

Attachment
to the Resolution of the Senate
no. of

STUDY PROGRAM

BASIC INFORMATION

Study Program	Financial Analytics
Level of Studies	Master's Degree
Study Profile	General academic profile
Language of Instruction	English
Form of Study	Full-time
Number of Semesters	3
Degree Level	Master
Concentration (if applicable)	-

ASSIGNMENT OF THE PROGRAM TO FIELDS AND DISCIPLINES

DISCIPLINE	Social Sciences		
Scientific Discipline(s): <i>if the field of study is related to two or more disciplines, it is also required to specify the percentage share of the number of ECTS points for each discipline in the total number of ECTS points necessary to complete the studies - indicating the main discipline</i>	Disciplines	ECTS	% ECTS
	Main discipline: Economics and Finance	78	94%
	Culture and Religion Studies	5	6%

PROGRAM CHARACTERISTICS

concepts and learning objectives / relationship with the University mission and strategy / socio-economic need

The purpose of the course is to provide knowledge of financial markets, with particular emphasis on empirical methods used in analysis in financial markets, and practical skills for obtaining financial data processing. The detailed scope of the CFA degree program is consistent with the scope of CFA Level 2 and Level 3 accreditation requirements.

Implementation of the CFA Financial Analytics major is in line with the Strategy of Cracow University of Economics through offering an educational program which includes theoretical and practical elements. The specialization in Financial Analytics CFA is in line with the vision of Cracow University of Economics as a University with economic profile, expanded by other branches of science. The specialization is also in line with the historical mission of Cracow University of Economics - rerum cognoscere causas et valorem (to learn about causes and values of things), in which teaching subjects from the field of economic sciences has been an important part of the didactic process from the very beginning. The studies prepare graduates to use the acquired knowledge and competencies in today's job market, both in Poland and abroad.

Graduates of the Financial Analytics specialty, will acquire the information and skills that are recognized worldwide as necessary for the proper performance of professions related to the investment industry.

It prepares you to work

as investment advisors and financial analysts.

Potential jobs:

- financial institutions and investment companies (banks, mutual funds, pension funds and insurance companies),
- brokerage houses,
- PE/VC funds,
- family offices,
- corporate portfolio managers,
- consulting firms,
- company boards/controlling departments.

Graduates can take up employment not only in accounting offices, financial centers, auditing companies, but also in various types of institutions of controlling nature. The knowledge gained will also allow you to run your own business, or provide consulting and advisory services. The combination of knowledge of financial and managerial accounting will also predestine our graduates to take up the positions of managing director, financial director, specialist in managerial accounting or controlling.

NUMBERS OF CLASSROOM HOURS

Total numbers of classroom hours	600
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NUMBERS OF ECTS POINTS:

necessary for graduation	90
which a student must earn during classes with the direct participation of faculty members or other persons conducting classes	45
which a student must earn during internships (if applicable)	n/a
which a student must earn during foreign language classes	5
which a student may earn through distance learning activities	67

LEARNING OUTCOMES

Field of study (study major)		Financial Analytics
Symbol of the learning outcome for	Description of the expected outcomes	Reference to the description of expected learning outcomes

the field of study		Second-tier characteristics
P_W (KNOWLEDGE) The graduate knows and understands:		
FA_W01	in an in-depth way: theories and research methods explaining the complexity of phenomena in the fields of economics, finance and accounting, and broader disciplines to which the field of study is assigned.	P7S_WG
FA_W02	advanced mathematical, statistical and econometric methods and tools necessary for analysing phenomena in the fields of economics, finance and accounting.	P7S_WG
FA_W03	in an in-depth way: the processes of changes in the structures, institutions and economic relations in the fields of economics, finance and accounting, and understands what conditions them, and by which principles they are governed.	P7S_WG
FA_W04	in an in-depth way: the objectives and instruments of the financial policy of the state (including monetary, fiscal, and foreign exchange policy) and their impact on the financial markets as well as on the activities of real economy (businesses) and financial entities.	P7S_WG
FA_W05	in an in-depth and detailed way: the management of financial institutions, the risks associated with their operations, as well as financial investments, portfolio structuring and management, valuations, alternative investments, equity, fixed income and derivatives investments.	P7S_WG
FA_W06	in an extensive and in-depth way: the guiding principles of financial analytics, advanced management of investments as well as data processing in relation to various industries and organizational and legal forms of activity.	P7S_WG
FA_W07	in an in-depth way: the fields of corporate finance management and financial analysis, principles of business valuation, restructuring, and financial decision making, including decisions pertaining to taxes.	P7S_WG
FA_W08	contemporary civilizational problems and their economic and social effects, financial ones in particular.	P7S_WK
FA_W09	economic, legal, ethical and other determinants of professional activity in the fields of economics, finance and accounting at various job positions in various domestic and foreign organisations, including the knowledge and understanding of the principles of industrial property and copyright protection.	P7S_WK
FA_W10	knows and understands at a deepened level the concepts, scientific theories and research methodology used in the field of humanities	P7S_WG
P_U (SKILLS) The graduate is able to:		
FA_U01	identify and solve complex and non-standard economic and financial problems, and innovatively perform tasks in the fields of economics, finance and accounting.	P7S_UW
FA_U02	through the proper selection of sources, data from these sources, as well as methods and tools, conduct in-depth financial analyses of various entities, present results, and independently formulate substantively justified conclusions and recommendations.	P7S_UW

FA_U03	apply economic information (synthetic and analytical) in order to make operational, tactical, and strategic decisions.	P7S_UK
FA_U04	correctly formulate source data, prepare financial analysis and create investment portfolios in accordance with the provisions of the national and international accountancy law.	P7S_UO
FA_U05	identify, measure and assess the level of financial risk, and to competently propose – as well as critically assess – different solutions, collaborate in a group in the implementation of team tasks.	P7S_UU
FA_U06	determine the most favourable investment portfolio and sources of financing, by the appropriate selection of information, calculation methods and tools, including advanced information and communication techniques.	P7S_UU
FA_U07	communicate in English using specialized knowledge and terminology in the field of finance, communicate in a foreign language at B2+ level according to the Common European Framework of Reference for Languages	P7S_UK
FA_U08	can properly use his/her knowledge to interpret phenomena in the field of humanities	P7S_UK
P_K (SOCIAL COMPETENCIES) The graduate is ready to:		
FA_K01	critically assess his/her knowledge and the received content in the fields of economics, finance and accounting.	P7S_KK
FA_K02	solve cognitive and practical problems in the fields of economics and finance, and use expert opinions in the event of difficulties in solving the problems independently.	P7S_KK
FA_K03	fulfil social obligations, inspire and organize social projects, as well as initiate actions to benefit the social environment, propagate openness and tolerance.	P7S_KO
FA_K04	think and act in an entrepreneurial manner, based on the knowledge in the field of economics, finance and accounting.	P7S_KO
FA_K05	correctly identify and responsibly solve problems related to the pursuit of his/her profession, taking into account the changing social needs.	P7S_KR
FA_K06	follow and develop professional ethics, and to constantly improve professional qualifications, taking into account the changing social needs.	P7S_KR
FA_K07	is ready to initiate activities for the public interest, related to the field of humanities	P7S_KO

Explanation of symbols:

- FA - (before underscore) – study program learning outcomes of Financial Analytics
- 01, 02 and more (after underscore) – indication of the next learning outcome
- P7S – learning outcomes according to the Polish Qualifications Framework in relation to the following detailed characteristics (knowledge - skills - social attitudes):
- WG –depth; WK – context
- UW – usage; UK – communicating; UO – organizing; UU – learning

- KK – critical approach; KR – professional role; KO – responsibility

DESCRIPTION OF THE PROCESS LEADING TO ACHIEVING LEARNING OUTCOME

STUDY PLAN

Year:					1			
Semester:					1			
Total number of classroom hours:					210			
Total ECTS:					30			
No	Course (title)	Class Form	No of teaching hours	Form of completion	ECTS	ECTS/discipline (-s)		Compulsory class (O) / Elective class (W)
						EaF	MaQs	
1	Foreign Language ¹	J	30	ZO	2	2	0	W
2	Corporate Social Responsibility	K	30	E	4	4	0	O
3	Portfolio Management	K	45	E	7	7	0	O
4	Monetary and Fiscal Policy	K	30	E	4	4	0	O
5	Financial Reporting Standards	K	45	E	7	7	0	O
6	Empirical Finance	K	30	E	4	4	0	O
7	Elective Course s1: -Money in Digital Era, -Asian Economic Relations, -Essentials of Startups and Venture Capitals	K	30	ZO	4	3	1	W

Year:					1			
Semester:					2			
Total number of classroom hours:					225			
Total ECTS:					30			
No	Course (title)	Class Form	No of teaching hours	Form of completion	ECTS	ECTS/discipline (-s)		Compulsory class (O) /

									Elective class (W)
						EaF	Ma Qs	PSaPA	
1.	Foreign Language ¹	J	30	E	3	3	0	0	W
2.	Diploma Seminar	S	30	Z	7	7	0	0	W
3.	Computational Finance	K	45	E	5	5	0	0	O
4.	Derivatives and Fixed Income Securities	K	45	E	6	6	0	0	O
5.	Methods of Company Analysis	K	45	E	5	5	0	0	O
6.	Elective Course s2: - Globalization and the Perspectives of World Change -International Arbitration - Politics and Economy of Outer Space	K	30	ZO	4	1	1	2	W

Year:					1					
Semester:					3					
Total number of classroom hours:					165					
Total ECTS:					30					
№	Course (title)	Class Form	No of teaching hours	Form of completion	ECTS	ECTS/discipline (-s)				Compulsory class (O) / Elective class (W)
						EaF	Ma Qs	Ca RS	Ca IS	
1.	Diploma Seminar	S	30	Z	8	8	0	0	0	W
2.	Economic Aspects of Financial and Alternative Markets	K	30	E	5	5	0	0	0	O
3.	Empirical Methods of Risk Assessment	K	30	E	5	5	0	0	0	O
4.	Corporate Governance	K	15	E	3	3	0	0	0	O
5.	Elective Course s 3.1: - Contemporary Cultural Challenges - Diversity and Inclusion in the Workplace	K	30	ZO	5	0	0	5	0	W
6.	Elective Course s 3.2: - Big Data - Data Science - Text Mining and Social Media Analysis	K	30	ZO	4	1	1	0	2	W

¹ Students will be able to choose a language of course from the CUE Language Center's offer.

Total learning hours: 600

Total ECTS: 90

METHOD OF VERIFICATION AND EVALUATION OF LEARNING OUTCOMES

The methods of verification and assessment of learning outcomes are specified in the course syllabuses. All courses should be passed. The method of assessment depends on the subject; the credit may be given for e.g. an essay, quiz, final test, project, partial assignments, case studies, in-class activity.

LEARNING OUTCOMES AND COURSE CONTENT ASSIGNED FOR THE CLASSES

(drawn up for courses indicated in the study plan)

1	Course Corporate Social Responsibility
2	Language English
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands the ethical determinants of professional activity in the field of economics and finance, (FA_W08); contemporary civilization problems and their economic and social effects, in particular financial ones, (FA_W09).</p> <p>P_U (SKILLS) The graduate can use, normative systems when solving problems related to the pursuit of the profession and are able to take into account ethical issues and issues related to ESG factors in the investment process), FA_U01/ FA_U06).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready, to correctly identify and responsibly resolve ethics problems, as well as to develop the rules, standards and practices of professional ethics and to constantly improve their professional qualifications, (FA_K05/ FA_K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • Introduction to business ethics • Ethics in the financial market • Corporate governance and stakeholder relationship management • Ethical and professional standards and practices in the financial market (1) • Ethical and professional standards and practices in the financial market (2) • ESG factors in investment decisions and socially responsible investing • Effectiveness and risk of socially responsible investing

1	Course Portfolio Management
2	Language English
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands types of financial investments. Graduates are familiar with the problems and theoretical foundations of investment portfolio construction and management, mainly the information related to income and risk analysis, risk diversification, portfolio theory, and assessing the effectiveness of an investment portfolio. The graduate also understands the concepts of capital market equilibrium models and their use in portfolio management, particularly in assessing the effectiveness of portfolio strategies, (FA_W01/ FA_W02/ FA_W05/ FA_W06).</p> <p>P_U (SKILLS) The graduate can use the knowledge gained in the field of portfolio management in various forms (in particular, risk minimization, active and passive management style), expanded by the analysis of portfolio efficiency and the usefulness of this knowledge in practice, (FA_U02/ FA_U05/ FA_U06).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to recognize the social consequences of applying their knowledge and skills in portfolio management practice and accept to bear unpleasant consequences of their own and their team's actions, (FA_K02/ K05/ K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • Asset types, asset classes, and financial instrument markets (equity instruments, debt instruments, derivatives and alternative instruments) • Fundamentals of portfolio analysis - estimating rate of return and risk • Principles of portfolio construction (selection of assets for a portfolio, determining the composition of an investment portfolio, changing and supplementing the composition of a portfolio) • The efficient portfolio - elements of the theory of optimization in the Markowitz sense i.e. minimizing risk and maximizing return • Analysis of multi-component portfolios (two and three-component portfolios). Debt instrument portfolios, Equity instrument portfolios, Derivative instrument portfolios. Mixed portfolios and the use of alternative instruments • Analysis of capital market models in the investment portfolio management process. Simplification of the portfolio construction process - single indicator model and multi indicator models

1	Course Financial Reporting Standards
2	Language English
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands methods of preparing financial statements and assumptions of the tax system and financial policy of the state and sources of tax law, (FA_W03).</p>

	<p>P_U (SKILLS) The graduate can independently obtain data, correctly interpret and explain economic and financial phenomena, as well as the relations between them using knowledge in the field of accounting and financial management, (FA_U01).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to continuously improve professional qualifications, including improving and updating knowledge in the field of finance and accounting extended by an interdisciplinary dimension, (FA_K01).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • The context and purpose of financial reporting • The qualitative characteristics of financial information • The use of double-entry and accounting systems • Recording transactions and events • Preparing a trial balance and basic financial statements • Interpretation of financial statements

1	<p>Course</p> <p>Monetary and Fiscal Policy</p>
2	<p>Language</p> <p>English</p>
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands dependences between causes and effects achieved as a result of central bank defined action.. Students understand differences between types of monetary policy tools used by central banks in conditions of financial stability and financial crisis, (FA_W01/ FA_W04).</p> <p>P_U (SKILLS) The graduate can identify and analyse premises of central bank monetary policy strategy in certain market conditions and are able to evaluate the effectiveness of this strategy. (FA_U01/ FA_U02).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to work in a credit or financial institution, being able to independently and critically assess the influence of the central bank's monetary policy on the institution's strategic decisions, (FA_K02/ FA_K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • Market Forces of Supply and Demand • The Firm and Industry Organization • Measuring National Income and Growth • Business Cycles • The Monetary System • Inflation • International Trade and Capital Flows • Currency Exchange Rates • Monetary and Fiscal Policy • Economic Growth and Development • Effects of Government Regulation

	<ul style="list-style-type: none"> Impact of Economic Factors on Investment Markets
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1	<p>Course</p> <p>Computational Finance</p>
2	<p>Language</p> <p>English</p>
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands data types, databases and computational methods used in financial data analysis and understand their role in explaining complex phenomena and financial/ economic theories., (FA_W01).</p> <p>P_U (SKILLS) The graduate can properly select the relevant financial data, and computational methods and tools to conduct in-depth financial analyses, present their results and independently formulate justified conclusions and recommendations, (FA_U03).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready for a critical assessment of the knowledge in the field of computational methods applied in finance, (FA_K01).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> Introduction to the R program and language Applications of the R program – Technical analysis Applications of the R program – interest term structure Simulation methods in finance Advanced tools of R program Supervised machine learning Unsupervised machine learning Big data in finance

1	<p>Course</p> <p>Derivatives and Fixed Income Securities</p>
2	<p>Language</p> <p>English</p>
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands stochastic processes and probabilistic models for pricing interest rate derivatives and exotic instruments. They know and understand the major discrete and continuous stochastic models used in the valuation of such financial instruments, (FA_W01/ FA_W02/ FA_W05).</p> <p>P_U (SKILLS) The graduate can propose an appropriate model (manner) of valuation of a derivative financial instrument in a particular situation, (FA_U02/ FA_U05/ FA_U06).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is read to evaluate his/her knowledge and skills more reliably and objectively, (FA_K02/ FA_K05/ FA_K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> Basic concepts of probability calculus: probabilistic space, random variable, its distribution. Multidimensional random variables and their examples (multivariate normal distribution). Distributions of functions of univariate and multivariate random

	<p>variables. The characteristic function and its use to determine the distribution. Laplace's transform</p> <ul style="list-style-type: none"> • Introduction to stochastic analysis in discrete time (conditional expected value) • Definition of stochastic process in discrete time, trajectories, distributions, filtering generated by the process. Process adaptive to filtering, predictability. Definition of martingale, submartingale, supermartingale. Examples • Elements of stochastic analysis in continuous time (local martingales, Wiener process) • Ito's integral, Ito's formula, Girsanov's measure-replacement theorem, Feynmann-Kac's formula • Introduction to the theory of stochastic differential equations • Short-term interest rate models (short-term interest rate models, Vasicek, Cox-Ingersol-Ross, pricing formulas, generalized models. Affine models) • Interest rate derivatives - valuation examples • Exotic instruments - valuation models
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1	<p>Course</p> <p>Empirical Finance</p>
2	<p>Language</p> <p>English</p>
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands selected modern models and tools of financial modeling. He or she has extended knowledge of modelling and forecasting financial and economic time series by means of stochastic processes and using them in financial modelling, (FA_W01/ FA_W02/ FA_W05).</p> <p>P_U (SKILLS) The graduate can use computational and statistical packages in modelling empirical financial data (e.g. MS Excel, Gretl, R). Graduates can build and verify econometric models of financial and economic time series and use them for modelling and forecasting and solving problems in finance, (FA_U02/ FA_U02/ FA_U06).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to reliable and objective assessment of his knowledge and skills. Graduates are prepared to systematically complement his knowledge within the scope related to the subject., (FA_K02/ FA_K05/ FA_K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • Sources of economic and financial data. Properties of time series • Analysis and prediction of processes in the frequency domain. Elements of spectral analysis on the example of analysis of the degree of synchronization of stock market cycles. Calendar effects • Forecasting exchange rates using the ARIMA model. Identifying speculative bubbles in financial markets using cointegration analysis. • Panel data analysis - examining the efficiency and degree of integration of financial markets • Analysis of the effect of monetary policy transmission on financial markets (using VAR/VECM methodology, event analysis and causality analysis)

1	<p>Course</p> <p>Methods of Company Analysis</p>
2	<p>Language</p> <p>English</p>

3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands the principles of capital budgeting, net working capital management, financial analysis, predicting bankruptcy, making long-term financial decisions in companies, functioning of the market for corporate control and company valuation, (FA_W01/ FA_W07).</p> <p>P_U (SKILLS) The graduate can knowledge of corporate analysis methods, including identifying and solving economic and financial problems as well as collect, process and interpret data indispensable for analysing and evaluating business processes occurring in companies and phenomena taking place on capital markets and market for corporate control, (FANU01/ FA_U02).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate and analyse their knowledge of methods of company analyses and the contents obtained in this area, as well as to use them in presenting a case for decisions taken, (FA_K01).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • Capital budgeting • Net working capital management • Financial ratios and duPont analysis • Predicting bankruptcy – theory and modelling • Company rankings • Mergers and acquisitions • Dividend payments and share repurchases • Review of types of equity securities; The concept of company and sector valuation – main concepts and stages of valuation; Methods of company valuation; Reasons for company valuation, application of valuation • Company valuation – dividend models • Company valuation – free cash flow models • Valuation of a company – residual income models

1	Course
	Corporate Governance
2	Language
	English
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands the theoretical aspects of the corporate governance of State-owned companies and companies supervised by executive bodies of local government units, (FA_W04/ FA_W08).</p> <p>P_U (SKILLS) The graduate can apply innovative methods and techniques of financial and economic situation assessment in the process of exercising the ownership rights of the State Treasury and execute bodies of local government. Students independently complement knowledge and skills extended to include the interdisciplinary dimension, deepening their intellectual competences and practical skills, (FA_U09/ FA_U10).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready make a critical assessment of the financial and property management system in State-owned and local government companies. Student make</p>

	a conscious and critical identification of the risk related to the lack of activation of corporate governance, (FA_K02/ FA_K04).
4	<p>Course content</p> <ul style="list-style-type: none"> • Review of the definition and essence (directions) of the ownership policy of the State Treasury and the executive body of the local government. • Legal framework for the functioning of the system of exercising rights in relation to state property and local government property • Management of the company's capital – assessment of the effectiveness of operations and the accuracy of management decisions. Analysis of Business Combinations, Analysis of Global Operations • Reporting of the company's Management Board - for the needs of the Annual General Meeting / Annual General Meeting Stakeholders. Analysis of Principal Financial Statements. Analysis of Off-Balance-Sheet Assets and Liabilities • The role and reporting of the Supervisory Board. Assessment of the report on the activities of the company's Management Board by <ul style="list-style-type: none"> • Partner / Proxy. • Financial Reporting Quality, Financial Reporting System (with an emphasis on IFRS) • The role and participation of the statutory auditor in the assessment of the Company's financial statements • Evaluation of the activities of the Company's Management Board – implementation of management goals – the discharge process

1	<p>Course</p> <p>Empirical Methods of Risk Assessment</p>
2	<p>Language</p> <p>English</p>
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands selected modern models and tools of financial risk description. They have extended knowledge of modelling and forecasting financial and economic time series by means of stochastic processes and using them in risk management (FA_W01/ FA_W02/ FA_W05).</p> <p>P_U (SKILLS) The graduate can use computational and statistical packages in modelling market, credit and operational risk (e.g. MS Excel, Gretl, R). Students can build and verify econometric models of financial and economic time series and use them for risk analysis,(FA_U02/ FA_U05/ FA_U06).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to reliable and objective assessment of his knowledge and skills. The student is prepared to systematically complement his knowledge within the scope related to the subject, (FA_K02/ FA_K05/ FA_K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> • Risk types, Risk measurement methods, Value at Risk, Coherent risk measures (CAViaR, Expected Shortfall), Concept of stochastic dominance • Empirical properties of financial time series (ARIMA/ARFIMA/PARMA models) and their application in risk management. Historical and implied volatility, volatility smile .Advanced volatility models (ARCH/GARCH/ SV), joint functions. Market risk • Credit risk - empirical models (logit and probit and discriminant models)

	<ul style="list-style-type: none"> Operational Risk - Operational Value at Risk Quantile regression methods in financial risk modeling. Back tests and stress tests, elements of extreme value theory
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1	<p>Course</p> <p>Economic Aspects of Financial and Alternative Markets</p>
2	<p>Language</p> <p>English</p>
3	<p>Program learning outcomes</p> <p>P_W (KNOWLEDGE) The graduate knows and understands the relationship between financial markets and the real economy, he is familiar with the institutional development of the Polish financial market in comparison to other countries, he knows the basic macroeconomic indicators influencing the decisions of investors in financial markets, he knows and understands the functioning of alternative markets and the specificity of investing in alternative investment asset classes (FA_W01/ FA_W04/ FA_W05).</p> <p>P_U (SKILLS) The graduate can analyse macroeconomic data affecting the situation on financial and alternative markets, as well as to evaluate and to select financial and alternative assets in terms of their possible use for investment purposes, including the construction and optimisation of portfolios and investment strategies., (FA_U01/ FA_U02).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to continuously improve their qualifications and to recognise the importance of knowledge in solving practical problems related to financial markets and alternative investments. Student is prepared to critically analyse the received contents in an interdisciplinary dimension as well as to take initiatives and make independent decisions in professional activities. (FA_K01, FA_K02, FA_K06).</p>
4	<p>Course content</p> <ul style="list-style-type: none"> Demand and supply analysis The firm and market structures Economic growth Impact of macroeconomic factors on financial markets Types and characteristics of alternative investments, asset allocation to alternative investments Investments in tangible assets (real estate, commodities) Private equity/Venture capital Hedge funds Aggregate output, prices, and economic growth Business cycles International trade and capital flows Private real estate investments (incl. real estate valuation) Publicly traded real estate securities (incl. REITs) Private equity valuation Hedge fund strategies

Electives:

1	<p>Course title</p> <p>Money in Digital Era (Electives s.1)</p>
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2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to contemporary money (FA_W01), trends on international financial markets (FA_W02).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to money in digital era by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge in the field of money in digital era (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).</p>
4	Course content
	<p>Span financial technology (fintech)</p> <p>Technologies relevant to digital currencies and payments</p> <p>Characteristics of various digital currencies</p> <p>Regulatory frameworks relating to digital currencies and payments/fintech</p> <p>Strategic business opportunities and risks in digital payments</p>

1	Course title
	Asian Economic Relations (Electives s.1)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to Asian economic relations (FA_W01), contemporary problems and phenomena in a complex social, economic and political context (FA_W05).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to Asian economic relations by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge in the field of Asian economic relations (FA_K01), think and act in an entrepreneurial way (FA_K03).</p>
4	Course content
	<p>“Asian values” debate</p> <p>Trans-regional economic integration in the Asia-Pacific</p> <p>Asian regional organizations (e.g. the Asian Infrastructure Investment Bank)</p> <p>Rivalry between China and the United States in the Indo-Pacific</p> <p>Major Asian powers: China, India, Japan, and South Korea</p>

1	Course title
	Essentials of Startups and Venture Capitals (Electives s.1)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to startups and venture capitals (FA_W01), trends on international financial markets (FA_W02).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to startups and venture capitals by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge in the field of startups and venture capitals (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).</p>
	Course content
	<ul style="list-style-type: none"> Venture financing – investment cycle Types of investors in venture financing Fundraising Valuation Venture capitalists Negotiating deals Scaling up and scaling down Cashing on success

1	Course title
	Globalization and Perspectives of World Change (Electives s.2)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to globalization and perspectives of world change (FA_W01), trends on international financial markets (FA_W02).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to startups and venture capitals by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge referring to globalization and perspectives of world change (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).</p>
4	Course content
	<ul style="list-style-type: none"> Historical perspectives on globalization Politics of globalization

<p>Globalization and economic processes: trade, markets, capitalism Ideological processes: religion, science, '-isms', and beliefs Globalization and social dynamics Scenarios for the future</p>
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1	Course title
	Politics and Economy of Outer Space (Electives s.2)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to politics and economy of outer space (FA_W01), trends on international financial markets (FA_W02).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to politics and economy of outer space by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge referring to politics and economy of outer space (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).</p>
4	Course content
	<p>Problems of definition and measurement Political perspectives of space Military role of space Space Technology Transfer, Spin-offs, Spin-in, Innovation Government vs Private financing Space technology development perspectives</p>

1	Course title
	International Arbitration (Electives s.2)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to international arbitration (FA_W01), trends on international financial markets (FA_W02).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to international arbitration by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge referring to international arbitration (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).</p>

4	Course content
	<p>Private vs. Public Dispute Resolution</p> <p>“Arbitration” Distinguished from Other Forms of Private Dispute Resolution</p> <p>Pros and Cons of Arbitration in Consumer and Employment Contracts</p> <p>Proper Scope of Arbitration in Light of Historical Context and Current Public Policy</p> <p>Procedural Reforms and Roles of Arbitration Institutions and their Rules</p> <p>Domestic vs. International dispute resolution, and importance of cultural and legal differences among disputing parties</p> <p>Institutional arrangements for international arbitration</p>

1	Course title
	Contemporary Cultural Challenges (Electives s.3.1)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands at a deepened level the concepts, scientific theories and research methodology used in the field of humanities (FA_W10).</p> <p>P_U (SKILLS) The graduate can properly use his/her knowledge to interpret phenomena in the field of humanities (FA_U08).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to initiate activities for the public interest, related to the field of humanities (FA_K07).</p>
4	Course content
	<p>Culture and the challenges for the management of Multinational Enterprises</p> <p>The nature and definition of national culture from different theoretical perspectives</p> <p>National stereotypes and key dimensions of culture (two levels of culture, Hofstede's four dimensions of culture, Trompenaar's seven dimensions of culture, the GLOBE project's nine dimensions of culture)</p> <p>Social perceptions: the understanding and awareness of the impact of national culture, social conditioning, personal biases and subconscious assumptions, self-reference criteria, group norms</p> <p>The impact of the above on cross-cultural leadership, communication and negotiations</p> <p>The Global-local dilemma</p> <p>Managing ethical and social responsibility challenges in multinational enterprises</p>

1	Course title
	Diversity and Inclusion in the Workplace (Electives s.3.1)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands at a deepened level the concepts, scientific theories and research methodology used in the field of humanities (FA_W10).</p> <p>P_U (SKILLS) The graduate can properly use his/her knowledge to interpret phenomena in the field of humanities (FA_U08).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to initiate activities for the public interest, related to the field of humanities (FA_K07).</p>

4	Course content
	Defining diversity and measuring it Equity, diversity and inclusion Sex and gender in organizations Race and ethnicity in organizations Age and ageism in organizations People with disabilities in organizations Creating a LGBTQ+ inclusive work environment Embedding diversity and inclusion into HRM practices

1	Course title
	Data Science (Electives s.3.2)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to data science (FA_W01).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to data science by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge referring to data science (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).</p>
4	Course content
	Introduction to Numpy (Arrays, linear algebra, statistical functions) Data analysis with Pandas (time series analysis and forecasting) Data visualization and dashboards Elements of probability and statistical reasoning Supervised and unsupervised learning Statistical classification Machine learning Deep Learning Elements of Computer Vision

1	Course title
	Big Data (Electives s.3.2)
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to big data (FA_W01).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to big data by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04).</p>

	P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge referring to big data (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).
4	Course content Introduction to data analysis (Data loading and the basics of working with data in Excel; obtaining datasets and loading into MS Excel 365; introduction to data cleaning; data types; pivot tables) Data mining, working with data in Excel and elements of descriptive statistics (Graphs of one variable and descriptive statistics with elements of statistical inference, Data Story Telling; exploratory analysis) Organizing and combining data in Excel; pivot charts; methods of correlation and regression analysis for two-dimensional data; linear correlation coefficient R^2 and its significance Introduction to time series analysis and forecasting; working with add-ins in Excel and libraries in programming Elements of Python and R for data analysis and visualization (Python and R - basics of data manipulation, Pandas, Webscrapping) Python and R for reporting (Markdown and automatic reports in Python) Elements of SQL (SQL fundamentals, Boolean logic and algebra basics, extra clauses, set operations, subqueries, tables, manipulating records in a database, Join and Cascade) Data visualization with Plotly, R and Python Tableau and Power BI for visualization and dashboards

1	Course title Text Mining and Social Media Analysis (Electives s.3.2)
2	Language of Instruction English
3	Accomplished Learning Outcomes (program and course – description of outcomes) P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena referring to text mining and social media analysis (FA_W01). P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems referring to text mining and social media analysis by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), interact with other people in a teamwork, plan and organize various ventures or projects (FA_U04). P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge referring to text mining and social media analysis (FA_K01), recognize the need of applying professional knowledge when analysing and solving cognitive or practical issues (FA_K02).
4	Course content Elements of R programming in the context of social media Downloading social media data (connecting to Twitter, Text scrapping) Text data cleaning and manipulation Word clouds Working with strings and regular expressions Network models and graphical analysis Sentiment analysis and visualization

Foreign language

1	Course title
	Foreign Language
2	Language of Instruction
	Students will be able to choose a language of course from the CUE Language Center's offer
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands contemporary problems and phenomena in a complex social, economic and political context (FA_W05).</p> <p>P_U (SKILLS) The graduate is able to communicate in foreign language with diverse audiences on specialist subjects in the fields of corporate finance, financial markets and accounting (FA_U03, FA_U06, FA_U07).</p> <p>P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their oral and writing skills in foreign language (FA_K01), responsible perform professional roles in international environment (FA_K04).</p>
4	Course content
	Basic issues of economics and business (recruitment, management, marketing, sales, ICT, company organization and finance, corporate culture, business ethics) in accordance with the syllabus available on the CJ website and taking into account the language level according to the CEFR scale. Elements of the language system knowledge, appropriate for the language level (grammar, syntax, phraseology, phonetics) according to the CJ syllabus and taking into account the language level according to the CEFR scale. Commercial / business correspondence taking into account the specificity of the field of study according to the CJ syllabus and the language level according to the CEFR scale. Soft skills and intercultural communication according to the CJ syllabus.

Diploma seminar

1	Course title
	Diploma Seminar
2	Language of Instruction
	English
3	Accomplished Learning Outcomes (program and course – description of outcomes)
	<p>P_W (KNOWLEDGE) The graduate knows and understands advanced theories and research methods explaining the complexity of phenomena in the field of international finance, with a special focus on corporations operating on a global markets (FA_W01), contemporary problems and phenomena in a complex social, economic and political context (FA_W05).</p> <p>P_U (SKILLS) The graduate is able to identify and solve complex and non-standard problems in the field of international financial management, by selecting appropriate sources and analytical methods, making a critical analysis on them as well as presenting and justifying conclusions (FA_U01), define research questions, state and test research hypotheses apply appropriate research methods and tools, interpret and present the results (FA_U02), independently plan and implement their own development in the field of financial management, in particular in multinational corporations (FA_U05).</p>

	P_K (SOCIAL COMPETENCES) The graduate is ready to critically evaluate their own knowledge (FA_K01).
4	Course content
	<p>Discussion on contemporary issues in international financial management</p> <p>Selection of research area and development of research framework</p> <p>Review of key theories and concepts related to analysed problems</p> <p>Definition of the research problem, research questions and hypotheses</p> <p>Thesis writing techniques, citations, paraphrasing, problem of plagiarism.</p> <p>Writing theoretical chapters of MA thesis</p> <p>Data collection and analysis, interpretation of results.</p> <p>Reporting the empirical part.</p> <p>Discussion on conclusions.</p> <p>Submission of the final version of MA thesis.</p>

GRADUATION REQUIREMENTS

Graduation Requirements (thesis / final exam / other)	Completion of studies takes place after passing all the subjects provided in the study program, submitting the diploma thesis and passing the diploma examination.
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