

**Applications of Econometrics (AofE)
Handbook**

Spring semester - 2014

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Lectures and Lab Meeting Times and Places (weeks 1-5, 6, 9, and 10):

Lectures: Thursdays 2:10-4:00pm, Appleton Tower, LT2

Fridays 2:10-3:00pm, Appleton Tower, LT2

Special lecture on group project:

Wednesday 12th February 2014, 2-3pm, David Hume Tower, LTC

Final lecture special arrangements:

Friday 28th March 2014, 2:10-4:00pm, David Hume Tower, LTC

Labs: Group 1: Fridays 3:10-4:00pm, Appleton Tower Teaching Suite M2A/B/C

Group 2: Fridays 4:10-5:00pm, Appleton Tower Teaching Suite M2A/B/C

Overview and Aims

Applications of Econometrics (AofE) extends the coverage of econometric techniques developed in Essentials of Econometrics and illustrates techniques with applications in a variety of economic contexts. Techniques covered are likely to include panel data, instrumental variable estimation, and sample selection corrections. Applications are likely to include public policy evaluation, randomised controlled trials, and research with quasi-experimental data. Students are expected to carry out their own modelling and estimation, developing skills frequently expected of contemporary economics graduates in a wide variety of contexts.

Essentials of Econometrics or any equivalent course (for visiting students) is a mandatory requirement. Students are expected to have the required econometrics and math background, as well as basic knowledge of the statistical programme STATA.

Computer laboratory usage is integrated with the lecture material, and plays a very important part in the learning process. The course culminates in an assessed group project, in which students are required to undertake their own modelling, estimation, evaluation and reporting.

Summary of Intended Learning Outcomes

After successful completion of this course students will have developed their skills of critical

analysis and assessment of results in empirical economics, and they will have been trained in how to diagnose and address estimation problems and how to carry out independent empirical investigations.

Course Organisation

The course consists of lectures and computer lab sessions. In addition, students undertake an empirical project in groups.

Assessment and Feedback

Assessment consists of:

- A 1.5 hour multiple choice exam on **Thursday 13th March 2014** (Week 8), at 2pm, at Adam House, 1st and 2nd Floor (20% of total mark).
- A group project to be handed in by 2pm on **Thursday 20th March 2014** (week 9) (20%),
- A 2-hour degree examination in April/May (60%).

Note: All multiple choice examinations feature **negative marking** for wrong answers.

Feedback and Marks

Feedback and marks on the class exam will be made available on Learn by 21st March 2014. Feedback will consist of a detailed answer key where special attention will be given to the questions that most students found challenging. Individual feedback is available during the instructor's office hours.

Marks for the group project will be available on Learn, barring unforeseen circumstances, by Friday 28th March 2014. Feedback for the group project will take the form of a special "lab" session on the last day of classes (Friday 28th March 2014, 3:10-4:00pm), when the instructor will go over the project and outline possible answers, making reference to samples from students' submissions, and answering questions along the way. Individual feedback on the project will be available during the instructor's office hours on reading week (week of 31st March 2014).

*****The degree exam must be passed in order to pass the course overall.*****

Recommended Textbooks:

- J. Stock and M. Watson, *Introduction to Econometrics*, 3rd edition. (SW)
- J. Wooldridge, *Introductory Econometrics*, 4th edition (W)

Lectures outline (8 x 3 hours, weeks 1-5, 6, 9, and 10)

- Pooling cross-sectional data over time: simple panel data methods (W13, SW10), *week 1*.
- Tracking behaviour over time: advanced panel data methods (W14, SW10), *week 2*.
- Causal effects: Experiments and the counterfactual (SW13), *week 3*.
- Causal effects: Instrumental Variable estimation (W15, SW12), *week 4*.
- Limited dependent variables and Sample selection issues: Linear Probability Model, Maximum Likelihood Estimation, Logit and Probit models, sample selection correction (W7, W17, SW11), *weeks 5 and 6*.
- Propensity score matching and regression discontinuity design, *week 9*.

- Selection of readings from the economics literature and group project feedback, *week 10*.

Further details of contents and references will be provided for each topic as the course progresses.

Notice: There will be no lectures or labs on teaching weeks 7 and 8, to allow students more time to concentrate on the group project.

Lab sessions (8 x 1 hours, weeks 1-5, 6 and 9, 3:10-4:00pm (Group 1) and 4:10-5:00pm (Group 2), in AT Teaching Suite)

Weekly lab sessions (starting in week 1) will reinforce lectures in the first half of the course. These sessions take place on Fridays (3:10-4:00pm for Group 1 and 4:10-5:00pm for Group 2). STATA is the chosen estimation package. It allows time-series, cross-section and panel data regression models to be estimated, using a variety of estimation methods.

The last lab session will be dedicated to feedback for the group project. Specifically, on Friday 28th March, there will only be one meeting for both Groups 1 and 2, in David Hume Tower, LTC at 3:10-4:00pm (following the 2:10-3:00pm lecture in the same location).

Group Projects (weeks 5-9)

An empirical project based on current research in economics will allow students to develop skills of estimation, interpretation and reporting of estimation results. General references on how to undertake empirical projects are in chapter W19, which is recommended reading for all students. Projects will normally be carried out in groups of up to three people, and students should choose their 'project partners'. You should choose your project partners during weeks 1-2. Group registration on Learn will open in week 3 and will continue in week 4. **You must be part of a registered group by the end of week 4.**

The project topic and guidelines will be released on Learn on Monday 10th February 2014 (teaching week 5). There will be a project-related lecture on **Wednesday, 12th February 2014**, at 2-3pm, in David Hume Tower LTC. During weeks 6-9 (inclusive), daily office hours by the tutors and the instructor will provide project-related help. There will be no lectures or labs on weeks 7 and 8 so that students can devote time to the group projects. Projects must be handed in by 2pm on **Thursday 20th March 2014** (teaching week 9).

Please note that the above submission deadline will be strictly applied. Following standard University-wide policy, a penalty of 5 percentage points per day, or part thereof will be applied, up to a maximum of 5 days after which a mark of zero will be awarded. Extensions will only be granted where there are substantial and properly authenticated 'special circumstances' (e.g. serious illness).

All projects should have a completed 'declaration of own work' cover sheet attached – the cover sheet can be downloaded from the AofE Learn site. Please ensure that you are aware of the requirements for appropriate citation of references and data sources and have read the guidance on plagiarism in section 4.4.1 of the *Economics Honours Handbook* and/or the general University guidance at:

<http://www.ed.ac.uk/schools-departments/academic-services/staff/discipline/plagiarism>

Summary of Timetable for AofE Semester 2, Spring 2014

Teaching week 1	Week of 13th January	Lectures and labs
Teaching week 2	Week of 20th January	Lectures and labs
Teaching week 3	Week of 27th January	Lectures and labs
Teaching week 4	Week of 3th February	Lectures and labs, deadline to register a project group on Friday
Teaching week 5	Week of 10th February	Lectures and labs, project release on Monday, special project-related lecture on Wednesday, students work on project
Innovative Learning Week	Week of 17th February	NO lectures/labs
Teaching week 6	Week of 24th February	Lectures and labs, students work on project, project office hours start
Teaching week 7	Week of 3rd March	NO lectures/labs, students work on project
Teaching week 8	Week of 10th March	NO lectures/labs, class exam on Thursday, students work on project
Teaching week 9	Week of 17th March	Lectures and labs, students work on project, project office hours end, project due on Thursday
Teaching week 10	Week of 24th March	Lectures and labs, project feedback session on Friday (note change of location for the lecture)
Reading Week	Week of 31st March	NO lectures/labs, 1-on-1 feedback available during office hours on Tuesday, 3-4pm