

Bucharest University of Economic Studies (BUES)

Date: 04th of December, 2025

ANNOUNCEMENT



The Bucharest University of Economic Studies is organizing a selection and recruitment process for **one doctoral researcher 9/10 (2 positions)** within the „*Non-Gaussian self-similar processes: Enhancing mathematical tools and financial models for capturing complex market dynamics*”, - 760243/28.12.2023, project code no. 194/31.07.2023

The employment offered for this position is part-time, with a maximum of **84** working hours per month, which may be unevenly distributed.

The gross hourly wage for this position is: **57,96** lei per hour.

The individual contract of employment will be concluded for a fixed-term period of time until the **30th of June, 2026**.

A. To participate in the competition, candidates must meet the following general and specific conditions:

1. General conditions:

- a) has Romanian citizenship, citizenship of other member states of the European Union, of states belonging to the European Economic Area, and/or foreign states as defined by art. 2 lit. a) of GEO 194/12.12.2002 with subsequent amendments and completions, respectively, persons who do not have Romanian citizenship, citizenship of another EU member state, or citizenship of the Swiss Confederation;
- b) has the minimum age regulated by the legal provisions;
- c) has full capacity;
- d) has a relevant state of health for the position he is applying for.
- e) meets the conditions of education and, where appropriate, seniority or other specific conditions by the requirements of the post to be filled;
- f) has not been convicted of a crime against humanity, against the State or authority, or of an offence committed in the course of or in connection with the performance of his or her duties which obstructs the course of justice, or forgery or corruption, or of an offence committed with intent which would make him or her incompatible with the performance of his or her duties, unless he or she has been rehabilitated.

2. Specific conditions:

- a) level of studies: higher education, completed with a PhD;
- b) field of study: branch of science
 - economic sciences, finance/economics, and international affairs
- c) Other specific conditions:

Skills:

1. Technical skills:

- Proficient in using advanced R modeling tools and software.
- Capable of developing and implementing complex financial models
- Strong understanding of financial theories and instruments.

2. Analytical skills:

- Skilled in analyzing and interpreting complex data, identifying trends, and formulating recommendations based on the analysis

3. Communication skills:

- Excellent written and verbal communication skills, with the ability to present research findings clearly and concisely

4. Teamwork:

- Effective collaborator in interdisciplinary teams, working alongside other researchers to achieve project goals

Specific requirements

1. Foreign Languages:

- Advanced proficiency in English (both written and spoken) to access and disseminate knowledge from international specialized literature

2. Scientific Publications and Contributions

- Candidates should demonstrate their contributions and publications in the fields of statistics and stochastic modeling related to finance, risk management, and sustainability. These should showcase their expertise and ability to conduct independent research. It is considered an advantage if candidates have published work on non-Gaussian stochastic modeling in mathematical finance in relevant scientific journals

3. Innovation Capacity:

- An innovative attitude and creative thinking to develop new methods and tools.

4. Research Ethics:

- Deep understanding of ethical principles in research and commitment to academic integrity.

5. Readiness for Professional Development:

- Willingness to participate in conferences, workshops, and other forms of continued professional development.

6. Flexibility and Adaptability:

- Ability to adapt to project direction changes and to respond to unexpected challenges.

Candidates are expected to present a portfolio of previous projects and relevant scientific publications to assess the quality and relevance of their experience in line with the requested skills and requirements.

B. The selection process will consist of:

1. Step 1 - Evaluation of selection files;

- 2. Step 2 - Structured interview** (in the situation where at least 2 candidates do not register, the competition committee can decide to simplify the procedure and carry out the selection without conducting the interview);

- *the date and time of the interview*: to be announced at the same time as the results of the selection files evaluation are published;
- *the place of the interview*: to be announced at the same time as the results of the selection files evaluation are published,

The tests are eliminatory; the minimum score for each test is 50 points.

C. Topics and bibliography:

1. **Topics:**

1.1. Fundamentals of Stochastic Modeling in Finance:

The fundamental principles and techniques of stochastic modeling, focusing on their applicability in the analysis and prediction of financial markets

1.2. Advanced techniques in stochastic modeling for valuing sustainable financial assets:

The study of advanced stochastic modeling techniques, including both Gaussian and non-Gaussian models, with an emphasis on the price dynamics of financial assets.

1.3. Risk and uncertainty in Stochastic Models:

Analysis of how Gaussian and non-Gaussian stochastic models can be used to quantify and manage risk and uncertainty in financial markets

1.4. Modeling volatility and correlations in markets using stochastic processes:

Explore the use of Gaussian and non-Gaussian stochastic processes in modeling volatility and correlations between sustainable financial instruments.

1.5 Using Eviews/Stata econometric software packages in financial modeling:

Exploring software packages dedicated to statistical analysis and stochastic modeling in finance, such as Eviews and/or Stata.

2. **Bibliography:**

2.1. Books:

Fractals and scaling in finance

Mandelbrot, Benoit B.

Sel. Works B. B. Mandelbrot

Springer-Verlag, New York, 1997, x+551 pp.

ISBN: 0-387-98363-5

MR2502480 - Option pricing in fractional Brownian markets

Rostek, Stefan

Lecture Notes in Econom. and Math. Systems, 622

Springer-Verlag, Berlin, 2009, xiv+137 pp.

ISBN: 978-3-642-00330-1

MR4485442 - Continuous time processes for finance—switching, self-exciting, fractional and other recent dynamics

Hainaut, Donatien

Bocconi Springer Ser., 12

Springer, Cham; Bocconi University Press, [place of publication not identified], 2022, xviii+345 pp.

ISBN: 978-3-031-06360-2; 978-3-031-06361-9

MR1422250 - Introduction to stochastic calculus applied to finance

Lamberton, Damien; Lapeyre, Bernard

Chapman & Hall, London, 1996, xii+185 pp.

ISBN: 978-1-58488-626-6

2.2. Articles:

MR4028644 - Pricing derivatives in Hermite markets

Stoyanov, Stoyan V.; Rachev, Svetlozar T.; Mittnik, Stefan; Fabozzi, Frank J.

Int. J. Theor. Appl. Finance **22** (2019), no. 6, 1950031, 27 pp.

MR4577885 - Volatility is rough

Gatheral, J.; Jaisson, T.; Rosenbaum, M.

World Sci. Lect. Notes Finance, 6

World Scientific Publishing Co. Pte. Ltd., Hackensack, NJ, 2023, 127–172.

Fractional Brownian motion with zero Hurst parameter: a rough volatility viewpoint

Neuman, Eyal; Rosenbaum, Mathieu

Electron. Commun. Probab. **23** (2018), Paper No. 61, 12 pp.

MR4698114 - Short-Time Asymptotics for Non-Self-Similar Stochastic Volatility Models

Giorgio, Giacomo; Pacchiarotti, Barbara; Pigato, Paolo

Appl. Math. Finance **30** (2023), no. 3, 123–152.

Local volatility under rough volatility

Bourgey, Florian; De Marco, Stefano; Friz, Peter K.; Pigato, Paolo

Math. Finance **33** (2023), no. 4, 1119–1145.

Markovian approximations of stochastic Volterra equations with the fractional kernel

Bayer, Christian; Breneis, Simon

Quant. Finance **23** (2023), no. 1, 53–70.

Stationary Heston model: calibration and pricing of exotics using product recursive quantization

Lemaire, Vincent; Montes, Thibaut; Pagès, Gilles

Quant. Finance **22** (2022), no. 4, 611–629.

Fractional stochastic volatility correction to CEV implied volatility

Kim, Hyun-Gyoon; Kwon, Se-Jin; Kim, Jeong-Hoon Quant. Finance **21** (2021), no. 4, 565–574.

The overdamped generalized Langevin equation with Hermite noise

Tudor, Ciprian A.

Fract. Calc. Appl. Anal. **26** (2023), no. 3, 1082–1103.

D. Contents of the competition file:

1. A record of the enclosed documents
2. Application for the recruitment and selection process addressed to the Rector of ASE;
3. Copy of the identity document or any other document attesting to the identity, according to the law, as the case may be;
4. Copy of marriage certificate or proof of name change, if the candidate changed his name (proof of name change);
5. The criminal record or a self-declaration that it has no criminal record, which makes it incompatible with the position for which it is applying;
6. Medical certificate attesting the appropriate health status issued no more than 6 months before the selection by the family doctor of the candidate or by the competent medical units, or the declaration on its own responsibility, with the obligation to fill in the selection file with the medical certificate at the latest by the date of the first test of the recruitment and selection process, if applicable
7. Declaration on own responsibility if the candidate has or does not have a husband/wife or relatives and affines, up to the III-th degree inclusively, who are employees of the Academy of Economic Studies of Bucharest in a position of leadership, control, authority with the post taken out for selection and not the post, to which they apply, is not in a position of leadership, control, authority with husband/wife or relatives, up to and including III degree, employees of the University;
8. Statement for the processing of personal data;
9. Curriculum vitae in European format (www.cveuropean.ro/cv-online.html) – signed and dated on each page;
10. Copies of documents that certify the completed level of education and any other additional documents that attest to the completion of specializations, as well as copies of documents that certify the fulfilment of the specific conditions required for the position, as outlined in Chapter A, point 2.

E. Contact information:

The selection files must be submitted in a literal format on December 12, 2025, between 08:00 and 13:30. Submissions can be made in person at the ASE Registry located in the “Ion Angelescu” Building, Bastille Fall, ground floor, room 0016, or online using the address provided by the contact person.

Contact:

- For information regarding the responsibilities of the position being applied for: cristina.padure@ase.ro
- For information regarding the recruitment and selection process: dru@ase.ro

F. The calendar of the selection process:

No. Crt.	Activities	Date
1.	Publishing the announcement	04.12.2025

2.	Submitting the candidates' competition files at the ASE Registrar's Office / online at the email address: cristina.padure@ase.ro	12.12.2025
3.	Selection of application files by the members of the competition committee	15.12.2025
4.	Publication of the results of the selection of the application files	15.12.2025
5.	Submission of appeals regarding the results of the selection of application files	16.12.2025
6.	Publication of the results of the appeals	17.12.2025
7.	Interview	18.12.2025
8.	Communication of the results after the interview	18.12.2025
9.	Submission of appeals regarding the interview results	19.12.2025
10.	Publication of the results of the appeal	22.12.2025
11.	Publication of the final results	22.12.2025
12.	Appointment to the position	After approval from the Board of Trustees