



## 1. General Information

|                |                      |
|----------------|----------------------|
| Course Subject | ECON                 |
| Course Number  | 3283                 |
| Course Title   | Economic Forecasting |
| Academic Years | 2023-2024            |
| Grading Method | Letter               |

## 2. Instructors

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Subclasses: 2A

## 4. Course Description

|                    |   |
|--------------------|---|
| Course Description | This course covers essential techniques for analyzing time-oriented economic data and forecasting the future values of a time series. Topics include stochastic process and times series, regression analysis and forecasting, smoothing, autoregressive integrated moving average models, multivariate times series, forecasting volatility as well as financial application of time varying volatility. This course will use Excel heavily for constructing and testing for univariate ARIMA and GARCH-type forecasting models. |
| Prerequisites      | STAT2603 Data management with SAS   |
| Free Elective      | Yes   |

## 5. Course Objectives

1. To provide a thorough understanding of basic forecasting methods in economics and finance
2. To develop hands-on knowledge and experience in economic and financial forecasting

## 6. Faculty Learning Goals

- Goal 1: Acquisition and internalization of knowledge of the programme discipline
- Goal 2: Application and integration of knowledge
- Goal 3: Inculcating professionalism
- Goal 4: Developing global outlook
- Goal 5: Mastering communication skills
- Goal 6: Cultivating leadership

| 7. Course Learning Outcomes   |                                |   |   |   |   |   |
|---|--------------------------------|---|---|---|---|---|
| Course Teaching and Learning Activities   | Aligned Faculty Learning Goals |   |   |   |   |   |
|   | 1                              | 2 | 3 | 4 | 5 | 6 |
| CLO1. Students will be able to perform forecasting by collecting and critically analyzing time series data, and applying the appropriate model for generating out-of-sample forecast. | ✓                              | ✓ | ✓ | ✓ | ✓ | ✓ |
| CLO2. Students will be able to evaluate the limitations of different forecasting methods and their potential fixes  | ✓                              | ✓ | ✓ | ✓ | ✓ | ✓ |
| CLO3. Students will be able to present and communicate forecasting results with a professional forecasting report   | ✓                              | ✓ | ✓ | ✓ | ✓ | ✓ |

| 8. Course Teaching and Learning Activities |                      |                         |
|--|----------------------|-------------------------|
| Course Teaching and Learning Activities #  | Expected Study Hours | Study Load (% of study) |
| T&L1. Lectures                             | 36                   | 30                      |
| T&L2. Tutorial Sessions                    | 12                   | 10                      |
| T&L3. Four Individual Assignments          | 12                   | 10                      |
| T&L4. Stock Forecast with Presentation     | 30                   | 25                      |
| T&L5. Self-study                           | 30                   | 25                      |
|  | Total: 120           | Total: 100              |

| 9. Assessment Methods                |             |          |                                  |
|--------------------------------------|-------------|----------|----------------------------------|
| Assessment Methods                   | Description | Weight % | Aligned Course Learning Outcomes |
| A1. Tutorial Participation           |             | 10%      | 1,2,3                            |
| A2. Individual Assignments           |             | 20%      | 1,2,3                            |
| A3. Stock Forecast with Presentation |             | 20%      | 1,2,3                            |
| A4. Final Exam                       |             | 50%      | 1,2,3                            |

| Assessment Rubrics         |   |
|----------------------------|---|
| A2. Individual Assignments | While the detailed assessment rubric may differ slightly across assignments, the criteria of assessment can be broadly divided into two aspects:<br>(1) Statistical Analysis (60%) and<br>(2) Clarity/Readability (40%) |
| A+,A,A-                    |   |
| B+,B,B-                    |   |
| C+,C,C-                    |   |
| D+,D                       |   |

| Assessment Rubrics                   |   |
|--------------------------------------|---|
| F                                    |   |
| A3. Stock Forecast with Presentation | Students are required to produce one-step-ahead forecast of 10 stocks for approximately 10 trading days. Performance will be assessed based on<br>(1) choice of model with justification,<br>(2) forecast accuracy using the model,<br>(3) ability to summarize the results in a professional report, and<br>(4) presentation of the forecast results in a professional manner. |
| A+,A,A-                              |   |
| B+,B,B-                              |   |
| C+,C,C-                              |   |
| D+,D                                 |   |
| F                                    |   |

| 10. Course Grade Descriptors |  |
|------------------------------|--|
| A+,A,A-                      | <ul style="list-style-type: none"> <li>• All aspects were addressed and researched in great depth.</li> <li>• Demonstrates a clear understanding of and the ability to apply and theory, concepts and issues relating to the topic.</li> <li>• All aspects conform to a high academic / professional standard</li> </ul>                           |
| B+,B,B-                      | <ul style="list-style-type: none"> <li>• Most aspects were addressed and researched in depth.</li> <li>• Demonstrates a good understanding and some application of the theory and issues relating to the topic.</li> <li>• Most aspects conform to a high academic / professional standard.</li> </ul>   |
| C+,C,C-                      | <ul style="list-style-type: none"> <li>• Most aspects were addressed and researched adequately.</li> <li>• Demonstrates a good understanding of the theory, concepts and issues relating to the topic but limited application relating to the topic.</li> <li>• Most aspects conform to an acceptable academic / professional standard.</li> </ul> |
| D+,D                         | <ul style="list-style-type: none"> <li>• Basic aspects were addressed and researched adequately.</li> <li>• Demonstrates mainly description, showing basic understanding of the topic but no application.</li> <li>• Limited aspects conform to academic / professional standards</li> </ul>   |
| F                            | <ul style="list-style-type: none"> <li>• Basic aspects were superficial, inadequate or absent.</li> <li>• Demonstrates limited understanding of the topic and draws conclusions unrelated to the topic.</li> <li>• The written work is not of an academic / professional standard</li> </ul>   |

| 11. Course Content and Tentative Teaching Schedule |      |      |  |               |             |                      |
|--|------|------|--|---------------|-------------|----------------------|
| Topic/<br>Session                                  | Date | Time | Content                                | Readings      | Assignments | Other<br>information |
|  |      |      | Introduction                           | Lecture notes |             |                      |
|  |      |      | Statistical Background for Forecasting | Lecture notes |             |                      |
|  |      |      | Regression Analysis and Forecasting    | Lecture notes |             |                      |

## 11. Course Content and Tentative Teaching Schedule

|  |  |  |   |               |  |  |
|--|--|--|---|---------------|--|--|
|  |  |  | Regression Analysis and Forecasting               |               |  |  |
|  |  |  | Exponential Smoothing                             | Lecture notes |  |  |
|  |  |  | Identification and Estimation of ARIMA Models     | Lecture notes |  |  |
|  |  |  | Forecasting with ARIMA Processes                  | Lecture notes |  |  |
|  |  |  | Models for Seasonal Time Series                   | Lecture notes |  |  |
|  |  |  | Multivariate Time Series Models                   | Lecture notes |  |  |
|  |  |  | Forecasting Volatility: ARCH and GARCH Models     | Lecture notes |  |  |
|  |  |  | Forecasting Volatility: ARCH and GARCH Models     |               |  |  |
|  |  |  | Financial Applications of Time Varying Volatility | Lecture notes |  |  |
|  |  |  | Presentation of Forecast Results and Review       | Lecture notes |  |  |

## 12. Required/Recommended Readings & Online Materials

|          |   |
|----------|---|
| Textbook | <b>Strongly Recommended Textbook and Software</b> <ul style="list-style-type: none"> <li>• Introductory Econometrics for Finance, Chris Brooks, Cambridge University Press, 3rd edition</li> <li>• Stata and Excel</li> </ul> |
|----------|---|

## 13. Means / Processes for Student feedback on Course

|   |   |
|---|---|
| ✓ | Conducting mid-term survey in addition to SETL around the end of the semester |
|   | Online response via Moodle site   |
|   | Others  |

## 14. Course Policy

### **Academic Honesty and Integrity**

The University Regulations on academic dishonesty will be strictly enforced. Please check the University Statement on plagiarism on <http://www.hku.hk/plagiarism/>.

Cheating or plagiarism of any kind would result in an automatic F grade for the course plus strict enforcement of all Faculty and/or University regulations regarding such behavior. Incident(s) of academic dishonesty will NOT be tolerated.