## Course syllabus

## RESEARCH METHODS IN FINANCE

**1. Course title (code): RESEARCH METHODS IN FINANCE** (MAFE403IU)

**2. Number of credits: 03**

**3. Instructor: Dr. Nguyen Phuong Anh**

**4. Responsible department:** Department of Mathematics

**5. Prerequisite: Econometrics with Financial Application**

**6. Course Objectives:**

The course aims to provide students with knowledge and skills including:

- An understanding of the techniques and applications of panel regression; limited dependent variable models, simultaneous equations, volatility and correlation modeling, simulation methods.
- The effective use of an econometric and quantitative software package (*such as R*)
- The ability to design and conduct empirical research to answer questions from the financial world.

**7. Course Description:**

The course will provide students with an understanding and applications of advanced econometric and quantitative methods, to design and conduct empirical research, to answer questions from the real financial world.

More specifically, this course will focus on the complex relationship between financial variables using panel regression, limited dependent variable models and simultaneous equations. Volatility and correlation between financial variables, as well as simulation techniques are also investigated. A roadmap of research methodologies is also provided.

**8. Course details:**

| Chapter | Content | Teaching hours | | |
|---|---|---|---|---|
| | | **Lecture in class** | **Lecture in Lab** | **Assignment (self-study)** |
| 1 | **Review of Econometrics** | 3 | | 3 |
| 2 | **Classical linear regression model with Panel Data** | 3 | 3 | 6 |

| | | | | |
|---|---|---|---|---|
| **3** | **Limited Dependent Variable Models** | 3 | 3 | 6 |
| **4** | **Multivariate Models: simultaneous equations and VAR** | 3 | 3 | 3 |
| **5** | **Modelling long-term relationship with cointegration** | 3 | | |
| **6** | **Modelling volatility and correlation** | 3 | 3 | 3 |
| **7** | **Simulation Methods: Monte-Carlo and Bootstrapping** | 3 | 3 | 6 |
| **8** | **Design and conduct empirical research in finance.**<br>**Review and Extension** | 6 | | 3 |
| **9** | **Project Presentation** | 3 | | |
| **Total** | | **30** | **15** | **30** |

**9. Textbooks and References**

1. Chris Brook, Introductory Econometrics for Finance, 4th Edition, Cambridge University Press, 2019.

2. A. Bell, C. Brook, M. Prokopczuk, Handbook of Research Methods and Applications in Empirical Finance, Edward Elgar, 2013.

3. W. K. Härdle, C. Chen, L. Overbeck, Applied Quantitative Finance, Edition 3, Springer, 2017.

4. Ryan, Bob, Robert W. Scapens, Michael Theobald, and Viv Beattie, Research Methods and Methodology in Finance and Accounting, Cengage Learning, 2002.

**10. Teaching equipments:**

**11. Grade scale:** 100

**12. Evaluation:**

| **Activity** | **Percentage (%)** |
|---|---|
| Assignment, Attendance, Quizzes, Participation in class, Project. | 30% |
| Mid-term Examination | 30% |

| | |
|---|---|
| Final Examination | 40% |

**13. Consultancy offered to students**

- Slides and supplementary materials will be uploaded on Blackboard and Google Drive.
- Discussions in class, by seminar, forum or e-mail exchange.