

Syllabus

1. Programme information

1.1. Institution	THE BUCHAREST UNIVERSITY OF ECONOMIC STUDIES
1.2. Faculty	Business Administration in Foreign Languages
1.3. Departments	Department of Business Administration in foreign languages (UNESCO chair)
1.4. Field of study	Business Administration
1.5. Cycle of studies	Licence
1.6. Education type	Full-time
1.7. Study programme	Business Administration
1.8. Language of study	English
1.9. Academic year	2024-2025

2. Information on the discipline

2.1. Name	Business decision-making processes with machine learning tools								
2.2. Code	24.0153IF3.2-0002								
2.3. Year of study	3	2.4. Semester	2	2.5. Type of assessment	Exam	2.6. Status of the discipline	O	2.7. Number of ECTS credits	5
2.8. Leaders	C(C)	prof.univ.dr. MICLEA Adriana					adriana.mihnea@fabiz.ase.ro		
	S(S)	prof.univ.dr. MICLEA Adriana					adriana.mihnea@fabiz.ase.ro		

3. Estimated Total Time

3.1. Number of weeks	14.00		
3.2. Number of hours per week	4.00	of which	
		C(C)	2.00
		S(S)	2.00
3.3. Total hours from curriculum	56.00	of which	
		C(C)	28.00
		S(S)	28.00
3.4. Total hours of study per semester (ECTS*25)	125.00		
3.5. Total hours of individual study	69.00		
<i>Distribution of time for individual study</i>			
Study by the textbook, lecture notes, bibliography and student's own notes	20.00		
Additional documentation in the library, on specialized online platforms and in the field	10.00		
Preparation of seminars, labs, assignments, portfolios and essays	35.00		
Tutorials	2.00		
Examinations	2.00		
Other activities			

4. Prerequisites

4.1. of curriculum	Course on Basic Microeconomics, according to the specific syllabus in the first year of study, undergraduate Course on Mathematics for Economists, according to the specific syllabus in the first year of study, undergraduate
4.2. of competences	Basic knowledge on utility function, uncertainty, risk, expected utility theory Basic notions regarding the matrix calculus, eigenvalues and eigenvectors

5. Conditions

for the C(C)	The course is using for general presentations the Power Point framework and for illustrative discussions or additional explanations . The basic rule is the interaction with the students, based on the compulsory study materials made available prior to the course.
for the S(S)	Seminarul consta in rezolvarea unor probleme specifice, discutarea unor articole stiintifice ce prezinta rezultate relevante pentru subiectul de studiu curent precum si din discutii asupra diferitelor stagii de dezvoltare ale proiectelor individuale.

6. Acquired specific competences

PREFESSIONAL	C2	Business/ Organizational administration assistance
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7. Objectives of the discipline

7.1. General objective	This course is an introduction into the decision theory, on both short and long term. Its aim is to contribute to the improvement of individual abilities in decision making by exposing its theoretical interdisciplinary grounds together with a large selection of recent examples.
7.2. Specific objectives	The specific objectives are as follows: -Economic grounds of decision making theory -Decisions using Analytic Hierarchy Processes -Decisions using Game Theory -Experiments in strategic decisions using behavioral game theory

8. Contents

8.1. C(C)		Teaching/Work methods	Recommendations for students
1	Behavioral Decision Making: introduction	The topic will be presented after some introduction of the historical context in which it occurred. Multidisciplinary examples will ensure that students understand the correspondence of the scientific philosophical ideas across disciplines and they can place the development in behavioral studies in the context of full rationality, bounded rationality and psychology . The main contributors to the domain will be presented as well as the line of the main developments in the domain.	Kahneman, Tversky : Thinking Fast and Slow https://books.google.ro/books?id=ZuKTvERuPG8C&printsec=frontcover&dq=Thinking+fast+and+slow&hl=ro&sa=X&redir_esc=y#v=onepage&q=Thinking%20fast%20and%20slow&f=false

2	Biases, Heuristics and The framework effect	The concepts will be presented, followed by their evolution in time, together with examples where their knowhow is essential for business , like for instance marketing and negotiating .	Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). Heuristics and biases: The psychology of intuitive judgment. Cambridge university press.
3	Business Analysis for Decision Making: an overview of the topic	The main topics in the discipline business analytics will be discussed. The relationship between the field of Business Analytics and the field of Decision Making will be presented in its development, until nowadays. Current lines of development in both fields will be illustrated.	Yalcin, A. S., Kilic, H. S., & Delen, D. (2022). The use of multi-criteria decision-making methods in business analytics: A comprehensive literature review. Technological Forecasting and Social Change, 174, 121193. https://www.decisionlens.com/
4	Analytic Hierarchy Decision Making -		Saaty, T. L. (2008). Decision making with the analytic hierarchy process. International journal of services sciences, 1(1), 83-98. https://www.decisionlens.com/ Dos Santos, P. H., Neves, S. M., Sant'Anna, D. O., de Oliveira, C. H., & Carvalho, H. D. (2019). The analytic hierarchy process supporting decision making for sustainable development: An overview of applications. Journal of cleaner production, 212, 119-138.
5	Introduction in using the Superdecision Software with details of the AHP technique		Saaty, R. W., & Saaty, T. L. (2003). Super decisions. Software for Decision Making with Dependence and Feedback. Tutorial.
6	Analytic Network Decision Making		Kheybari, S., Rezaie, F. M., & Farazmand, H. (2020). Analytic network process: An overview of applications. Applied mathematics and Computation, 367, 124780.
7	More on the Superdecion Software, applications and specific on the model construction		Mu, E., & Pereyra-Rojas, M. (2016). Practical decision making: an introduction to the Analytic Hierarchy Process (AHP) using super decisions V2. Springer. https://www.decisionlens.com/

8	Resource Allocation using ANP : a hands on approach		Mu, E., & Pereyra-Rojas, M. (2016). Practical decision making: an introduction to the Analytic Hierarchy Process (AHP) using super decisions V2. Springer.
9	Market Share using ANP :a hands on approach		https://www.decisionlens.com/
10	DEMANTEL Technique:an introduction		Chai, J., Liu, J. N., & Ngai, E. W. (2013). Application of decision-making techniques in supplier selection: A systematic review of literature. Expert systems with applications, 40(10), 3872-3885.
11	Classical DEMATEL, fuzzy DEMATEL, G-rey DEMATEL, analytical network process- (ANP-) DEMATEL, and other DEMATEL.		Si, S. L., You, X. Y., Liu, H. C., & Zhang, P. (2018). DEMATEL technique: A systematic review of the state-of-the-art literature on methodologies and applications. Mathematical Problems in Engineering, 2018.
12	Composite Indicators: understanding the multidimensional characterization of the economic activities		Joint Research Centre-European Commission. (2008). Handbook on constructing composite indicators: methodology and user guide. OECD publishing.
13	Composite indicators for Business and Entrepreneurship :the roadmap		Lafuente, E., Ács, Z. J., & Szerb, L. (2022). A composite indicator analysis for optimizing entrepreneurial ecosystems. Research Policy, 51(9), 104379.
14	Multi Criteia Decision Analysis: An Introduction	PPT course, interactive discussions	Sriram, S., Ramachandran, M., Chinnasamy, S., & Mathivanan, G. (2022). A Review on Multi-Criteria Decision-Making and Its Application. REST Journal on Emerging trends in Modelling and Manufacturing, 7(4), 101-107. https://books.google.ro/books?hl=ro&lr=&id=oluV7rT6DqIC&oi=fnd&pg=PP9&dq=Multi+Criteria+Decision+Analysis:+An+Introduction&ots=MNy7Ypbudy&sig=Vgctj-lcfXjS6CUXvhDlsUAV5ew&redir_esc=y#v=onepage&q=Multi%20Criteria%20Decision%20Analysis%3A%20An%20Introduction&f=false

Bibliography

- Sriram, S., Ramachandran, M., Chinnasamy, S., & Mathivanan, G. (2022). A Review on Multi-Criteria Decision-Making and Its Application. REST Journal on Emerging trends in Modelling and Manufacturing, 7(4), 101-107.
- Sriram, S., Ramachandran, M., Chinnasamy, S., & Mathivanan, G. (2022). A Review on Multi-Criteria Decision-Making and Its Application. REST Journal on Emerging trends in Modelling and Manufacturing, 7(4), 101-107.

8.2. S(S)		Teaching/Work methods	Recommendations for students
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2	Biases, Heuristics and The framework effect	The concepts will be presented, followed by their evolution in time, together with examples where their knowhow is essential for business , like for instance marketing and negotiating .	Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). Heuristics and biases: The psychology of intuitive judgment. Cambridge university press.
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4	Analytic Hierarchy Decision Making		<p>Saaty, T. L. (2008). Decision making with the analytic hierarchy process. International journal of services sciences, 1(1), 83-98. https://www.decisionlens.com/</p> <p>Dos Santos, P. H., Neves, S. M., Sant'Anna, D. O., de Oliveira, C. H., & Carvalho, H. D. (2019). The analytic hierarchy process supporting decision making for sustainable development: An overview of applications. Journal of cleaner production, 212, 119-138.</p>
5	Introduction in using the Superdecision Software with details of the AHP technique		<p>Saaty, R. W., & Saaty, T. L. (2003). Super decisions. Software for Decision Making with Dependence and Feedback. Tutorial</p>
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8	Resource Allocation using ANP : a hands on approach		<p>Mu, E., & Pereyra-Rojas, M. (2016). Practical decision making: an introduction to the Analytic Hierarchy Process (AHP) using super decisions V2. Springer. https://www.decisionlens.com/</p>
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12	Composite Indicators: understanding the multidimensional characterization of the economic activities		Joint Research Centre-European Commission. (2008). Handbook on constructing composite indicators: methodology and user guide. OECD publishing.
13	Composite indicators for Business and Entrepreneurship :the roadmap		Lafuente, E., Ács, Z. J., & Szerb, L. (2022). A composite indicator analysis for optimizing entrepreneurial ecosystems. Research Policy, 51(9), 104379.
14	Multi Criteia Decision Analysis: An Introduction	Students will be for stirred through interactive discussions into the fundamentals of multicriteria decisoin making, as opposed to single criteria decision making. Examples and counterexamples will shape their understanding of the topics to be studied along the course. The method of course and seminar evaluation as well as the specific task will be explained in detail. In particular, for the topic of this seminar, the students will be asked to examine the content of the recommended book at the course, to form teams and to present, at their choice, one topic they read about. Summarized ideas of their presentations will be loaded on the platform for the evaluation , prior to the seminar.	https://books.google.ro/books?hl=ro&lr=&id=oluV7rT6DqIC&oi=fnd&pg=PP9&dq=Multi+Criteria+Decision+Analysis:+An+Introduction&ots=MNy7Ypbudy&sig=Vgctj-1cfXjS6CUXvhDlsUAV5ew&redir_esc=y#v=onepage&q=Multi%20Criteria%20Decision%20Analysis%3A%20An%20Introduction&f=false Ford, R. C., & Richardson, W. D. (1994). Ethical decision making: A review of the empirical literature. Journal of business ethics, 13(3), 205-221.
<p>Bibliography</p> <p>- Sriram, S., Ramachandran, M., Chinnasamy, S., & Mathivanan, G., A Review on Multi-Criteria Decision-Making and Its Application. REST Journal on Emerging trends in Modelling and Manufacturing, 2022</p>			

9. Corroboration of the contents of the discipline with the expectations of the representatives of the epistemic community, of the professional associations and representative employers in the field associated with the programme

The content of the course was established after joint deliberations with experts from the Institute of Economic Forecasting and Institute for Statistics and Applied Mathematics under the Romanian Academy Institutes.

10. Assessment

Type of activity	Assessment criteria	Assessment methods	Percentage in the final grade
10.1. C(C)	examen scris	written exam	10.00
10.2. S(S)	Resource allocation or market share , individual project	individual oral examination	30.00
10.3. Final assessment	written exam	written evaluatoin	60.00
10.4. Modality of grading	Whole notes 1-10		
10.5. Minimum standard of performance	getting a total average greater or equal to 5		

Date of listing,
08/28/2025

Signature of the discipline leaders,

Date of approval in the
department

Signature of the Department Director,