I. INFORMATION ON INSTRUCTOR

This course will be delivered by the following teachers in sequence.

Instructor: Dr. Hyelim SON, 932 K. K. Leung Building
Email: hlson@hku.hk

Instructor: Dr. Bei QIN, 1008 K. K. Leung Building
Email: beiqin@hku.hk

Instructor: Dr. Steven XU, 1113 K. K. Leung Building (Course Coordinator)
Email: paixu@hku.hk

II. COURSE DESCRIPTION AND OBJECTIVES

Course description:

This is a 3-credit core course for MEcon students in data stream. It is designed to familiarize students with data analysis tools used extensively in academia and the industry. The emphasis is on the application of econometric methods to the analysis of real-world economic data using advanced statistical software. Statistical packages covered will consist of Excel, STATA, and Matlab.

This course MUST be taken after or concurrently with ECON6001.

Course objectives:

1. To provide hands-on experiences of data analysis using statistical software
2. To familiarize students with collecting, analyzing, presenting, and interpreting economic data
3. To equip students with practical computational skills for problem solving
4. To enable students to better understand and analyze real-world situations

III. LEARNING OUTCOMES

By the end of this course, students should be

1. familiar with the basics of statistics and the use of statistical packages
2. able to choose an appropriate method to analyze the data
3. able to present the results numerically and graphically
4. able to do estimation, hypothesis testing and forecasting using statistical software
5. able to interpret results and acknowledge the limitation

IV. ALIGNMENT OF PROGRAM AND COURSE OUTCOMES

The following matrix indicates the alignment between the course learning outcomes and the program learning outcomes.

<table>
<thead>
<tr>
<th>Program Learning Outcome (PLO)</th>
<th>Associated Course Learning Outcomes (CLO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLO1. Understanding of fundamental theories and new development in economics</td>
<td>2-5</td>
</tr>
<tr>
<td>PLO2. Mastering of skills in analyzing economic data</td>
<td>1-5</td>
</tr>
<tr>
<td>PLO3. Demonstration of ability to apply</td>
<td>1-5</td>
</tr>
</tbody>
</table>
V. TEACHING AND LEARNING ACTIVITIES

Teaching and learning takes place through weekly lectures.

Teaching and Learning Activities (TLA)

<table>
<thead>
<tr>
<th>TLA</th>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLA1</td>
<td>Lecture</td>
<td>Instructors will give lectures on usage of statistical software packages for economic data analysis.</td>
</tr>
<tr>
<td>TLA2</td>
<td>Consultation</td>
<td>Instructors will hold consultation hours to answer students’ questions.</td>
</tr>
</tbody>
</table>

Teaching Material:

There will be several data sets designated for the teaching purpose throughout the course. Instructors will prepare the study guide and provide you hands-on knowledge using statistical software packages.

Each instructor will be in charge of two-week teaching. In the first week, the instructor delivers a lecture on specified topic and offers a set of questions for exercise. These problem sets will be task driven. Students are supposed to make attempt to familiarize the related software package by finishing these tasks. In the meeting of following week, the instructor will hold consultation and offer assistance to the ones in need.

VI. ASSESSMENT

Your grade in this class is determined by participation (10%), homework (20%) and the final examination (70%). The examination will be held in computer lab. Students will be given a new data set and asked to demonstrate their abilities of handling data with computer packages. Problem sets will be distributed in class as study aids, and collected at the end of next meeting. Class participation is compulsory.

Alignment Among Course Intended Learning Outcomes, Teaching and Learning Activities and Assessment Tasks:

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Teaching and learning activity (TLA)</th>
<th>Assessment task</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLO1 to CLO6</td>
<td>TLA1, TLA2</td>
<td>Home-work and final exams</td>
</tr>
</tbody>
</table>

VII. STANDARDS FOR ASSESSMENT

The basis for assessment is a weighted numerical average of students’ performance in class and the exam. For a “pass” mark students are expected to be able to understand and solve problems of a similar difficulty level as the assigned homework.

VIII. COURSE OUTLINE
Week 1, 2: Basics on data manipulation with Excel and STATA
Topics covered include inputting and summarizing data, display of data with tables and graphs, simple regressions.

Week 3, 4: Advanced topics on data analysis with STATA
Topics covered may include, but not limited to, hypothesis testing, estimation and inferences, dummy variables in regression, binary choice models, programming with STATA.

Week 5, 6: Programming and computation with Matlab
Topics covered include programming with Matlab, solving equation, numerical methods for differentiation and integration, searching for optimizers, solution to differential equations.

Depending on the teaching progress in ECON6001, there may be breaks between topics. For example, Week 3 of this course may not start right after the finish of week 2. Exact meeting time will be announced by MEcon office in due course.