



Università
Ca' Foscari
Venezia

**Dipartimento
di Economia**

VERA/ACADEMY

VIII EDITION - CALL FOR SELECTION OF N. 10 VERA INTERNSHIP GRANTS AT THE DEPARTMENT OF ECONOMICS - A.A 2022/2023

Art. 1 – Scope

1.1 The Department of Economics, within the VERA Center (*Venice center in Economic and Risk Analytics for public policies*), offers students enrolled in its Master's Degree Courses internship projects to promote the development of professional and research skills useful for their orientation and subsequent labor market integration.

1.2 Ten grants are available. The maximum duration of the internship periods will be 4 months and a commitment of about 300 hours that will be agreed with the tutor of the project. The internships will take place between January and June 2023. The total funding for each internship will be € 1.843,31 (gross salary). Each internship project, including specific objectives, required knowledge and skills as well as the intern tutors, is described in Annex A, which is an integral part of this call.

1.3 The internship will take place at the Department of Economics according to the Ca' Foscari internships guidelines.

1.4 On request of the student, the internship activity can be validated as the compulsory internship to acquire university credits planned in the Department of Economics Master's degree program to which the student is enrolled.

Art. 2 – Admission requirements

2.1 The call is reserved for students regularly enrolled in the Department of Economics Master's Degree Courses.

2.2 If students already receive a grant economically incompatible with the grant of the present call, they can apply and, if the merit requirements are met, they can decide to carry out the internship project renouncing the grant. The total numbers of internships cannot exceed 12 (maximum of 10 with grants and maximum of 2 without grants), therefore the acceptance of internship applications "without grant" should be subject to the compliance of such limits.

2.3 The requirements must be met by the deadline indicated in the following art.3.

Art. 3 – Applications

3.1 Applications must be submitted no later than **16th December 2022 at 12.00** by one of the following procedures:

- a) sending to the following Address of Certified Electronic Mail (CEM): protocollo@pec.unive.it. Please consider that the message can only be sent by another Certified Electronic Mailbox; the application sent by a non-Certified mailbox cannot be considered valid. Documents must be attached in PDF format only;
- b) sending by ordinary e-mail to the following address: centro.vera@unive.it. Documents must be attached in PDF format only;

3.2 The application form must include also the following documents:

- Dated and signed Curriculum vitae
- Self-certification of exams taken (marks and numbers of university credits – *CFU, Crediti Formativi Universitari*) as well as the weighted average exam marks
- Motivation letter, using the format attached to this announcement (the motivation letter should set out in particular the student's interests, the coherence between academic background and the activities and objectives of the internship projects, as well as the preferential qualifications/skills and knowledge required for each project. See Annex A).
- Scanned copy of a valid ID document.

3.3 Applications received after the deadline or applications received through other procedures, or unsigned applications will not be considered valid.

3.4 The University is not responsible for any failure to receive communications due to incorrect or incomplete indication of address by the applicant or to the lack of or the untimely communication of change of address, as well as possible postal mistakes not attributable to the fault of the administration itself.

Art. 4 – Commission and selection of applicants

4.1 A commission appointed by Decree of the Department Director will evaluate the candidates on the basis of their qualifications and motivation letters.

4.2 In a preliminary session, the Commission will define the evaluation criteria and the scoring rules for the professional and academic curriculum vitae and for the motivation letter, as well as the minimum threshold for grant eligibility.

4.3 The ranking list will be formulated on the basis of the following criteria:

- weighted average exam marks;
- numbers of University credits (*CFU, Crediti Formativi Universitari*);
- evaluation of the Curriculum Vitae;
- evaluation of the motivation letter that should set out in particular the student's interests, the coherence between academic background and the activities and objectives of the internship projects, as well as the preferential qualifications/skills and knowledge required for each project (See Annex A).

4.4 Applications from candidates that were beneficiaries of the VERA grant in the previous call will be accepted but in the selection procedure priority will be given to candidates that never received the VERA grant.

4.3 The following applications will be excluded from evaluation:

- Applications which do not comply with the admission requirements of the announcement
- Applications which do not comply with the instructions indicated in art.3

Art. 5 –Ranking list

5.1 At the end of the evaluation process, the Commission will draw up a ranking list in order of decreasing scores of each candidate.

5.2 The ranking list will be published on the web site of the Department of Economics at the following web address www.unive.it/vera, Vera Academy section, after 10th January 2023.

Art. 6 - Assignment of grants

6.1 At the end of the evaluation process, the Secretariat of the Department of Economics will notify the selected candidates, communicating the starting date of the internship grant.

6.2 The Winners will have to send their acceptance (via e-mail to the following address: centro.vera@unive.it) within 5 days from notification. If a candidate turns down a grant, it will be assigned to the candidate ranked next.

6.3 Grants will be paid in one single instalment at the end of the internship after the submission of the final report approved by the academic tutor.

Art. 7 – Obligations for winners

7.1 Winning students, with the support of the “company” and academic tutors, must, as a condition of the grant, agree to carry out the approved procedures to set up their internship, to prepare training projects and all the related administrative procedures.

Art 8 - Incompatibility

8.1 The present grant can be received in conjunction with any other grants except in case of express incompatibility specified by applicable law, Regulations of the University and other specific calls in which the candidates participated (See Art. 2.2)

Art. 9 – Cross-reference

9.1 For any relevant matters not mentioned in the call, reference is made to the current University Regulation for the assignment of grants, study awards and incentives to students to sustain enrollment for courses and other specific learning activities.

Art. 10– Person in charge of the procedure

10.1 The person in charge of the selection procedure, within Law n.241/1990, is the Secretary of the Department of Economics, Ing. Silvia Lovatti. For further information concerning the selection procedure, please send an e-mail to centro.vera@unive.it

Art.11 – Processing and protection of personal data

11.1. Personal data sent by the candidates with the application forms will be processed according to national and European legislation (Italian Legislative Decree n. 196/2003 and Regulation EU 2016/679). For further information <https://www.unive.it/pag/36610/> .

Department Director
Prof. Michele Bernasconi

Person in charge of the procedure
Ing. Silvia Lovatti

ANNEX A

1. NEURAL NETWORK MODELS FOR A DYNAMIC REAL ESTATE VALUATION

PROJECT DESCRIPTION:

In recent years, models have been proposed in the literature for property valuations based on supervised Machine Learning (ML) methods, such as Artificial Neural Networks, which often provide good price estimates by being able to extract the most useful information from the data.

The project aims to explore neural network models that can provide a good dynamic evaluation of the prices (minimum and maximum) of residential properties in the different Italian municipalities in recent years.

In addition, once an appropriate model has been identified, it is intended to be used to compare the price dynamics observed in the pre-COVID period with the prices observed in the pandemic period, in order to understand the effect of a shock such as that caused by the pandemic on the real estate market.

The Intern will support the proposing professors in carrying out the project outlined.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

1. To know programming and at least one of Matlab and Python environments.
2. To know the basics of machine learning.
3. To have passed with a good rating at least
 - a. an exam covering data management and/or processing and/or programming
 - b. an exam of statistics, econometrics or data analysis
 - c. quantitative exam of finance or economics or management.

TUTOR: Antonella Basso, Marco Corazza (estimated start date: March 2023)

NUMBER OF STUDENTS: 2

2. IMPACT OF THE ELECTRIC VEHICLE CHOICE IN THE EUROPEAN AUTOMOTIVE SECTOR IN TERMS OF ESG RATINGS AND PERFORMANCES

PROJECT DESCRIPTION:

The automotive sector has seen an important evolution towards the electric motor, which in perspective will be the only type of motor allowed for new productions in Europe. The project aims to analyze how the ability to anticipate these choices and their implementation, also through the ESG rating assessments, have affected the prices of the companies involved and their performance. The analysis will be useful to understand the trend of the sector at the European level.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Econometrics passed

Some programming skills required and data management

TUTOR: Monica Billio, Michele Costola (estimated start date: January 2023)

NUMBER OF STUDENTS: 1

3. INTERPLAY BETWEEN DYNAMICS OF REPUTATION AND COOPERATION

PROJECT DESCRIPTION:

In collaboration with the Professor and with Professor Fabio Caccioli (University College London), the student will develop an agent-based model for the study of the interplay between cooperative and reputation dynamics on networks. Specifically, we will study cases in which the reputation of an individual does not depend purely on their actions, but also on those of their network peers. While this is a theoretical project, we consider applications to the study of sustainability of ethical supply chains, and to the implementation of incentives schemes to limit free-riding behaviors of market participants.

The work of the student will consist in contributing to the conceptual development of the model, its implementation in a programming language, the characterization of its behavior in the parameter space, and the economic interpretation of the results. Depending on the outcomes of the analysis the student may contribute to the drafting of a scientific article.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Being familiar with a programming language (preferably, but not necessarily, Matlab).

TUTOR: Simone Righi (estimated start date: January 2023)

NUMBER OF STUDENTS: 1

4. DIVERSIFICATION STRATEGIES IN THE INTERNATIONAL OPENING PROCESSES OF THE ITALIAN FIRMS AND PRODUCTIVE SYSTEMS

PROJECT DESCRIPTION:

The aim of the research is to study the evolution of the processes of international openness of Italian firms over the last 10 years, using micro-data on the import-export activities of firms (source: Istat). The main job consists of constructing indices of the international openness and diversification of firms based both on the complexity of their products and on the geographical distribution of their markets. The hypothesis is that product complexity and geographical spread are strategies that increase firms' resilience to exogenous shocks.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Knowledge on STATA program and competence in the analysis of micro- data on large scale archives.

TUTOR: Giancarlo Corò (estimated start date: January 2023)

NUMBER OF STUDENTS: 1

5. MAPPING OF METHANE LEAKAGES FROM THE EUROPEAN ELECTRICITY SECTOR

PROJECT DESCRIPTION:

The project aims at assessing the CO2 and methane footprint of coal, oil and gas used by the European power sector - both at upstream and midstream level - using data from 5 datasets. The work will result in a descriptive paper co-authored by the student, prof. Giacomo Benini (NHH Bergen) and the project's tutor. It may serve as a basis for thesis writing, as well as for possible future scientific collaborations on research projects (in particular, the Ca' Foscari-NHH Bergen "MAP of MeLEES" joint project).

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Proficient use of Excel. Experience or will to learn programming in R. Familiarity with basic statistics and econometrics.

TUTOR: Valerio Dotti (estimated start date: April 2023)

NUMBER OF STUDENTS: 2

6. EVOLUTION OF POLICIES FOR INNOVATION IN CHINA

PROJECT DESCRIPTION:

The research aims to study the evolution of innovation policies in China, with particular reference to the latest Five-year Plan. The work consists in carrying out a literature review (also the internal Chinese debate) on recent innovation policies in China, with a focus on policies for research collaborations, and an analysis of the most recent national industrial policy document, concerning innovation strategies and in particular with reference to the Belt and Road Initiative.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Ability to analyse sources in Chinese.

TUTOR: Elisa Barbieri (estimated start date: January 2023)

NUMBER OF STUDENTS: 1

7. NATURAL RESOURCES, TERRITORIAL SUSTAINABILITY AND CIRCULAR ECONOMY: METHODS FOR MEASURING THE CIRCULAR ECONOMY ON REGIONAL BASIS

PROJECT DESCRIPTION:

Reuse, recycling and repair are all opportunities to reduce resource depletion and benefit communities as a whole, given the increase in population, production costs and pollution, now of unsustainable levels.

To guide and monitor an effective transition to a new approach to the economy and everything around it, an appropriate set of indicators should be used. Furthermore, the current lack of measurement systems at the regional level of Europe opens the interest towards the reconstruction of the cognitive framework at the different territorial levels through indicators (environmental, social, economic): they are necessary for identifying suitable sustainable strategies in a bottom-up perspective.

The project follows on from the previous research project "Natural resources, territorial sustainability and circular economy" with particular reference to the circular economy.

The research activity is developed in different steps:

1. investigation updating and analysis of the recent bibliography on natural resources and circular economy and construction of a summary scheme;
2. survey of databases and collection of existing data of natural resources in different territorial areas;
3. analysis of the methodologies and indicators proposed in the literature;
4. identification of new methods for processing the collected data and application hypotheses.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

- Have passed at least one of the exams of the list: Optimization, Econometrics, Nonlinear Models and Financial Econometrics
- have passed at least one of the exams of the list: Commodity Markets, International Trade of Commodities, Economics of Rural Development.
- Advanced knowledge of Excel or knowledge of R/Matlab language and of territorial or primary sector issues.

TUTOR: Paola Ferretti e M. Bruna Zolin (estimated start date: January 2023)

NUMBER OF STUDENTS: 2

8. COINTEGRATION ANALYSIS BETWEEN GARCH TYPE VOLATILITIES FOR STOCK MARKET INDEX

PROJECT DESCRIPTION:

This research project aims to propose an econometric approach for the description of the NASDAQ Composite Index, with the purpose of providing robust forecasts and examining the cointegration models for the conditional heteroscedasticity (GARCH cointegration).

Firstly, according to the econometric theory, a set of explanatory variables is picked, in order to characterize the endogenous one. The variables are subjected to a descriptive analysis and tests, including those to verify the normality, linearity and the presence of a unit root. Once the non-stationarity of the endogenous and the exogenous ones established, the variables are explained according to the two-step Engle Granger approach. This method is useful in order to estimate the long-run equation (static) and the short-run equation (dynamic) in ECM form. At this point, models for conditional heteroscedasticity like GARCH(r,m), or related extensions of the same, are specified by the verification if co-integration for the volatility of endogenous variable and volatility of the explanatory variables also exists.

Verified the cointegration of the static equation, as well as the impact of the explanatories on the endogenous financial series and estimated the dynamic equation with the ECM, we proceed to the forecasting phase.

The procedures listed above are fundamental prerogatives with a view to the prediction of the endogenous series in a "virtual future", which affects the period starting from the pandemic crisis of March 2020 to August 2022. It is estimated a forecast originated by the long-run curve and others generated from the dynamic equation. The predictive effectiveness is evaluated according to performance measures such as Theil's inequality coefficient or mean absolute percentage error and a comparison with a "benchmark" model. As for the latter, it is thought to propose a forecast based only on the endogenous variable, defined by an ARIMA (p, d, q) and a GARCH (r, m) process for the innovation component, removing the dependence effects on the explanatory variables of the econometric regression.

On the whole, the research project aims to compare the estimated forecasts for the virtual future with what has actually been realized by the performance of the original NASDAQ Composite Index series in the same period. The outcome obtained is analyzed in the light of the effectiveness of the estimated models in catching the collapse of the index during the pandemic crisis.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Have passed the Econometrics exam and Econometrics Lab
Excellent knowledge of the R language and EViews

TUTOR: Domenico Sartore (estimated start date: January 2023)

NUMBER OF STUDENTS: 2

9. MITIGATING CLIMATE CHANGE THROUGH COASTAL ECOSYSTEM MANAGEMENT

PROJECT DESCRIPTION:

The research fellow will be asked to carry out a review of the economic literature on the topic of blue carbon credits, that is, the credits in terms of carbon emissions generated through the development of projects for the conservation and restoration of coastal and marine ecosystems. The review will include papers presenting a mathematical modelling of the process and/or an empirical evaluation. It is also expected a review of the current framework regulating the issuance of credits.

The final research output will be i) a report that presents with an adequate level of synthesis the state of the art of the literature above and discusses the main results obtained and ii) a report illustrating the current regulatory framework for the issuance of credits.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

The research assistant will read scientific articles that propose a mathematical modelling of the process and/or an empirical evaluation. The following background is essential: i) solid preparation, at master's level, in Microeconomics, Macroeconomics, Mathematical Analysis and Econometrics, ii) excellent knowledge of the English language (in particular with regard to reading and comprehension) and iii) synthesis and aptitude toward critical analysis.

TUTOR: Luca Di Corato (estimated start date: February 2023)

NUMBER OF STUDENTS: 1

10. WEATHER-LINKED FINANCIAL PRODUCTS IN THE ENERGY MARKETS

PROJECT DESCRIPTION:

Literature review on the topic with creation of an annotated list of contributions.

Research on case studies of financial products issued to hedge weather risk and specifically with reference to the energy markets.

Collection of data available for Weather-linked products in the energy market.

A final report, where methods and results are discussed, is part of the research output.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Exams in Mathematics, Statistics, Econometrics. Competencies in statistical data analysis, and quantitative methods

TUTOR: Diana Barro (estimated start date: February 2023)

NUMBER OF STUDENTS: 2

11. JOB STABILITY AND FERTILITY DECISIONS

PROJECT DESCRIPTION:

The research project aims at assessing the relationship between job (in)stability and fertility, in particular concerning temporary employment contracts in Italy. The research assistant will provide support with respect

to a systematic literature review and analysis of appropriate survey questionnaires modules relevant to empirical analysis. The research assistant will also conduct a preliminary analysis on the survey data.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:
Good knowledge of the English and Italian languages. Knowledge of Excel and STATA software.

TUTOR: Ylenia Brilli (estimated start date: January 2023)

NUMBER OF STUDENTS: 2

12. IMPLEMENTING THE GENDER EQUALITY PLAN: BUILDING A PROGRAMME AGAINST GENDER-BASED VIOLENCE WITH SPECIFIC REGARD TO SEXUAL HARASSMENT

PROJECT DESCRIPTION:

The intern will assist and carry out research for the implementation of the Gender Equality Plan, with specific regard to the creation of a programme to counter gender-based violence at the university open to the entire community. The intern's activities will be planned upon agreement with his/her tutors and will mainly regard the following themes:

- Sexual violence
- Sexual harassment, also at the workplace
- Forced marriages
- Cyber violence and harassment
- Domestic violence

The purpose is to conduct research on the topics relevant for the call, to prepare and distribute a web survey on the perception of sexism, stereotypes related to gender identity, and sexual harassment addressed to the students of the Department of Economics. The assessment and analysis are oriented to a potential extension of the research to the entire university in the future. The programme has the ambition of contributing to the realization of a programme on countering gender-based violence along with the Sustainability Office and the CUG. The project is located within the work on inclusion and gender equality of the Department of Economics.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

- strong interest for and studies in gender and women's rights
- interest in combining research and law in practice
- very good communication skills in Italian and English
- good digital skills for research and preparing written documents, slides and spread sheets (Microsoft Office Word, Power Point, Excel, etc.)
- basic experience in research at academic level

TUTOR: Sara De Vido, Michele Marzulli (estimated start date: January 2023)

NUMBER OF STUDENTS: 1

13. FROM CLASSICAL MACROECONOMIC MODELS TO AGENT-BASED MODELS: STUDY OF THE DYNAMICS OF INTERACTION AND AGGREGATION

PROJECT DESCRIPTION:

As part of the PRIN project "At the frontier of agent-based modeling: a new data driven framework for policy design toward sustainable and resilient economies", funded by the Ministry of University and Research, the candidate will have the opportunity to study and experiment with alternative and complementary approaches to macroeconomics with respect to general equilibrium models. In particular, agent-based models provide for the direct interaction of the main economic players (families, businesses, banks) in the various markets, with the macroeconomic aggregates that emerge as a result of these interactions. As part of the project, the candidate will first carry out an exploration of the scientific literature on the subject, and then contribute to the design and simulation of agent-based models derived from classical models. The project envisages both a theoretical and a computational approach. Finally, there will be room for an analysis of the data produced by the simulations.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Having passed the compulsory macroeconomics exams in the degree course. Familiarity with classical macroeconomic theory (of general equilibrium) and interest in alternative approaches. Familiarity with the logic of computer programming and data analysis.

TUTOR: Andrea Teglio (estimated start date: February/March 2023)

NUMBER OF STUDENTS: 2

14 A META-ANALYSIS ON DISHONEST BEHAVIOR IN THE LABORATORY

PROJECT DESCRIPTION:

The student will collaborate in the research project by collecting papers in Economics (both published papers and working papers) that are focused on laboratory experiments aimed at investigating dishonest behaviour, helping the main researchers in creating a database of previous evidence on it. Being an accurate and organized person will allow the assistant to successfully perform in the activity.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Good knowledge of statistics and econometrics (i.e. chi2 tests, t-tests, ... , OLS and probit/logit models); good knowledge of Stata. Experience in reading scientific papers in Economics. Basic knowledge of experimental and behavioural economics is not required but it's appreciated.

TUTOR: Valeria Maggian (estimated start date: April/May 2023)

NUMBER OF STUDENTS: 1

15. IDENTIFY GRAPHICAL PATTERNS IN FINANCIAL TIME SERIES BY MEANS OF MACHINE LEARNING

PROJECT DESCRIPTION:

The main goal of the internship is to study how we can turn the qualitative analysis of the so-called "chartists" into a quantitative one by mean of Artificial Intelligence. The identification of graphic configurations on an asset price time series, typical of classical technical analysis, strongly depends on the trader's experience. It follows that even the possibility of defining a trading strategy is influenced by the trader's professional expertise and his cleverness to correctly identify signals from chart analysis.

Use of AI to pattern recognition should allow us to reduce this subjectivity and to quantify the similarity of the actual pattern to theoretical ones. The internship activity is organized into the following phases:

- review of literature on technical analysis and AI applied to pattern recognition problem
- Design of an AI-based pattern recognition system to identify the most plausible graphic configuration.
- implementation of the previous point using R or Python software.

* The internship includes the development of a code in R or python for the proposed algorithms and the drafting of a final paper containing an empirical analysis.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Knowledge of R or other object-oriented programming language

TUTOR: Claudio Pizzi (estimated start date: January/February 2023)

NUMBER OF STUDENTS: 2

16. FORECASTING PERFORMANCE AND FINANCIAL MARKET EFFICIENCY

PROJECT DESCRIPTION:

Asset prices traded in financial markets reflect investors' average forecasts about the law of motion of the underlying asset payoffs, the so-called physical probabilities, as well as investors' preferences for the risk they entail. The aim of this project is to replicate the procedure proposed by Jackwerth and Menner (2018) or by Arduino et al (2019) to recover physical probabilities from asset prices and to test their forecasting performance under different assumption on investors' risk aversion and market characteristics.

The statistical procedure can be applied to real as well as artificial data. The result of the project can be used as a basis for a thesis.

- Audrino, F., Huitema, R., M. Ludwig (2019). An Empirical Implementation of the Ross' Recovery Theorem as a Prediction Device. Journal of Financial Econometrics.

- J. Jackwerth and M. Menner (2020). Does the Ross recovery theorem work empirically? Journal of Financial Economics.

PREFERENTIAL QUALIFICATIONS/SKILLS TO SPECIFY IN THE LETTER OF MOTIVATION:

Having passed an exam of econometrics and at least one exam between Financial Economics and Macroeconomics II. Being familiar with a software for statistical analysis.

TUTOR: Pietro Dindo e Davide Raggi (estimated start date: February 2023)

NUMBER OF STUDENTS: 1