

## Syllabus

### ECO5023 European Financial Markets (MBA, IMEP, MLICS)

Prof. Dr. habil. Dirk Wentzel and Dr. Alexander Del Toro Barba (Google)

Winter Semester 2023/24

<b>Level</b>	Master
<b>ECTS-Credits</b>	3
<b>Students Contact Hours</b>	2 <b>(fast track)</b>
<b>Workload</b>	90 hours, 30 hours within class and 60 hours for self-study (term paper) Visit to the European Central Bank in Frankfurt (December 6, 2023)
<b>Prerequisites</b>	Microeconomics and Macroeconomics
<b>Time</b>	Wednesday, October 11, 2023; Wednesday, November 15, 2023 Saturday, December 2, 2023; Saturday, December 9, 2023
<b>Room</b>	W4.2.02 (for Wednesdays) and tba for Saturdays
<b>Start date</b>	October 11, 2023 in classroom
<b>Lecturers</b>	<b>Prof. Dr. habil. Dirk Wentzel (Jean Monnet Chair in European Economic Integration)</b> <b>and Dr. Alexander Del Toro Barba ( Machine Learning Specialists with Google)</b>
	<b>Office W4.1.05</b>
	<b>Virtual Office: Zoom calls possible</b>
	<b>Office Hours</b> Monday, 12 – 1.30 pm
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## Short Description

This class is addressing international master students from our partner universities (IMEP) and local students from our MBA program.

The seminar is co-taught with Dr. *Alexander Del Toro Barba* from Google who is an expert in Machine Learning, Artificial Intelligence, and Quantum computing. His PhD thesis dealt with AI and finance.

Dependent of the group size, we will have several topics for a small term paper (max. ten pages) and a ppt presentation. Dr. *Del Toro Barba* will supervise some topics in this expertise. He is available online (Zoom) and he will give several presentations in hybrid settings with Prof. *Wentzel* in classroom.

As soon as we know the exact number of participants, we will have a ZOOM meeting to discuss the topics for the term papers and presentations that will be held on December 9<sup>th</sup>. The final term papers that will be included in the grading will be due at the end of our regular semester (January 31, 2023). It is a special service for our students who have to return home before Christmas to balance their workload.

A visit to the ECB in Frankfurt will be included on December 6<sup>th</sup>.

## Outline of the Course and topics for seminar papers/presentations:

Professor Wentzel will give an introduction into finance and explain the scope of the research papers. Topics about QC and ML will be presented, supported and supervised by Dr. Del Toro Barba from Google.

1. The Worldwide Return of Inflation: Explanations, Options, Perspectives.
2. The European Project for a Digital Euro: Timelines, Applications, Challenges.
3. Sustainability in Finance: Towards a Blue and Green Finance.
4. Female Finance: Theoretical Reflection and Empirical Evidence.
5. Quantum Computing in Finance: Challenges, Risks and Opportunities.
6. Machine Learning in Finance: Challenges, Risks and Opportunities.
7. The evolution and performance of Krypto Currencies: Opportunities, Challenges, and Risks.

## Course contributions to the MBA program goals / learning outcomes

Goal	Learning Objectives	Course Contributions to Goal	Assessment
<b>1 Responsible leadership in organizational contexts</b>	1.1 Knowledge of leadership principles 1.2 Application of leadership principles 1.3 Critical reflection of leadership concepts	Leadership in finance requires a deep knowledge of the latest trends and technologies in finance.	Presentation, written academic paper
<b>2 Creative problem solving skills in a complex business environment</b>	2.1 Ability to identify, differentiate and classify problems 2.2 Ability to analyze problems (instrumental competence) 2.3 Ability to find creative solutions (systemic competence)  2.4 Ability to present problems (communicative competence)	Term paper and presentation in AI and QC require analytical skills, empirical tools and creativity.	x
<b>3 Research Skills</b>	3.1 Methodological knowledge (extending knowledge) 3.2 Competence in applying relevant state of the art research methods (instrumental competence) 3.3 Ability to collect innovative results by using relevant research methods (systemic competence)	Highest standards in academic paper writing, applying modern tools like econometrics, AI, QC	Academic paper
<b>4 Management of Innovation</b>	4.1 Fundamental knowledge of operational innovation processes 4.2 Ability to assess a company's innovation potential 4.3 Ability to develop complex technological strategies	Financial Innovation, analysis of a complex market connecting different business cultures	x
<b>5 Management of the challenges of global sustainability and awareness for social and corporate responsibilities</b>	5.1 Fundamental knowledge of sustainability issues 5.2 Ability to identify and analyze sustainability issues and its causes 5.3 Development of sustainability strategies	All topics in finance are confronted with their ethical and sustainability impact	x

Program Intended Learning Outcomes		Course Intended Learning Outcomes	Assessment Methods	
After completion of the program the students will be able...		After completion of the course the students will be able...	Presentation	Term Paper
			%	%
			Individual	Individual
1	Responsible Leadership in Organizational Contexts			
1.1	... to know and explain important leadership principles.			
1.2	... to apply leadership concepts to an organizational context or a specific case.			
1.3	... to critically reflect on leadership concepts in a certain organizational context or in a specific case.			
1.4	... to act responsibly from a scientific self-understanding and to act professionally.			
2	Creative Problem Solving Skills in a Complex Business Environment			
2.1	... to identify & classify problems.			
2.2	... to analyze problems.			
2.3	... to creatively solve problems.			
2.4	... to explain problems and their solutions in a comprehensive manner.			
3	Applied research skills			
3.1	... to know the research and analysis methods important in his/her field of study.			
3.2	... to appropriately apply the research and analysis methods.			
3.3	... to obtain innovative results using relevant research methods.			
4	Innovation management and management of digital transformation			
4.1	... to have fundamental knowledge of operational innovation processes and of processes of digital transformation.			
4.2	... to assess a company’s innovation potential and its needs/opportunities with respect to digital transformation.			
4.3	... to develop complex technological strategies and strategies for managing digital transformation.			
5	Management of the challenges of global sustainability and awareness for social and corporate responsibilities			
5.1	... to have a sound basic knowledge of sustainability issues.			
5.2	... to identify and analyze sustainability issues and their causes.			
5.3	... to develop sustainability strategies.			

## Teaching and Learning Approach

Usually, this class is taught in an interactive approach with lecture elements, discussions, case studies and a field trip to the European Central Bank in Frankfurt and the German Stock Exchange (Deutsche Börse).

This semester, we are pleased to introduce Dr. Alexander Del Toro Barba as an additional instructor for this expert seminar. Dr. Del Toro Barba is machine learning specialist with Google. He will be available online and in hybrid meetings.

The final assessment will be based on a short term paper (max. ten pages) and a presentation. The class ends before Christmas.

## Literature and Course Materials

- **De Haan, Jacob; Oosterloo, Sander; Schoenmaker, Dirk (ed.) (2015): Financial Markets and Institutions – A European Perspective, Cambridge University Press.**
- *De Grauwe, Paul* (latest edition): Economics of Monetary Union, Oxford
- *European Central Bank* (2022): The ECB, Frankfurt.
- *Moussis, Nicholas* (2008): Access to European Union law, economics, policies, European Study Service.
- *Neal, Larry* (latest edition): The Economics of Europe and the European Union, Cambridge.
- **Wentzel, Dirk (2021): Updated reader in European Financial Markets will be provided online (based on the book of De Haan, Oosterloo and Schoenmaker).**

**Further materials from the European Union will be provided in class!**

## Assessment

The final assessment is based on a term paper (max ten pages and a presentation).

## Schedule

October 11, 2023 (Wednesday)	First meeting, discussion of materials, websites, lecture list, introduction and motivation
November 15 (Wednesday)	Online presentation Dr. Del Toro Barba: Quantum Computing and Finance Classroom presentation Prof. Wentzel: Finance and current challenges
December 2 (Saturday)	Online presentation Dr. Del Toro Barba: Machine Learning and Finance Classroom presentation Prof. Wentzel: Finance and current challenges
<b>December 6, 2023</b>	<b>Visit to the European Central Bank in Frankfurt</b>
December 8, 2023	Classroom presentation Prof. Wentzel: Finance and current challenges
December 9, 2023	Student Presentations
January 31, 2023	Submission of final term papers (10 pages text)

## Availability of the Professor

Prof. Wentzel is available during his office hours (Monday, 12 – 1.30 pm), after class and by appointment. **Prof. Wentzel is also available by appointment through digital communications channels (Zoom).**

## Academic Integrity and Student Responsibility

I fully trust my students concerning academic integrity and standards. This class is based on mutual trust and multi-cultural respect.

## Rules of Conduct for Online Teaching/Hybrid Meetings (with Dr. Del Toro Barba)

If the technical requirement and the internet bandwidth allow, I prefer my students to use both audio and video. I appreciate to see the full first and last name. I always keep the chat function open and respond directly.

If students are in completely different time zones (US or Asia), I respect if they might have special challenges and reduce their videos.

[Link to the Rules of Conduct for Online Teaching](#)

## Additional Information

The visit to the ECB in Frankfurt on December 6 is already confirmed and will be part of the curriculum.