational Algebra, ER-modeling of different domains, SQL and its dialects, different approaches to data modelling. Course DB project will include group modelling of a complex domain area, design and implementation of DB for this area, including relationships, triggers, stored procedures, complex queries. Applications of databases to Business Intelligence are also discussed through the course, including integration of predictive analytics with DBMS and and-user BI systems Course BI project will include defining BI goals, setting KPI, designing dashboards and predictive analytics models for a particular case from different domain areas.		
Intended Learning Outcomes (ILO)	Upon completion, students should be able to: - Model different domain areas using ER approach - design and implement normalized database structures by creating database tables, queries, triggers, stored procedures, reports, and forms - perform typical BI reporting queries using SQL and analytical tools - understand applications of BI to decision support in modern companies - perform simple integrations of DB and predictive analytics models - custom reports and dashboards based on DB data in Tableau and/or Power BI		
Teaching and Learning Methods	Teaching and learning methods include lectures, tutorials, project work, home assignments.		

Content and Structure of the Course						
№	Topic / Course Chapter	Total	Directed Study			Self-directed Study
			Lectures	Seminars	Tutorials	
1	Fundamentals of Databases: Relational Algebra, ER modelling	46	8	2	6	30
2	Database Design	46	6	4	6	30
3	SQL	62	4	4	6	48
3	BI and Databases: Predictive analytics	74	4	14	6	50
Total study hours		228	22	24	24	158

Indicative Assessment Methods and Strategy	- Seminar participation (25% of the cumulative grade) - Homework (25% of the cumulative grade) - DB Project + Presentation (25% of the cumulative grade) - BI Project + Presentation (25% of the cumulative grade) Cumulative grade accounts for 80% of the final grade - Final exam (80-minute test) (20% of the final grade)
Readings / Indicative Learning Resources	Clare Churcher. 2012. *Beginning Database Design: From Novice to Professional*. 2 edition. New York, NY: Apress. Jeffrey D. Ullman, and Jennifer Widom. 2007. *A First Course in Database Systems*. 3 edition. Upper Saddle River, NJ: Pearson. Rainer, R. K., Prince, B., & Cegielski, C. G. (2013). Introduction to Information Systems, 5th Edition: Fifth Edition. John Wiley and Sons, Incorporated Laursen, Gert H. N., and Jesper Thorlund. 2010. *Business Analytics for Managers: Taking Business Intelligence Beyond Reporting*. 1 edition. Hoboken, N.J: Wiley. Stanford's Introduction to Databases MOOC https://lagunita.stanford.edu/courses/Engineering/db/2014_1/about

Indicative Self- Study Strategies	Type	+/−	Hours
	Reading for seminars / tutorials (lecture materials, mandatory and optional resources)	+	28
	Assignments for seminars / tutorials / labs	+	40
	E-learning / distance learning (MOOC / LMS)	+	20
	Fieldwork	-	
	Project work	+	40
	Other (please specify)	-	
	Preparation for the exam	+	30

Academic Support for the Course	Academic support for the course is provided via e-mail
Facilities, Equipment and Software	Computer class, MSSQL Server, Tableau and/or PowerBI, diagramming software, MSSQL Server Studio, MS Access
Course Instructor	Dr Elena Mikhailova, Ilya Musabirov MA MSc, Dina Zimina