Simon Kuznets Kharkiv National University of Economics

Syllabus of the course

"Analytics for data driven decisions in international management"

Speciality	*D3 Management* *F6 Information Systems and Technologies*
Study Programme	*Management and Information Technologies*
Study cycle (Bachelor, Master, PhD)	*The first (Master's) level of higher education*
Course status	*mandatory*
Language	*English*
Term	*1 year, 2 semester*
ECTS credits	*5*
Workload	*Lectures – 30 hours.*
	Laboratory studies – 30 hours.
	Self-study – 90 hours.
Assessment system	*Grading including Exam*
Department	*Department of International Economics and Management,* *Nauky Avenue 9-A, c. Kharkiv, building 1, auditorium 304* *Phone: +38(057)702-18-32 (additional 346)* *website: https://kafmeim.hneu.edu.ua*
Teaching staff	*Nadiya DEKHTYAR, PhD (Economics), associated professor*
Contacts	*nadiya.dekhtyar@hneu.net* *+380663056847*
Course schedule	*Lectures: according to the schedule* *Laboratory classes: according to the schedule*
Consultations	*at the Department of International Economics and Management: face-to-face sessions in accordance with the consultation timetable; individual sessions, chat via the PNS and Zoom*

Learning objectives and skills:

The course **aims** to provide students with a system of theoretical knowledge, practical skills and abilities for using data pre-processing and cleaning techniques to ensure data integrity for international business contexts, to identify essential patterns in large datasets and synthesising data into easily understandable formats for stakeholders.

Structural and logical scheme of the course

Prerequisites	Postrequsites
Business information systems Applied programming project	Digital business modelling Strategic management

Course content

Content module 1. *Data infrastructure and exploratory foundations*

Topic 1. Defining data requirements for global markets: identifying demographics, income, and category requirements for international data collection.

Topic 2. Advanced data sourcing and collection: managing data acquisition from online sources, environmental sensors, and personnel across borders.

Topic 3. Relational databases and SQL: using structured query language (SQL) to navigate and manage large-scale international databases.

Topic 4. Data pre-processing and Integrity: techniques for scrubbing, deduplication, and correcting errors to ensure high-quality data for analysis.

Topic 5. Descriptive analytics and information visualisation: creating dashboards to track "what happened" over a given period using charts and graphs.

Content module 2. *Advanced modelling and predictive intelligence*
Topic 6. Statistical foundations and hypothesis testing: identifying trends and visualising distributions while ensuring the avoidance of analytical bias.
Topic 7. Regression and factor analysis: modelling relationships between independent and dependent variables to explain complex business phenomena.
Topic 8. Predictive analytics and time series: moving from historical descriptions to near-term forecasts of sales and market trends.
Topic 9. Algorithms for machine learning: mastering clustering and data mining techniques to identify regularities in "Big Data".
Topic 10. Prescriptive analytics and simulation: using Monte Carlo simulations to model probabilities and suggest specific strategic courses of action
Content module 3. *SMART framework to transition from raw data to strategic business transformation.*
Topic 11. Strategic scoping and SMART question design: defining clear business objectives and moving away from "collect everything" toward a targeted approach by identifying critical questions per strategic area.
Topic 12. Navigating the data hierarchy and sourcing: managing the collection of internal and external datasets, prioritizing structured internal data while integrating unstructured "Big Data" sources like sensors and social media.
Topic 13. Advanced analytical modeling and sentiment analysis: deploying text, speech, and video analytics to extract value from complex datasets, including the use of "opinion mining" to gauge customer and employee engagement.
Topic 14. Visual storytelling and executive reporting: designing one-page infographics and management dashboards that synthesize complex findings into actionable insights for diverse global stakeholders.
Topic 15. Global business transformation and ethical oversight: Implementing data-driven shifts in business models and operational processes while navigating the moral dilemmas of privacy, transparency, and the "right to be forgotten".

Teaching environment (software)

(Multimedia projector, S. Kuznets PNS, Corporate Zoom system, Tableau Public, SQL Server Management Studio)

Assessment system

Assessment of students' learning outcomes is carried out by the University according to the cumulative 100-point system.

Current control is carried out during lectures and practical (seminar) classes and aims to assess the level of students' readiness to perform particular tasks, and is assessed by the amount of scored points.

The maximum amount during the semester – 60 points; the minimum amount required is 35 points.

Final control is carried out at the end of the semester in the form of an exam (the maximum amount is 40 points, the minimum amount required is 25 points).

Current control includes the following assessment methods: assignments on a particular topic; testing; presentations, and essay writing.

More detailed information on assessment and grading system is given in the technological card of the course.

Course policies

Teaching of the academic discipline is based on the principles of academic integrity.

Violation of academic integrity includes academic plagiarism, fabrication, falsification, cheating, deception, bribery, and biased assessment. Education seekers may be brought to the following academic responsibility for breach of academic integrity: repeated assessment of the corresponding type of learning activity.
More detailed information about competencies, learning outcomes, teaching methods, assessment forms, self-study is given in the Course program