

# ECON0108 Econometrics

## Contact Details

<b>Lecturer:</b>	Prof. Lars Nesheim (L.NESHEIM@UCL.AC.UK)
<b>Office:</b>	Drayton House 308
<b>Office hours:</b>	By appointment
<b>Website:</b>	<a href="http://www.cemmap.ac.uk/cemmap/person/id/58">http://www.cemmap.ac.uk/cemmap/person/id/58</a>
<b>Lecture time and location:</b>	Lecture 1: Friday January 24: IOE, 20 Bedford Way, 808 Lectures 2-10: Monday 12:00 – 14:00, 222 Euston Road, LG01

## Required Reading

The course content is based on material in the lecture notes, required readings and the problem sets. The required readings include Chapters from the two textbooks listed below as well as selected articles.

1. Pagan and Ullah (1999).
2. Li and Racine (2007)
3. Selected academic papers.

## Coursework and Exams

There will be 8-10 problem sets. These will be available the week before the tutorial and will be due the morning before the tutorial. The first problem set is due Monday and the first tutorial is Monday.

The final examination will be an online examination based on material covered in lectures, assigned readings, and tutorial class assignments.

## Course Outline

1. Lecture 1: Nonparametric density estimation
  - Pagan and Ullah (1999), Chapter 2.
  - Li and Racine (2007), Chapter 1.
2. Lecture 2: Nonparametric mean regression
  - Pagan and Ullah (1999), Chapter 3.
  - Li and Racine (2007), Chapter 2.
3. Lecture 3: Semiparametric methods
  - Pagan and Ullah (1999), Chapters 4-5.
  - Li and Racine (2007), Chapters 6-8.
  - Andrews (1994)
  - Robinson (1988)
4. Lecture 5: Penalised estimation and model selection
  - Zou (2006)
  - Horowitz and Nesheim (2021)
  - Belloni et al. (2014a) and Belloni et al. (2014b).
5. Lecture 6: Production function estimation
  - Akerberg et al. (2015)

- Navarro et al. (2012)
6. Lecture 7: CCP and dynamic games
- Hotz and Miller (1993)
  - Arcidiacono and Miller (2011, 2020)
  - Aguirregabiria and Mira (2007)
7. Lecture 8-9: Random coefficient models
- Berry et al. (1995)
  - Train (2009)
  - Hu (2017); Schennach (2016)
  - Hoderlein et al. (2017)
8. Lecture 10: Dynamic Factor models
- Stock and Watson (2002)
  - Bai (2009)
  - Bańbura and Modugno (2014)

## References

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- Peter Arcidiacono and Robert A Miller. Conditional choice probability estimation of dynamic discrete choice models with unobserved heterogeneity. *Econometrica*, 79(6):1823–1867, 2011.
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- Jushan Bai. Panel data models with interactive fixed effects. *Econometrica*, 77(4):1229–1279, 2009.
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- Alexandre Belloni, Victor Chernozhukov, and Christian Hansen. High-dimensional methods and inference on structural and treatment effects. *The Journal of Economic Perspectives*, 28(2):29–50, 2014a.
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- Steven Berry, James Levinsohn, and Ariel Pakes. Automobile prices in market equilibrium. *Econometrica: Journal of the Econometric Society*, pages 841–890, 1995.
- Stefan Hoderlein, Lars Nesheim, and Anna Simoni. Semiparametric estimation of random coefficients in structural economic models. *Econometric Theory*, 33(6):1265–1305, 2017.
- Joel L Horowitz and Lars Nesheim. Using penalized likelihood to select parameters in a random coefficients multinomial logit model. *Journal of Econometrics*, 222(1):44–55, 2021.
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- Yingyao Hu. The econometrics of unobservables—latent variable and measurement error models and their applications in empirical industrial organization and labor economics, 2017.
- Qi Li and Jeffrey Scott Racine. *Nonparametric econometrics: theory and practice*. Princeton University Press, 2007.
- Salvador Navarro, David Rivers, Amit Gandhi, et al. On the identification of production functions: How heterogeneous is productivity? In *2012 Meeting Papers*, number 105. Society for Economic Dynamics, 2012.
- Adrian Pagan and Aman Ullah. *Nonparametric econometrics*. Cambridge university press, 1999.
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- Susanne M Schennach. Recent advances in the measurement error literature. *Annual Review of Economics*, 8:341–377, 2016.
- James H Stock and Mark W Watson. Forecasting using principal components from a large number of predictors. *Journal of the American statistical association*, 97(460):1167–1179, 2002.
- Kenneth E Train. *Discrete choice methods with simulation*. Cambridge university press, 2009.
- Hui Zou. The adaptive lasso and its oracle properties. *Journal of the American statistical association*, 101(476):1418–1429, 2006.