Ph.D in Economics, Management, and Quantitative Methods (EMQM)

2025 Course Book

- Introduction to Linear Algebra (3 CFR - 15 hours) - SECS-S/06
  Prof. R. Melis, romelis@uniss.it
- Empirical Issues in Social Sciences (3 CFR - 15 hours) - SECS-S/05
  Prof. G. Ruiu, gruiu@uniss.it
- Introduction to Causal Inference (4 CFR – 20 hours) - SECS-S/04
  Prof. G. Salinari, gsalinari@uniss.it
  Dr. G. Carboni, gcarboni3@uniss.it
- Multivariate statistical analysis (3 CFR - 15 hours) – SECS-S/01
  Prof. C. Franceschini, cfranceschini@uniss.it
- Qualitative Methods in Business Research (3 CFR - 15 hours) – SECS-P/07
  Prof. N. Fadda, nfadda@uniss.it
- Case Study Methods and Grounded Theory Approaches in Management and Business Research (3 CFR - 15 hours) – SECS-P/07
  Prof. G. Pischedda, gf.pischedda@uniss.it
- Literature Review in Business Research (3 CFR - 15 hours) – SECS-P/07
  Prof. A. Ezza, alberto.ezza@uniss.it
- Financial Management Research (3 CFR - 15 hours) – SECS-P/09
  Prof. A. Carosi, acarosi@uniss.it
- Topics in banking and financial markets (3 CFR - 15 hours) - SECS-P/11
  Prof. P. Arca, parca1@uniss.it
- Econometrics Theory (4 CFR – 20 hours) – SECS-P/01
  Prof. G. Atzeni, atzeni@uniss.it
- Empirical Issues in Economics (5 CFR – 25 hours) – SECS-P/06
  Prof. M. Pulina, mpulina@uniss.it
- Advanced Microeconomics (3 CFR – 15 hours) – SECS-P/01
  Prof. L. Deidda, deidda@uniss.it
- Ecological Economics and Environmental Policy (3 CFR – 15 hours) – SECS-P/03
  Prof. M. Meleddu, mmeleddu@uniss.it

Locations

- PhD Student Room: Room no. 42, Via Muroni 23, Ground Floor
- Department of Economics and Business (DiSea): 25 Via Muroni, 1st, 2nd, and 3rd floors
- C1: aka Room “Modulare” Via Muroni 23, Ground Floor

Introduction to Linear Algebra (3 CFR - 15 hours)

Prof. Roberta Melis
romelis@uniss.it

This course introduces the basic linear algebra concepts needed for academic research in economics, management, and quantitative methods. Topics of this course are detailed hereafter.

Matrices

- Matrix definition
- Matrix operations (Addiction, Scalar multiplication, Matrix multiplication)
- Transpose
- Special matrices
- Inverse of a matrix
- Rank of a matrix
- Determinants

Linear systems of equations
Examples (Some applications)
Eigenvalues and eigenvectors, Quadratic forms.

Teaching materials
All teaching materials can be found at https://elearning.uniss.it/

Suggested Readings
Schwartz J. T. (2001), Introduction to Matrices and Vectors, USA, Dover Publications.

Course Valuation
The exam consists of 2 questions, which may involve numerical exercises, to be solved in about 1 hour, delivering 30/30 points.

Tentative schedule

Date	Time	Room	Topic
Mon, Nov3	14-17	B4	Matrix definition, Matrix operations (Addiction, Scalar multiplication, Matrix multiplication), Special matrices
Tue, Nov 4	9-12	B4	Transpose, Geometry of matrices, Rank of a matrix, Determinants
Wed, Nov 5	9-12	B4	Inverse of a matrix, Linear systems of equations, Rouché-Capelli Theorem, Cramer Theorem
Thus, Nov 6	9-12	B4	Homogeneous system, Parametric systems
Mon, Nov 10	14-17	B4	Eigenvalues and eigenvectors, Quadratic forms, Some applications
Wed, Dec 17	10-11	B1	Exam (take)
Wed, Jan 14	10-11	B4	Exam (re- take)

Empirical Issues in Social Sciences (3 CFR - 15 hours)

Prof. Gabriele Ruiu
gruiu@uniss.it

This course will introduce the concept of the Maximum Likelihood Estimator (MLE) and the properties of the MLE estimator. The course will also cover the application of ML methods to count data. Topics of this course are detailed hereafter.

- Reminder of probability calculus: Marginal, joint, and conditional probability.
- A gentle introduction to the concept of the likelihood statistic model, parametric model, likelihood function, the principle of likelihood, estimates and estimators, maximum likelihood estimation, and properties of MLE. Linear models: OLS and ML estimator.
- Application to count data: Poisson regression model, negative binomial regression model. This part of the course will be more practical. After an introduction to this model, students will be familiarized with the use of R for carrying out estimation.

Teaching materials
All teaching materials can be found at https://elearning.uniss.it/

Suggested Readings
Grimmett, G., Stirzaker, D. (2001), Probability and Random Processes, Third Ed. Oxford University Press.

Course Valuation
The exam consists of 2 questions, which may involve numerical exercises, to be solved in about 45 minutes, delivering 30/30 points. In addition, one week before the exam date (take), each student will receive a dataset and instructions for carrying out a specific data analysis: students have one week to send the instructor a report showing the analysis results with comments and results interpretation. The final grade for this course is ⅔ the written exam and ⅓ the practical part.

Tentative schedule

Date	Time	Room	Topic
Fr, Jan 16	10-13	TBA	Probability, Random Variables, Independence
Tue, Jan 20	10-13	TBA	An introduction to concept of likelihood
Wed, Jan 21	10-13	TBA	The Poisson regression model
Thus, Jan 22	10-13	TBA	Zero Inflated Poisson Regression, The Negative Binomial Regression
Fri, Jan 23	10-13	TBA	R Practical Session
Fr, Feb 06, 26	10-11	TBA	Exam (take)
Fr, Feb 20, 62	10-11	TBA	Exam (re-take)

Introduction to Causal Inference (4 CFR - 20 hours)

Prof. Giambattista Salinari
gsalinari@uniss.it

Dr. Gianni Carboni
gcarboni3@uniss.it

In this course, we aim to introduce PhD students to some very commonly used causal inference techniques in economic and demographic analyses. The approach followed in this course will be that of the potential outcome framework (also known as the Neyman-Rubin causal model), which represents the most used approach in the field of social sciences. Within the 20-hours program, a 6-hour dedicated module will focus entirely on the Difference-in-Differences (DiD) methodology, delivered by Dr. Carboni, including both an intuitive theoretical introduction and a practical application. The course will include topics hereafter reported.

Introduction to the Potential Outcome Framework
Randomized experiments
Matching estimator
Difference-in-differences dedicated module

Teaching materials and related

For practical sessions, R will be the reference language. In any case, some references to Python will also be furnished. All teaching materials can be found at https://elearning.uniss.it/

Suggested Readings

The course is based on the following introductory texts on causal inference:

Dunning, T. 2012. Natural experiments in the social sciences: a design-based approach, Cambridge University Press

Hernan M. A., Robins J. M (2020). Causal Inference: What if? CRC Press

Rosenbaum P. R. (2017). Observation and Experiment: An Introduction to Causal Inference. Harvard University Press, Cambridge Massachusetts and London England

M. Lechner (2010). The Estimation of Causal Effects by Difference-in-Differences Methods. Foundations and Trends in Econometrics 4(4):165-224.J-S. Pishke (2005). Empirical Methods in Applied Economics. Lecture Notes

Austin, Peter C. 2011. “An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies.” Multivariate Behavioral Research 46 (3): 399–424

Course Valuation

The exam consists of 2 questions, which may involve numerical exercises, to be solved in about 45 minutes, delivering 30/30 points.

Tentative schedule

Date	Time	Room	Topic
Mon, Feb 2	10-13	C1	Association and causality - Introduction to the potential outcome framework (Prof. Salinari)
Tue, Feb 3	10-13	C1	Introduction to randomized experiments (Prof. Salinari)
Wed, Feb 4	10-13	C1	Backdoor criteria (Prof. Salinari)
Thu, Feb 5	10-13	C1	Matching (Prof. Salinari)
Fri, Feb 6	10-12	C1	Case Studies (Prof. Salinari)
Mon, Feb 9	10-13	C1	From intuition to formalization: the origins of Difference-in-Differences (Dr. Carboni)
Tue, Feb 10	10-13	C1	A standard workflow for DiD Analysis (Dr. Carboni)
Feb, 20	10-13	C1	Exam (take)
Mar, 20	10-13	C1	Exam (re-take)

Multivariate Statistical Analysis (3 CFR - 15 hours)

Prof. Cinzia Franceschini
cfranceschini@uniss.it

By the end of the course, the PhD students will be able to apply some multivariate statistical methods like principal component analysis, projection pursuit and cluster analysis, as well as to master their joint use to carry out the so-called tandem analysis.

Topics:

- Principal component analysis (PCA): theory (definition, description, usefulness, limitations) and application to real datasets.
- Projection pursuit (PP): theory (definition, description, usefulness as a dimension reduction method for variable selection and to cluster detection) and application to real datasets.
- Cluster analysis: theory (definition and introduction to some clustering methods like k-means clustering, hierarchical clustering, model based-clustering) and applications to real datasets.
- Tandem analysis: definition, description, usefulness and applications to real datasets.

All real-data applications will be carried out with the R software.

Teaching materials

All teaching materials can be found at https://elearning.uniss.it/

Suggested readings

Peter Dalgaard. Introductory Statistics with R. Springer, New York, 2002.

Franceschini, C. and Loperfido, N., (2019), MaxSkew and MultiSkew, Two R Packages for Detecting, Measuring and Removing Multivariate Skewness, Symmetry,11.

Wolfgang Karl Härdle, Léopold Simar, Matthias R. Fengler, Applied Multivariate Statistical Analysis, Springer Cham, 2024.

Izenman, A.J., Modern Multivariate Statistical Techniques, Regression, Classification, and Manifold Learning (Springer Texts in Statistics) 2008, Corr. 2nd Printing 2013 ed.th Edition

Mardia, K.V., Kent, J.T., J.M. Bibby J.M., (1979). Multivariate Analysis, Academic Press, London.

John Verzani. Using R for Introductory Statistics. Chapman & Hall/CRC, Boca Raton, FL, 2005.

Course Valuation

Twenty true/false questions and two questions/exercises. The student will get a point for each correctly answered true/false questions and five points for each correctly done exercise. The exam will be taken in a dedicated session (1 hour).

Tentative schedule

Date	Time	Room	Topic
Mon, Nov 17	14-17	B3	Introduction to the course. Brief introduction to multivariate statistical analysis. PCA: definition, description, usefulness, and application to real datasets, part 1
Tue, Nov 18	14-17	B3	PCA: definition, description, usefulness, and application to real datasets, part 2. CA: definition and introduction to some clustering methods like k-means clustering, hierarchical clustering, model based-clustering, part 1
Wed, Nov 19	14-17	B3	CA: definition and introduction to some clustering methods like k-means clustering, hierarchical clustering, model based-clustering, part 2.
Thus, Nov 20	14-17	B3	PP: definition, description, usefulness as a dimension reduction method for variable selection and to cluster detection. Application to real datasets.
Fri, Nov 21	10-13	B4	Tandem analysis: definition, description, usefulness and applications to real datasets.
Thus, Jan 15	9-10	B6	Exam (take)
Wed, Feb 18	9-10	B6	Exam (re-take)

Qualitative Methods in Business Research (3 CFR - 15 hours)

Prof. Nicoletta Fadda
nfadda@uniss.it

Research in business and management often requires the adoption of qualitative methods: the inquiry into an understudied (new) phenomenon, a better understanding of soft elements of managerial mechanisms, and an in-depth analysis of specific relationships are a few examples. This course provides basic knowledge of qualitative methods of theoretical elements and practical applications through analysing research papers. During the course, qualitative methods such as the participatory action research approach and fuzzy set qualitative comparative analysis (fsQCA) will be covered. The main objective is to learn the different qualitative methods for profitable application in research. The course will be taken through traditional lessons, class discussions, and student presentations.

Qualitative methodology

- The basic characteristics of qualitative research
- Data collection procedures
- Data analysis

Participatory action research

Fuzzy set qualitative comparative analysis (fsQCA)

- Qualitative comparative analysis
- Assigning set membership: calibration procedure
- Raw data matrix
- Constructing the Truth table
- The analysis of the necessary conditions
- The interpretation of the complex, parsimonious, and intermediate solutions

Teaching materials

All teaching materials can be found at https://elearning.uniss.it/

Suggested readings

Cassell C. (2015). Conducting Research Interviews for Business and Management Students. Sage publications.

Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approach. Sage publications.

Lewin, K. (1946/1997), Resolving Social Conflicts, American Psychological Association, Washington, DC.

Savall H., Zardell V., Action research and intervention research in the French landscape of organizational research. The case of ISEOR, International Journal of Organizational Analysis Vol. 22 No. 4, 2014 pp. 551-572.

Eriksson, P., & Kovalainen, A. (2008). Qualitative methods in business research. Sage publications.

Ragin, C. C. 2008. Redesigning Social Inquiry: Fuzzy Sets and Beyond. Chicago, IL: University of Chicago Press.

Ragin, C. C. 2017. User's Guide to Fuzzy/Set Qualitative Comparative Analysis. Department of Sociology, University of California, Irvine, CA. www.fsqca.com.

Course Valuation

The exam consists of multiple questions (open or quizzes) to be solved in about 60 minutes (1 hour), delivering 30/30 points. The exam will be taken in a 2-hour and 30-minute joint session with "Qualitative Methods in Business Research" (Prof. N. Fadda, 1h) and "Literature Review in Business Research" (Prof. A. Ezza, 30 min) (about 60 minutes/course x 2 courses + 30 minutes x 1 course, about 2.30 hours in total). Specifics will be provided during the course.

Tentative schedule

Date	Time	Room	Topic
Mon, Nov 17	9-13	B7	Qualitative methodology
Tue, Nov 18	9-13	Aula Mult. (Via Muroni, 23)	Conducting research interviews
Wed, Nov 19	9-13	Aula Mult. (Via Muroni, 23)	Fuzzy set qualitative comparative analysis (fsQCA)
Thu, Nov 20	9-12	Aula Mult. (Via Muroni, 23)	Participatory action research
Mon, Jan 19	9-12	TBA	Exam (take)
Fri, Feb 20	9-12	TBA	Exam (re- take)

Case Study Methods and Grounded Theory Approaches in Management and Business Research (3 CFR - 15 hours)

Prof. Gianfranco Pischedda
gf.pischedda@uniss.it

Case study and multiple case study research are essential in a Ph.D. program because they enable an in-depth exploration of complex real-world issues within their specific contexts, fostering critical thinking and offering practical applications of theoretical concepts. By focusing on individual or multiple cases, students can engage in detailed analysis, utilize qualitative and quantitative methods, and contribute to theory building. Multiple case studies enhance the generalizability and robustness of findings by allowing for comparisons across different settings, making this approach valuable for producing meaningful and actionable research. Grounded theory gives additional strength to qualitative research by enabling the emergence of theory directly from empirical data, especially in contexts where existing frameworks are insufficient. This encourages inductive reasoning and supports the development of novel insights grounded in practice.

Case study

- Whether and when to use a case study as a research method
- Designing a case study
- Collecting case study evidence
- Analysing case study evidence

Single Vs. Multiple case studies

Grounded Theory

- What is Grounded Theory
- When to use Grounded Theory
- Methods of Grounded Theory

Teaching materials

All teaching materials can be found at https://elearning.uniss.it/

Suggested readings

Eriksson, P., & Kovalainen, A. (2008). *Qualitative methods in business research*. Sage.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Yin, R. K. (2008). *Case study research and applications: Design and methods*. Sage publications. Sixth Edition.

Walsh, I., Holton, J. A., Mourmant, G. (2019). Conducting Classic Grounded Theory for Business and Management Students. Regno Unito: SAGE Publications.

Myers, M. D. (2019). Qualitative Research in Business and Management. Regno Unito: SAGE Publications.

Further readings

Additional specifics will be provided during the course.

Course Valuation

The exam consists of 1 exercise, theoretical and practical questions (open or multiple choice), an essay, or even an oral presentation, to be solved in about 60 minutes and delivering 30/30 points. The exam will be taken in a 2-hour and 30-minute joint session with “Qualitative Methods in Business Research” (Prof. N. Fadda, 1h) and “Literature Review in Business Research” (Prof. A. Ezza, 30 min) (about 60 minutes/course x 2 courses + 30 minutes x 1 course, about 2.30 hours in total). Specifics will be provided during the course.

Tentative schedule

Date	Time	Room	Topic
Mon, Nov 24	09-12	B7	Case Study research: focus on singles case study
Tue, Nov 25	09-11	Aula Mult. (Via Muroni, 23)	Application
Wed, Nov 26	09-12	B4	Multiple case study VS Single Case study
Thu, Nov 27	09-11	B4	Application
Mon, Dec 1	09-12	B4	Grounded Theory
Tue, Dec 2	09-11	B4	Application
Mon, Jan 19	09-19:	B6	Exam (take)
Fri, Feb 20	09-12	B6	Exam (re- take)

Literature Review in Business Research (3 CFR - 15 hours)

Prof. Alberto Ezza
alberto.ezza@uniss.it

This course introduces PhD students to literature reviews and the importance of these tasks for research. In particular, the course will focus on the literature review to help develop a research project (e.g., PhD dissertation) or a standalone research product specifically focusing on adopting this methodology in the business and managerial field. The systematic literature review (SLR) and the bibliometric analysis will be analysed. The course will be conducted using lectures and guided exercises in the classroom under the instructor's supervision and independently by students, using specific software for conducting literature reviews.

The main topics covered in the course are:

- Definition of literature review
- Performing a literature review for a PhD dissertation
- Scoping, integrative, and systematic literature reviews.
- Bibliometric literature review
- Data collection and data management
- Software for managing literature reviews (e.g., reference managers and bibliometric tools)
- Designing a literature review protocol
- Writing a literature review protocol

Teaching material

All teaching materials can be found at https://elearning.uniss.it/.

Course evaluation

The course assessment will be divided into two components:

Individual Project

70% of the final grade will be based on an individual project to be completed independently at the end of the course that must be submitted to the instructor via email at least ten days before the examination date (alberto.ezza@uniss.it).
Project Requirements: 1) Identify a research topic; 2) Define a query for data extraction from an international dataset (e.g., Scopus or Web of Science); 3) Retrieve the corresponding metadata; 4) Develop a comprehensive investigation protocol; 5) Compose a methodological section (maximum 1,000 words).
Students must send the file with the raw data extracted (.csv or .xlsx) and the methodological section (.docx or another editable format).

Written test

30% of the final grade will be based on a written test that will be administered on the official examination date. The examination consists of open-ended and/or multiple-choice questions (30 minutes).
The exam will be taken in a 2-hour and 30-minute joint session with “Qualitative Methods in Business Research” (Prof. N. Fadda, 1 hour) and “Case Study Methods in Management and Business Research” (Prof. G. Pischedda, 1 hour) The exam will be taken in a 2-hour and 30-minute joint session with “Qualitative Methods in Business Research” (Prof. N. Fadda, 1 hour) and ““Case Study Methods in Management and Business Research” (Prof. G. Pischedda, 1 hour). Additional Specifics will be provided during the course.

Suggested readings

Torraco, Richard J. «Writing Integrative Literature Reviews: Using the Past and Present to Explore the Future». *Human Resource Development Review* 15, fasc. 4 (dicembre 2016): 404–28. https://doi.org/10.1177/1534484316671606.

Whittemore, Robin, and Kathleen Knafl. «The Integrative Review: Updated Methodology». *Journal of Advanced Nursing* 52, fasc. 5 (dicembre 2005): 546–53. https://doi.org/10.1111/j.1365-2648.2005.03621.x.

Page, Matthew J., Joanne E. McKenzie, Patrick M. Bossuyt, Isabelle Boutron, Tammy C. Hoffmann, Cynthia D. Mulrow, Larissa Shamseer, et al. «The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews». *BMJ* 372 (29 marzo 2021): n71. https://doi.org/10.1136/bmj.n71.

Page, Matthew J, David Moher, Patrick M Bossuyt, Isabelle Boutron, Tammy C Hoffmann, Cynthia D Mulrow, Larissa Shamseer, et al. «PRISMA 2020 Explanation and Elaboration: Updated Guidance and Exemplars for Reporting Systematic Reviews». *BMJ*, 29 marzo 2021, n160. https://doi.org/10.1136/bmj.n160.

Ridley, Diana. *The Literature Review: A Step-by-Step Guide for Students*. Second Edition. Sage Study Skills. Los Angeles London New Delhi: SAGE, 2012.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. 2021, *How to conduct a bibliometric analysis: An overview and guidelines.* Journal of Business Research, 133, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Further readings

Harris, Dave. *Literature Review and Research Design: A Guide to Effective Research Practice*. London New York: Routledge, 2020.

Renck Jalongo, Mary, e Olivia N. Saracho. *Writing for Publication: Transitions and Tools that Support Scholars' Success*. 1st ed. 2016. Springer Texts in Education. Cham: Springer International Publishing: Imprint: Springer, 2016. https://doi.org/10.1007/978-3-319-31650-5 (Chapter 5)

Further readings will be made available during the course.

Tentative schedule

Date	Time	Room	Topic
Thu, Dec. 4	9-12	B4	Literature review: definition and main typology
Fri, Dec. 5	9-12	B4	Literature review: Research strategy
Wed, Dec. 10	9-12	B6	Data collection and data management
Thu, Dec. 11	9-12	B6	Bibliometric research
Fri, Dec. 12	9-12	B6	Develop a research protocol: methodological issues
Mon, Jan 19	9-12	TBA	Exam (take)
Fri, Feb 20	9-12	TBA	Exam (retake)

Financial Management Research (3 CFR - 15 hours)

Prof. Andrea Carosi
acarosi@uniss.it

This course covers some of the most common research methods and topics in financial management research, e.g., event-study methodology, endogeneity, quality-of-information estimation, financial literacy, stock-market participation, etc. The course will be based on research papers, analysis, and presentations.

The main topics covered in the course are:

- Event-study methodology
- Endogeneity
- Accruals estimation and proxy opacity in financial reports
- Financial literacy
- Stock-market participation
- Climate Finance (time permitting)
- Staggered diff-in-diff estimation, an application to corporate scandals (time permitting)

Teaching materials

All teaching materials can be found at https://elearning.uniss.it/

Suggested readings

Bowen, D.E., Frésard, L., Taillard, J.P., 2017. What's Your Identification Strategy? Innovation in Corporate Finance Research. Management Science 63, 2529–2548. https://doi.org/10.1287/mnsc.2016.2437

Chaney, P.K., Faccio, M., Parsley, D., 2011. The quality of accounting information in politically connected firms. Journal of Accounting and Economics 51, 58–76.

Custódio, C., Mendes, D., Metzger, D., n.d. The Impact of the Financial Education of Executives on the Financial Practices of Medium and Large Enterprises. The Journal of Finance, Forthcoming.

Guiso, L., Sapienza, P., Zingales, L., 2008. Trusting the Stock Market. The Journal of Finance 63, 2557–2600.

Hutton, A.P., Marcus, A.J., Tehranian, H., 2009. Opaque financial reports, R2, and crash risk. Journal of Financial Economics 94, 67–86.

Kothari, S.P., Warner, J.B., 2007. Chapter 1 - Econometrics of Event Studies, in Eckbo, B.E. (Ed.), Handbook of Empirical Corporate Finance, Handbooks in Finance. Elsevier, San Diego, pp. 3–36.

Li, K., Prabhala, N.R., 2007. Chapter 2 - Self-Selection Models in Corporate Finance, in: Eckbo, B.E. (Ed.), Handbook of Empirical Corporate Finance. Elsevier, San Diego, pp. 37–86.

Lusardi, A., Mitchell, O.S., 2008. Planning and Financial Literacy: How Do Women Fare? American Economic Review 98, 413–417.

MacKinlay, A.C., 1997. Event Studies in Economics and Finance. Journal of Economic Literature 35, 13–39.

van Rooij, M., Lusardi, A., Alessie, R., 2011. Financial literacy and stock market participation. Journal of Financial Economics 101, 449–472.

Roberts, M.R., Whited, T.M., 2013. Chapter 7 - Endogeneity in Empirical Corporate Finance, in: George M. Constantinides, M.H. and R.M.S. (Ed.), Handbook of the Economics of Finance. Elsevier, pp. 493–572.

Additional readings will be assigned during the course.

Course Valuation

The exam can consist of 1/2 exercises or theoretical questions, delivering 30/30 points (about 15/30 points/each). The exam will be taken in a dedicated session (1.5 hour). Specifics will be provided during the course.

Tentative schedule

Date	Time	Room	Topic
Mon, Mar 30	12-16	Via Muroni 23	Event-study methodology
Tue, Mar 31	10-14	Via Muroni 23	Endogeneity
Wed, Apr 1	12-16	Via Muroni 23	Quality-of-information
Thu, Apr 2	10-13	Via Muroni 23	Financial Literacy, Stock Market Participation
Thu, Apr 16	14-16	Via Muroni 23	Exam (take)
Fri, May 15	10-12	Via Muroni 23	Exam (re- take)

Topics in banking and financial markets (3 CFR - 15 hours)

Prof. Pasqualina Arca
parca1@uniss.it

Course aim and idea. The objective of the course is to introduce the theory of financial intermediation and the role of information in financial markets. The goal is to expose students to existing work and provide basic tools to do research in the area. While the course covers the theories in the area, it also provides essential tools in forming frameworks that can serve as a basis for empirical work.
Course Organisation. The course will consist of lectures, in which the instructor will review papers from the literature. Some papers will be discussed in class in great depth, while others will be mentioned briefly and left for the students for further research. The course is divided into three parts. Each one consists of several lectures covering different subtopics.

Topics:

- Liquidity provision and bank runs
  - Bank as a liquidity supplier. Bank runs in the Diamond-Dybvig world. Information-based bank runs. Systemic risk and contagion.
- Credit market friction and the lender-borrower relationship
  - Information asymmetry in credit markets. Adverse selection and credit rationing. Rationing with collateral. Screening and signalling as ways to avoid adverse selection. Theory of delegated monitoring in the credit market. Moral hazard.
- Empirical applications related to the topics in banking and credit markets presented in class using empirical methodology, such as
  - Difference-in-Differences, Event studies, Instrumental variables, Regression discontinuity design.

Textbooks

Degryse, H., M. Kim and S. Ongena (2009), Microeconometrics of banking: methods, applications and results, Oxford University Press.
Freixas, X, and J.C. Rochet (2008), Microeconomics of Banking, 2nd Edition, MIT Press.
Tirole, J. (2006), The Theory of Corporate Finance, Princeton and Oxford, Princeton University Press.

Reading list: (Including suggestions on topics not covered in class. Additional readings might be provided during the course.)

Liquidity provision and bank runs

Allen, F., and D. Gale, 2000, "Financial contagion". Journal of Political Economy 108, 1-33.
Diamond, D., and P. Dybvig, 1983, "Bank runs, deposit insurance, and liquidity". Journal of Political Economy 91, 401-419.
Diamond, D. and Rajan, R., 2001, "Liquidity Risk, Liquidity Creation, and Financial Fragility: A Theory of Banking". Journal of Political Economy 109 (2), 287-327
Goldstein, I., and A. Pauzner, 2005, "Demand deposit contracts and the probability of bank runs". Journal of Finance 60, 1293-1328.
Leland, H., and D. Pyle (1977), "Information asymmetries, financial structure, and financial intermediation". *Journal of Finance* 32, 371- 388.
Morris, S., and H. S. Shin, 1998, "Unique equilibrium in a model of self-fulfilling currency attacks". American Economic Review 88, 587-597.

Credit market friction and lender-borrower relationship

Besanko, D., and A. V. Thakor (1987), "Collateral and rationing: Sorting equilibria in monopolistic and competitive markets. International Economic Review 28 (3): 671-689

Bester, H. (1985). Screening vs. rationing in credit markets with imperfect information. *The American economic review*, *75*(4), 850-855.

Bester, H. (1987). The role of collateral in credit markets with imperfect information. *European Economic Review*, *31*(4), 887-899.

de Meza, D. and D. Webb (1987), "Too Much Investment: A Problem of Asymmetric Information". *Quarterly Journal of Economics* 102 (2): 281–292

de Mesa, D., & Webb, D. C. (1992). Efficient credit rationing. *European Economic Review*, *36*(6), 1277-1290.

Diamond, D., 1984, "Financial intermediation and delegated monitoring". Review of Economic Studies 51, 393-414.

Gale D., and M. Hellwig, 1985, "Incentive compatible debt contracts: the one period problem," *Review of Economic Studies* 52, 647-63.

Stiglitz J.E., Weiss A.,1981, "Credit rationing in Markets with Imperfect Information". American Economic Review, 71(3): 393-410.

Empirical Applications

Berlin, M., and L.J. Mester, (1999), Deposits and Relationship Lending, *Review of Financial Studies* 12, 579-607.

Mackinaw, A. C. (1997), Event Studies in Economics and Finance, *Journal of Economic Literature* 35, 13-39.

McWilliams, A., & Siegel, D. (1997). Event studies in management research: Theoretical and empirical issues. *Academy of management journal*, *40*(3), 626-657.

Kashyap, A., R. Rajan, and J.C. Stein, 2002, "Banks as Liquidity Providers: an Explanation for the Co-Existence of Lending and Deposit-Taking". Journal of Finance 57, 33-73.

James, C. (1987). Some evidence on the uniqueness of bank loans. *Journal of financial economics*, *19*(2), 217-235.

Keys, B., T. Mukherjee, A. Seru and V. Vig (2010), Did Securitization lead to lax screening: Evidence from Subprime Mortgage Backed Securities, *Quartely Journal of Economics*, 307-362.

Petersen, M.A., and R.G. Rajan (1994), The Benefits of Lending Relationships: Evidence from Small Business Data, *Journal of Finance* 49, 3-37.

James, C. (1987). Some evidence on the uniqueness of bank loans. *Journal of financial economics*, *19*(2), 217-235.

Course evaluation. The assessment will be divided into two part, which will take place at two different moments as described below.

1) A two-hour written exam paper (60%) consisting of:
   - one essay on one of the topics of the syllabus (30%) and
   - short open questions (30%)
2) A class presentation on a research paper (40%).

Tentative schedule

Date	Time	Room	Topic
Mon, Mar 2	10-12	Via Muroni 23	Liquidity provision and bank runs (I)
Tue, Mar 3	10-12	Via Muroni 23	Liquidity provision and bank runs (II)
Wed, Mar 4	10-12	Via Muroni 23	Credit market friction and lender-borrower relationship (I)
Thu, Mar 5	10-12	Via Muroni 23	Credit market friction and lender-borrower relationship (II)
Fri, Mar 6	10-12	Via Muroni 23	Credit market friction and lender-borrower relationship (III)
Mon, Mar 9	10-12	Via Muroni 23	Empirical applications (I)
Tue, Mar 10	10-13	Via Muroni 23	Empirical applications (II)
Fri, Mar 20	10-12	TBA	Oral Exam (take)
Mon, Apr 20	10-12	TBA	Oral Exam (re- take)

Econometrics Theory (4 CFR – 20 hours)

Prof. G. Atzeni
atzeni@uniss.it

This course provides the essential theoretical tools for understanding econometric analysis. The course is designed to achieve the following learning objectives:

- apply probability theory
- test statistical hypotheses
- perform estimation and inference in linear regression model
- use instrumental variables to treat endogeneity

Course contents include,
Review on matrix algebra and probability theory: random variables, random samples, and distributions.
Large sample distribution theory, linear regressions, OLS;
Finite sample inference;
Large sample inference;
Heteroskedasticity, Generalized Least Square method;
Endogeneity;
Instrumental variables
Maximum Likelihood
Logit and probit

Suggested readings

Core textbook:
Greene, W. H. (2003). Econometric analysis. Pearson Education India.

Supplementary textbooks:
Angrist and Pischke (2009), Mostly Harmless Econometrics, Princeton University Press.
Davidson and MacKinnon (2004), Econometric Theory & Methods, Oxford University Press. Download here.
Casella and Berger (2002), Statistical Inference, Duxbury. Download here.

Course Valuation

The valuation of this course is based upon solving a problem set, to be submitted via atzeni@uniss.it by 13th March 2026, delivering 30/30 points. Specifics will be provided during the course.

Marking scheme (standard based on the Ph.D rules)

A	30 / 30, merit
B	27---29
C	24---26
D	21---23
E	18---20
F	<18

Certificate of attendance
A certificate of attendance will be issued to students attending specific modules full-time.

Schedule

	Date	Time	Room	Topic
Week 1	Wed, Jan 7	11-13	B5	Review on matrix algebra and probability theory
	Thu, Jan 8	10-13	B5	Large sample distribution theory, linear regressions, OLS
	Fri, Jan 9	15-18	TBA	Finite sample inference
Week 2	Mon, Jan 12	10-13	B5	Large sample inference
	Tue, Jan 13	10-13	B5	Heteroskedasticity, Generalized Least Square method
	Wed, Jan 14	10-13	B5	Endogeneity, instrumental variables
	Thu, Jan 15	10-13	B5	Maximum Likelihood, logit and probit
	Fri, Mar 13			Exam: deadline for problem set submission

Empirical Issues in Economics (5 CFR – 25 hours)

Prof. M. Pulina
mpulina@uniss.it

The course provides empirical tools for understanding more advanced econometric analysis and interpreting economic theories. The course is designed to achieve the following learning objectives:

- basic econometric theory on the main course topics
- perform estimation
- inference and interpretation
- essential tools in integrative methods: Principal Component Analysis and Probabilistic Modelling

Course topics include,
ARIMA - SARIMAX
VAR - VECM
Panel data
Probabilistic Panel Data
Integrative Methods (Principal Component Analysis and Probabilistic Modelling)

Teaching materials
All teaching materials can be found at https://elearning.uniss.it/ and Microsoft Teams (14gqzln)

Suggested readings
Hill R.C., Griffiths W.E., Lim G.C. (2018). Principles of Econometrics. Wiley
Pindyck and Rubinfeld. (2000). Econometric Models and Economic Forecast, 4th. Ed. McGraw Hill, NY.
Maddala and Lahiri. (2009). Introduction to econometrics. Macmillan, NY.
Greene, W. H. (2003). Econometric analysis. Pearson Education India.

Course evaluation
The evaluation of this course is based on a technical essay, delivering 30/30 points (more details will be provided during the course).

Essay/report deadlines are as follows,
Take exam: March 11, 2024, h. 9-11 (max 30/30 points)
Retake exam: March 28, 2024, h. 9-11 (max 30/30 points)

Further indications are hereafter reported,

- Novel essay (max 30/30 points - max. 5 pages, 1.5 space, Times New Roman, size 12) on a topic of interest, aligned with the topics addressed during the course and own Ph.D. research.

Essay framework and marking scheme:

- **Introduction** (aims of their paper and a brief account of the specific thread of the literature) = 5/30 points; **Methodological framework** (clearly explain the method employed, data/sources, and findings) = 20/30 points; **Conclusions** (highlight the primary outcomes possibly aligned with the literature, strengths and weakness/ policy implications) = 5/30 points.
- **Compulsory extra material**: STATA syntax_file with replications of the findings and comments explaining the commands employed to run the empirical analysis.

Marking scheme (standard based on the Ph.D rules)

A	30 / 30, merit
B	27---29
C	24---26
D	21---23
E	18---20
F	<18

Certificate of attendance

A certificate of attendance will be issued to students attending specific modules full-time.

Timetable

Date	Time	Room	Topic
Fri, Jan 23	9-11	B3	Introduction & software - Methods in time series ARMA
Fri, Jan 23	11-13	B3	Methods and applications in SARIMAX
Mon, Jan 26	15-17	B3	Methods and applications in VAR
Mon, Jan 26	17-19	B3	Methods and application UNIT ROOTS
Tue, Jan 27	15-17	B3	Methods and applications in COINTEGRATION
Tue, Jan 27	17-19	B3	Methods and applications in VECM
Thu, Jan 29	15-17	B3	Methods and applications in PANEL DATA
Thu, Jan 29	17-19	B3	Methods and applications in PANEL VECM
Mon, Feb 02	15-17	B3	Methods and applications in PROBABILISTIC MODELLING
Mon, Feb 02	17-19	B3	Methods and applications in PROBABILISTIC PANEL
Tue, Feb 03	15-17	B3	Methods and applications in PRINCIPAL COMPONENTS ANALYSIS
Tue, Feb 03	17-19	B3	Methods and applications in MIXED METHODS
Tue, Feb 05	15-16	B3	Summary and further applications
Wed, Mar 18	8-11	B3	Oral Exam (take)
Wed, May 20	8-11	B3	Oral Exam (re- take)

Advanced Microeconomics (3 CFR – 15 hours)

Prof. L. Deidda
deidda@uniss.it

This course provides the essential theoretical tools for understanding signalling, information transmission, and Bayesian persuasion. The course is designed to achieve the following learning objectives:

- understand strategic communication under asymmetric information
- analyse signalling games and equilibrium concepts
- apply equilibrium refinements in signalling environments
- characterize information structures and Bayes-plausible belief updates solve Bayesian persuasion problems

The course contents include,
Decision making under uncertainty and Bayesian updating
Static signalling games: cheap talk and costly signalling
Equilibrium refinements: Intuitive Criterion, D1, and related concepts
Bayesian plausibility and information design
The canonical Bayesian persuasion model
Applications of Bayesian persuasion
Introduction to extensions: privately informed senders, dynamic persuasion, and outside information

Main readings

Mas-Colell, A., Whinston, M. D., and Green, J. R. (1995). Microeconomic Theory. Oxford University Press.
Fudenberg, D., and Tirole, J. (1991). Game Theory. MIT Press.
Kreps, D. M. (1990). A Course in Microeconomic Theory. Princeton University Press.
Kamenica, E., and Gentzkow, M. (2011). Bayesian Persuasion. American Economic Review, 101(6), 2590–2615.

Supplementary readings

Spence, M. (1973). Job Market Signaling. Quarterly Journal of Economics.
Crawford, V., and Sobel, J. (1982). Strategic Information Transmission. Econometrica.
Gentzkow, M., and Kamenica, E. (2014). Costly Persuasion. American Economic Review (Papers and Proceedings).
Bizzotto, J., Rüdiger, J., and Vigier, A. (2021). Dynamic Persuasion with Outside Information. American Economic Journal: Microeconomics.
Additional papers will be assigned during the course.

Course evaluation

The evaluation of this course is based on the completion of a problem set, to be submitted by email by a date to be specified. The problem set is graded on a 30-point scale (30/30 maximum).
Detailed instructions will be provided during the course.

Marking scheme (standard based on the Ph.D rules)

A	28---30, merit
B	26---27
C	23---25
D	20---22
E	18---19
F	<18

Certificate of attendance

A certificate of attendance will be issued to students attending specific modules full-time.

Course structure and timetable

Total duration: 15 hours

Course structure: 4 topics

Schedule

	Date	Time	Room	Topic
Topic 1	Mon, Apr 13	10-12	Via Muroni 23	Decision making under uncertainty and Bayesian updating
Topic 2	Tue, Apr 21	10-12	Via Muroni 23	Introduction to signalling games
	Wed, Apr 22	10-12	Via Muroni 23	Costly signalling
Topic 3	Tue, May 5	10-12	Via Muroni 23	Equilibrium refinements and applications
	Wed, May 6	10-12	Via Muroni 23	Bayesian plausibility and information design
Topic 4	Tue, May 12	10-12	Via Muroni 23	The canonical Bayesian persuasion model
	Wed, May 13	10-13	Via Muroni 23	Extensions
	TBA			Exam: deadline for problem set submission

Ecological Economics and Environmental Policy (3 CFR – 15 hours)

Prof. M. Meleddu
mmeleddu@uniss.it

The course provides an introduction to the principles of ecological and environmental economics, with a focus on policy applications. It will cover economic approaches to environmental issues, the relationship between economic growth and environmental trends, and key tools for the economic analysis of environmental problems.

Course contents

1. The Economy and the Environment
   - Interactions between the economy and ecology
   - Concepts of sustainability and limits to growth
2. Economic Growth and Environmental Trends
   - Environmental Kuznets Curve (EKC): income vs pollution
   - Porter Hypothesis: innovation through regulation
   - Global challenges: climate change, biodiversity, resource depletion
3. Economic Analysis of Environmental Issues
   - Market-based vs. regulatory approaches
   - Externalities and public goods
   - Policy instruments
4. Cost–Benefit Analysis and Valuation Methods
   - Fundamentals of cost–benefit analysis
   - Valuation methods and case studies

Teaching materials

· All materials will be made available on the course website (elearning.uniss.it).
· The suggested textbook is: J.M. Harris and B. Roach (2017), Environmental and Natural Resource Economics: A Contemporary Approach, 4th edition, Routledge, New York.
· Additional readings will be suggested during the course.

Course assessment

The final assessment will consist of a written exam and a class presentation on a research paper. The written exam (maximum score: 60% of the final grade) will cover all topics included in the syllabus. It may include:

- Short open questions assessing theoretical understanding
- Analytical or applied questions related to externalities, policy instruments, valuation methods, CBA, environmental trends, and other course concepts
- A short essay question on one of the themes discussed during the course

During the class presentation on a research paper (maximum score: 40% of the final grade) **e**ach student will deliver an individual presentation on a research paper of their choice related to ecological or environmental economics. The presentation should:

- Summarise the paper's research question, methodology, and main findings
- Connect the paper to concepts covered in the course
- Provide a brief critical discussion and highlight any policy implications

Tentative schedule

Date	Time	Room	Topic
Thu, Apr 9	10-13	Via Muroni 23	The Economy and the Environment
Fri, Apr 10	10-13	Via Muroni 23	Economic Growth and Environmental Trends
Tue, Apr 14	10-13	Via Muroni 23	Economic Analysis of Environmental Issues
Wed, Apr 15	10-13	Via Muroni 23	Cost–Benefit Analysis and Valuation Methods (part I)
Thu, Apr 16	10-13	Via Muroni 23	Cost–Benefit Analysis and Valuation Methods (part II)
Thu, Apr 23	9:30-11:30	Via Muroni 23	Exam (take)
Wed, Apr 29	9:30-11:30	Via Muroni 23	Exam (re- take)