

[CLASS SUMMARY](#) | [BACK TO COURSE DETAILS](#)

First Semester

Academic Year : 2024

## Advanced Econometrics I

A Postgraduate course offered by the **Research School of Economics**.

CLASS NUMBER **4102** TERM CODE **3430****CLASS INFO**Unit Value  
**6 units**Mode of Delivery  
**In Person****COURSE CONVENER****Dr Juergen Meinecke****CLASS DATES**Class Start Date  
**19/02/2024**Class End Date  
**24/05/2024**Census Date  
**05/04/2024**Last Date to Enrol  
**26/02/2024**

The course covers advanced estimation methods in econometrics. Specific topics include: projections and ordinary least squares estimation; endogeneity; instrumental variables and two stage least squares estimation; maximum likelihood estimation of models with limited dependent variables. The course is primarily theoretical and looks at various estimators and their finite sample and asymptotic properties.

### Learning Outcomes

1. define OLS, IV and maximum likelihood estimators mathematically;
2. derive and examine finite sample and asymptotic properties of these estimators analytically;
3. demonstrate an understanding of the strengths and limitations of the different estimators;
4. employ linear algebra in key econometric derivations;
5. apply econometric theory to concrete examples in economics.

### Policies

ANU has [educational policies, procedures and guidelines](#), which are designed to ensure that staff and students are aware of the University's academic standards, and implement them. Students are expected to have read the [Academic Integrity Rule](#) before the commencement of their course. Other key policies and guidelines include:

- [Academic Integrity Policy and Procedure](#)
- [Student Assessment \(Coursework\) Policy and Procedure](#)
- [Special Assessment Consideration Guideline](#) and [General Information](#)
- [Student Surveys and Evaluations](#)
- [Deferred Examinations](#)
- [Student Complaint Resolution Policy and Procedure](#)
- [Code of practice for teaching and learning](#)

### Research-Led Teaching

This course teaches the advanced methods at the cutting edge of econometric research.

### Examination Material or equipment

No permitted materials for the final exam.

### Required Resources

The main textbook for the course is *Econometrics* by Bruce Hansen (available as a free pdf online, find it!).

### Recommended Resources

In addition to the freely available book by Hansen, you may want to consult these awesome books:

- *A Primer in Econometric Theory* by John Stachurski.
- *Econometric Analysis* by William H. Greene
- *Econometric Analysis of Cross Section and Panel Data* by Jeffrey Wooldridge

### Staff Feedback

Students will be given feedback in the following forms in this course:

- written comments on weekly assignments
- verbal comments during lectures and tutorials
- verbal comments during consultations

## Student Feedback

ANU is committed to the demonstration of educational excellence and regularly seeks feedback from students. Students are encouraged to offer feedback directly to their Course Convener or through their College and Course representatives (if applicable). Feedback can also be provided to Course Conveners and teachers via the [Student Experience of Learning & Teaching \(SELT\) feedback program](#). SELT surveys are confidential and also provide the Colleges and ANU Executive with opportunities to recognise excellent teaching, and opportunities for improvement.

## Other Information

### Course website

All relevant course material (lecture slides, assignments, etc.) will be available under <https://juergenmeinecke.github.io/EMET8014/>

### Assumed knowledge

This is a PhD level course. I expect you to be familiar and comfortable with the following topics:

- set theory, functions
- sequences, series, limits
- univariate and multivariate calculus (incl derivatives and integrals)
- linear algebra

YOU SHOULD NOT TAKE THIS COURSE IF YOU DO NOT FEEL COMFORTABLE WITH ANY OF THESE TOPICS!

## Class Schedule

WEEK/SESSION	SUMMARY OF ACTIVITIES	ASSESSMENT
1	Projections	weekly assignment
2	Ordinary Least Squares Estimation	weekly assignment
3	Ordinary Least Squares Estimation	weekly assignment
4	Ordinary Least Squares Estimation	weekly assignment
5	Instrumental Variables Estimation	weekly assignment
6	Instrumental Variables Estimation	weekly assignment
7	Instrumental Variables Estimation	weekly assignment
8	Instrumental Variables Estimation	weekly assignment
9	Instrumental Variables Estimation	weekly assignment, and computational assignment
10	Maximum Likelihood Estimation	weekly assignment
11	Limited Dependent Variable Models	weekly assignment
12	Extremum Estimators, M-Estimation	no new assignment in last week

## Assessment Summary

ASSESSMENT TASK	VALUE	LEARNING OUTCOMES
Analytical assignments	40 %	1,2,3,4,5
Computational assignment	10 %	1,2,3,4,5
Final exam	50 %	1,2,3,4,5

\* If the Due Date and Return of Assessment date are blank, see the Assessment Tab for specific Assessment Task details

## Assessment Requirements

The ANU is using Turnitin to enhance student citation and referencing techniques, and to assess assignment submissions as a component of the University's approach to managing Academic Integrity. For additional information regarding Turnitin please visit the [Academic Skills website](#). In rare cases where online submission using Turnitin software is not technically possible; or where not using Turnitin software has been justified by the Course Convener and approved by the Associate Dean (Education) on the basis of the teaching model being employed; students shall submit assessment online via 'Wattle' outside of Turnitin, or failing that in hard copy, or through a combination of submission methods as approved by the Associate Dean (Education). The submission method is detailed below.

## Moderation of Assessment

Marks that are allocated during Semester are to be considered provisional until formalised by the College examiners meeting at the end of each Semester. If appropriate, some moderation of marks might be applied prior to final results being released.

## Participation

Weekly course activities are structured in the following way:

- lectures, two hours (recorded on Echo360)
- workshop, one to two hours, covering the weekly analytical exercises (discussion based, not recorded)
- computer labs, two hours (discussion based, not recorded)
- all activities are offered face to face on campus

I will not offer worked solutions to weekly exercises. Activities benefit from and depend on your participation and engagement.

Students who, through unavoidable and unplanned occurrences, are unable to attend any of the weekly sessions are encouraged to work through the problems and attend a consultation session for discussion and solutions.

Attendance at ALL activities, while not compulsory, is expected given the demanding nature of the course ( in line with "Code of Practice for Teaching and Learning", clause 2 paragraph (b)). If you are unable to attend regularly, you should not take this course.

## Examination(s)

See Assessment Task 3 - Final Exam

## Assessment Task 1

### Analytical assignments

There will be 11 weekly assignments. Each assignment will be marked out of 5 (using the marking rubric below). Only your 8 best assignments will be considered towards your final course mark. (You may choose to submit fewer than 11 problem sets as only the best 8 are considered.) The total mark on your 8 best assignments can maximally count 40% towards your final course mark.

**Value:** 40 %  
**Learning Outcomes:** 1,2,3,4,5

Every Wednesday morning (starting week 1) an assignment will be posted to be solved and handed in by the Tuesday 11am of the following week. The weekly deadlines are sharp. Late assignments will not be accepted under any circumstances. The last assignment will be posted in week 11.

We attempt to return the marked assignment a few days after the due date (ideally in that same week). The assignments will be discussed during tutorial sessions after you have handed in your solutions. For example, you will discuss assignment 1 in the week 2 tutorials and we will return assignment 2 to you in week 2, and so on.

No late assignments under any circumstances!

## Rubric

LEVEL OF ATTAINMENT:		EXEMPLARY	COMPETENT	DEVELOPING
Criteria	Description of criterion			
Clarity, exposition	Clean write up, sensible structure, transparent organization, well presented	1 mark	0.5 mark	0 mark
Concision	Analytical derivations are being kept minimal	1 mark	0.5 mark	0 mark
Accuracy	Derivations are mathematically correct	3 marks	2 marks	1 mark
Column total:		5 marks	3 marks	1 mark

## Assessment Task 2

### Computational assignment

There will be one computational assignment that covers the material covered in the weekly computer labs. The computational assignment will be posted in week 7, is due at 11am on Tuesday of week 9, and will be returned by Friday of week 11.

**Value:** 10 %

**Learning Outcomes:** 1,2,3,4,5

The assignment will be given to you as a Jupyter notebook. Work on the assignment will require coding in Julia as well as commenting and interpreting your results. Submission will be via Wattle file upload.

## Assessment Task 3

### Final exam

A final exam will be held during the ANU exam period. The exam will cover material presented throughout the entire course. The final exam is compulsory to attend. The format of the final exam will follow the format of the practice exams that are available on the course website.

**Value:** 50 %

**Learning Outcomes:** 1,2,3,4,5

Reading time is 0 minutes, writing time is 120 minutes.

Further details will be provided during lecture by week 10. I will make available a practice exam for you to get a realistic sense for the actual final exam.

## Academic Integrity

Academic integrity is a core part of the ANU culture as a community of scholars. The University's students are an integral part of that community. The [academic integrity principle](#) commits all students to engage in academic work in ways that are consistent with, and actively support, academic integrity, and to uphold this commitment by behaving honestly, responsibly and ethically, and with respect and fairness, in scholarly practice.

The University expects all staff and students to be familiar with the academic integrity principle, the [Academic Integrity Rule 2021](#), the [Policy: Student Academic Integrity](#) and [Procedure: Student Academic Integrity](#), and to uphold high standards of academic integrity to ensure the quality and value of our qualifications.

The Academic Integrity Rule 2021 is a legal document that the University uses to promote academic integrity, and manage breaches of the academic integrity principle. The Policy and Procedure support the Rule by outlining overarching principles, responsibilities and processes. The Academic Integrity Rule 2021 commences on 1 December 2021 and applies to courses commencing on or after that date, as well as to research conduct occurring on or after that date. Prior to this, the [Academic Misconduct Rule 2015](#) applies.

The University commits to assisting all students to understand how to engage in academic work in ways that are consistent with, and actively support academic integrity. All coursework students must complete the online Academic Integrity Module (Epigeum), and Higher Degree Research (HDR) students are required to complete research integrity training. The [Academic Integrity website](#) provides information about services available to assist students with their assignments, examinations and other learning activities, as well as understanding and upholding academic integrity.

### **Online Submission**

You will be required to electronically sign a declaration as part of the submission of your assignment. Please keep a copy of your assignment for your records.

Submission will be online via Wattle file upload. Details provided during the week 1 and 2 lectures (with timely reminders throughout).

### **Hardcopy Submission**

Not permitted.

### **Late Submission**

No submission of assessment tasks without an extension after the due date will be permitted. If an assessment task is not submitted by the due date, a mark of 0 will be awarded.

### **Referencing Requirements**

The [Academic Skills website](#) has information to assist you with your writing and assessments. The website includes information about Academic Integrity including [referencing requirements for different disciplines](#). There is also information on [Plagiarism](#) and different ways to [use source material](#).

### **Returning Assignments**

Analytical assignments will be returned in the week following the submission due date. For example: Assignment 1 will be returned to you in week 2, assignment 2 in week 3, and so forth.

When you receive a marked assignment back you should check immediately if you agree with the marking. If not, you must raise your concerns promptly (within one week of receiving the assignment). We will not, under any circumstances, remark assignments for which you have not raised your concerns within this time frame. Reminders of this policy will be given on several occasions throughout the semester.

### **Extensions and Penalties**

Extensions and late submission of assessment pieces are covered by the Student Assessment (Coursework) [Policy](#) and [Procedure](#). Extensions may be granted for assessment pieces that are not examinations or take-home examinations. If you need an extension, you must request an extension in writing on or before the due date. If you have documented and appropriate medical

evidence that demonstrates you were not able to request an extension on or before the due date, you may be able to request it after the due date.

### **Resubmission of Assignments**

Not permitted

### **Privacy Notice**

The ANU has made a number of third party, online, databases available for students to use. Use of each online database is conditional on student end users first agreeing to the database licensor's terms of service and/or privacy policy. Students should read these carefully. In some cases student end users will be required to register an account with the database licensor and submit personal information, including their: first name; last name; ANU email address; and other information.

In cases where student end users are asked to submit 'content' to a database, such as an assignment or short answers, the database licensor may only use the student's 'content' in accordance with the terms of service – including any (copyright) licence the student grants to the database licensor. Any personal information or content a student submits may be stored by the licensor, potentially offshore, and will be used to process the database service in accordance with the licensors terms of service and/or privacy policy.

If any student chooses not to agree to the database licensor's terms of service or privacy policy, the student will not be able to access and use the database. In these circumstances students should contact their lecturer to enquire about alternative arrangements that are available.

### **Distribution of grades policy**

Academic Quality Assurance Committee monitors the performance of students, including attrition, further study and employment rates and grade distribution, and College reports on quality assurance processes for assessment activities, including alignment with national and international disciplinary and interdisciplinary standards, as well as qualification type learning outcomes.

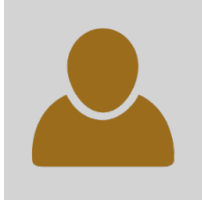
Since first semester 1994, ANU uses a [grading scale](#) for all courses. This grading scale is used by all academic areas of the University.

### **Support for students**

The University offers students support through several different services. You may contact the services listed below directly or seek advice from your Course Convener, Student Administrators, or your College and Course representatives (if applicable).

- [ANU Health, safety & wellbeing](#) for medical services, counselling, mental health and spiritual support
- [ANU Access and inclusion](#) for students with a disability or ongoing or chronic illness
- [ANU Dean of Students](#) for confidential, impartial advice and help to resolve problems between students and the academic or administrative areas of the University
- [ANU Academic Skills and Learning Centre](#) supports you make your own decisions about how you learn and manage your workload.
- [ANU Counselling Centre](#) promotes, supports and enhances mental health and wellbeing within the University student community.
- [ANUSA](#) supports and represents undergraduate and ANU College students
- [PARSA](#) supports and represents postgraduate and research students

## Convener

[Details](#)

Dr Juergen Meinecke

[juergen.meinecke@anu.edu.au](mailto:juergen.meinecke@anu.edu.au)

### Research Interests

Econometrics, Computational

### Consulting Hours

Sunday 23:49