

**Name of course:** Business Analytics and Data Science

**Profile - general academic** <sup>1</sup>

**Study level :** second degree<sup>2</sup>

**Field:** social sciences, sciences and natural sciences **scientific discipline:** management and quality sciences 51%, economics and finance 20%, computer science 29%<sup>3</sup>

**Level of the Polish Qualification Framework-Level** 7<sup>4</sup>

Symbols of effects	Learning outcomes	Reference to universal PRK characteristics <sup>5</sup>	Reference to the second-level characteristics of the PRK for the relevant level <sup>6</sup>
1	2	3	4
	KNOWLEDGE: GRADUATE KNOWS AND UNDERSTANDS	Ingredient code description	Component code description
K_W01	to an in-depth degree the subject specifics, the latest developments and trends in management science and quality in particular understanding of the main concepts, terminology and advanced issues with business data processing, analysis and reporting.	P7S_W	P7S_WG
K_W02	in-depth computer tools for data processing and analysis and programming languages such as R or Python, as well as artificial intelligence and natural language processing algorithms	P7S_W	P7S_WG, P7U_W

<sup>1</sup>Insert appropriate: general academic or practical

<sup>2</sup> Enter the appropriate: first degree, second degree or unified master's degree.

<sup>3</sup> Enter in accordance with the Regulation of the Minister of Science and Higher Education.

The direction should be assigned to at least 1 discipline. If the major is assigned to more than 1 discipline, indicate the leading discipline in which more than half of the learning outcomes will be obtained (calculated by ECTS points). The % share of each field and discipline should be indicated.

<sup>4</sup> Enter the appropriate: first degree - level 6, second degree or unified master's degree - level 7.

<sup>5</sup> Refer to the relevant PRK level 6-8 in accordance with the annex to the Law of December 22, 2015 *on the Integrated Qualification System*

<sup>6</sup> Reference to the characteristics of second-degree learning outcomes for qualifications at levels 6-8 of the Polish Qualification Framework typical for qualifications obtained within the system of higher education and science after obtaining a full qualification at level 4 - in accordance with the Regulation of the Minister of Science and Higher Education of November 14, 2018 *on characteristics of second-degree learning outcomes for qualifications at levels 6-8 of the Polish Qualification Framework*. In the case of engineering studies, they should also take into account the possibility of obtaining all engineering competencies referred to in Part III of the regulation. Learning outcomes for arts majors should also include references to part II of the regulation.

K_W03	in-depth - different types of structures and institutions operating in the economy and issues related to the financial aspects of the organization's activities	P7S_W	P7S_WG, P7S_WK
K_W04	in-depth - the characteristics and behavior of human beings as economic agents, entering the socio-economic structures and determining the principles of their functioning , as well as the fundamental dilemmas of modern civilization	P7S_W	P7S_WG, P7S_WK
K_W05	in-depth - issues related to the measurement of economic phenomena, selected statistical and econometric methods and tools for the collection, analysis, processing and presentation of economic and business data and the possibilities of their application in practice	P7S_W	P7S_WG
K_W06	in-depth issues related to classical and agile project management. In particular, the graduate understands how to integrate analytical tools into project management processes to effectively execute data-driven projects from different business contexts.	P7S_W	P7S_WG
K_W07	to an in-depth degree - the variability of social and economic structures, institutions and processes, including to an extended degree the causes, course and effects of the dynamics of economic phenomena, as well as the determinants and consequences of the observed changes, as well as advanced quantitative and qualitative methods to describe and analyze these processes	P7S_W	P7S_WG
K_W08	in depth - the impact of cultural patterns, ethical norms and modern technologies on the course of processes and directions of development of modern organizations and their environment	P7S_W	P7S_WG
K_W09	in-depth - the principles of creating and using data repositories, including open data, with taking into account different data formats and standards, and understands the importance of open data in the context of today's business and technological challenges	P7S_W	P7S_WK
K_W10	legal and ethical norms and organizational rules that condition data collection and processing processes in various contexts, including business and social contexts as well as principles of industrial property and copyright protection. Understands how these norms affect the design and implementation of data processing systems, as well as corporate data management strategies and policies.	P7S_W	P7S_WK
	<b>SKILLS: A GRADUATE CAN</b>	<b>Ingredient code description</b>	<b>Component code description</b>
K_U01	identify, describe, model and interpret economic phenomena and processes, using advanced quantitative methods and advanced information and communication techniques	P7S_U	P7S_UW

K_U02	use various sources of information from the social sciences and methods of data analysis to describe in detail the phenomena and processes occurring in the company and its industry environment, and then evaluate, critically analyze and synthesize this information	P7S_U	P7S_UW, P7S_UK
K_U03	put into practice existing tools and methods typical of the field of study (e.g., Python, R, SQL, and Tableau) or, if necessary, develop new quantitative methods, including machine learning and artificial intelligence algorithms, to Analysis of phenomena occurring in the organization, including business processes	P7S_U	P7S_UW, P7S_UU U
K_U04	independently acquire knowledge and have the skills to solve complex and unusual problems specific to business analytics, such as business process optimization, Forecasting market trends or analyzing consumer behavior, and independently undertake the implementation of proposed solutions	P7S_U	P7S_UW, P7S_UU U
K_U05	Lead the debate on key data analysis problems, including artificial intelligence, machine learning, data mining and predictive analytics. Graduates are able to publicly formulate and express their own views, discuss with other participants and formulate conclusions on the mentioned data analysis problems.	P7S_U	P7S_UK
K_U06	use instruments to identify causes in an extended way and carry out multidimensional analysis of the conditions and effects of economic processes, make and verify hypotheses on economic issues and present the results of the analysis carried out	P7S_U	P7S_UW
K_U07	forecast the values of parameters determining selected social and economic processes and phenomena with the use of advanced methods and sophisticated tools of quantitative and qualitative data analysis and information and communication techniques	P7S_U	P7S_UW
K_U08	Use in-depth knowledge of legal and ethical norms that define the rights and obligations of subjects operating in socio-economic structures for practical analysis of the effectiveness of their functioning	P7S_U	P7S_UW
K_U09	propose, justify and implement known advanced or develop new quantitative methods adequate to solving specific economic problems such as financial forecasting, optimization of operational processes, risk analysis or market strategies	P7S_U	P7S_UW, P7S_UK, P7S_UO
K_U10	Cooperate in teamwork, take on the role of leader and lead the work of the project team analytical on a selected area of the company's operation including big data analysis, in-depth data visualization or on projects related to natural language processing and data-driven management	P7S_U	P7S_UO

K_U11	plan and implement their own learning and the learning of others, in particular, search for and learn to use new methods appropriate (in particular, advanced analytical techniques, statistical tools and machine learning algorithms) to the business problem being undertaken, and guide others in doing so	P7S_U	P7S_UU
K_U12	independently and collaboratively prepare oral presentations (in a foreign language at B2+ level) based on both theoretical studies and conducted analyses of data obtained from diverse sources	P7S_U	P7S_UK, P7S_UW
K_U13	use a foreign language in the business area, in accordance with the requirements specified for level B2+ of the Common European Framework of Reference for Languages	P7S_U	P7S_UK
<b>SOCIAL COMPETENCE: THE GRADUATE IS READY TO</b>		<b>Ingredient code description</b>	<b>Code component of the description</b>
K_K01	Think and act in an entrepreneurial manner, using quantitative techniques to identify and analyze business trends and take initiatives to find answers to questions relevant to the business	P7S_K	P7S_KO
K_K02	Recognizing the importance of data analysis in solving practical problems and using expert knowledge and scientific methods when it is difficult to find a solution on one's own	P7S_K	P7S_KK, P7S_KO
K_K03	resolve dilemmas related to the performance of the profession, using advanced analytical tools, and in case of difficulties - to consult experts	P7S_K	P7S_KO, P7S_KR
K_K04	actively participate in the preparation of socio-economic projects, using the analytical and management skills acquired, including those undertaken for the benefit of the social environment and the public interest	P7S_K	P7S_KK, P7S_KO, P7S_KR
K_K05	to critically evaluate their own knowledge and responsibly prepare for their work in the field of data analytics through the continuous replenishment of knowledge and improvement of acquired skills, using a variety of sources, methods and techniques of self-study in data analytics and business	P7S_K	P7S_KK