

School of Economics and Finance

ECON 423: MACROECONOMIC MODELLING FOR THE NEW ZEALAND ECONOMY

Trimester 1, 2014

COURSE OUTLINE

Names and Contact Details

Course Coordinator:

Professor Viv Hall, room RH 212 in Rutherford House, 23 Lambton Quay
Telephone (04) 463 5081, email viv.hall@vuw.ac.nz
Office hours: Fridays 12.30 – 1.30pm, or by email appointment

Trimester Dates

Teaching Period: Monday 3rd March – Friday 6th June
Study Period: Monday 9th June – Thursday 12th June
Examination Period: Friday 13th June – Wednesday 2nd July (inclusive)

Withdrawal from Course

1. Your fees will be refunded if you withdraw from this course on or before Friday 14th March 2014.
2. The standard last date for withdrawal from this course is Friday 16th May. After this date, students forced to withdraw by circumstances beyond their control must apply for permission on an ‘*Application for Associate Dean’s Permission to Withdraw Late*’ including supporting documentation. The application form is available from either of the Faculty’s Student Customer Service Desks.

Class Times and Room Numbers

Lecture: Fridays: 1.40 – 3.30pm in RWW128

Pre-requisite: ECON 305, together with suitably strong quantitative/econometric preparation; ECON 402 and ECON 403 would be ideal co-requisites, if not already completed.

Course Prescription:

This course features macroeconomic and structural modelling of the New Zealand economy, blending relevant economic theory, applied econometric and policy relevant material. Topics include the Reserve Bank and/or Treasury models, and applied general equilibrium modelling.

Course Learning Objectives

By the end of this course students should be able to

1. assess the key insights from best practice international modelling, and recent New Zealand policy applications
2. critically evaluate the relative strengths and weaknesses of comparative static and dynamic approaches to computable general equilibrium modelling
3. explain and assess the relative roles of deterministic and stochastic macroeconomic models, and their steady state and dynamic properties
4. display a sound appreciation of the roles of macroeconomic and structural models in forecasting, projection and policy processes

Course Content and delivery:

ECON 423 features macroeconomic and structural modelling of the New Zealand economy, blending relevant economic theory, applied econometric and policy relevant material. In 2014, the modelling will focus primarily on Reserve Bank of New Zealand macroeconomic models, and on selected applied/computable general equilibrium (AGE/CGE) modelling.

There will be 11 meetings during the trimester. The first four two-hour lectures will feature an introduction to structural/ CGE modelling. The first session will feature introductory concepts, including how to assess structural change and the role of interindustry analysis. The next two sessions will complete our coverage of essentially short run comparative static CGE modelling concepts and applications, and the fourth session will feature a recent New Zealand dynamic CGE modelling application. The seven macroeconomic modelling sessions will cover: macroeconomic modelling processes, including evaluation of the relative strengths and weaknesses of modelling and non-modelling approaches; underlying macroeconomic concepts and ideas; applications featuring the NBNZ-DEMONZ model and the RBNZ's FPS model; three sessions on the structure, steady state and dynamic properties, and evaluation methods of the RBNZ's Dynamic Stochastic General Equilibrium (DSGE) model KITT (Kiwi Inflation Targeting Technology); and a final session on a more recent RBNZ model. Reference will also be made, where appropriate, to features of the most recent write-up of New Zealand Treasury's NZTM model.

Expected Workload

ECON 423 is a 15-point course, and on the basis of VUW having designated one point = 10 hours work, expected work load would total 150 hours. If that workload were spread over 15 weeks, hours expected would average around 10 hours per week. This would involve attending classes (2 lecture hours per week, for the 12 teaching weeks), plus reading for and completing assignment work and preparing for the final examination, for approximately 8.5 hours per week over 15 weeks. The 8.5 hours would of course vary for individual students, depending on the student's previous knowledge and understanding, and the final grade at Honours level to which the student aspires.

Readings

Indicative Topics and Readings (* denotes a key reading, available from Blackboard where a pdf is able to be provided; ■ denotes available from box of readings in SEF Reception, RH 321).

1. Why model? Structural/CGE Modelling: An Introduction (1 session)

Why model?

* John Freebairn (1994), "Some Final Comments", p. 196, in *A Comparison of Economy-Wide Models of Australia: Responses to a rise in labour productivity*, Colin Hargreaves (ed.), Commission Paper No. 2, Economic Planning Advisory Commission, Canberra, October 1994.

Ryan, Michael and Kam Leong Szeto, "An Introduction to the New Zealand Treasury Model", New Zealand Treasury Working Paper 09/02, p 39

* *Economic Modelling*, 15(3), July 1998, Special Issue: Empirical Models and Policy Making: contributions by G. Zalm, "The relevance of economic modelling for policy decisions", pp. 309-316; Duguay, Pierre and David Longworth, "Macroeconomic models and policymaking at the Bank of Canada", pp. 357-376.

Structural modelling: inter-industry analysis and types of CGE modelling

* Hall, Viv B., pp 47-51 in Silverstone, Brian *et al.*, *A Study of Economic Reform: The Case of New Zealand*, North-Holland, 1996; & pp 25-37 in van Bergeijk, Peter A. G. *et al.*, *Structural Reform in Open Economies: A Road to Success?*, Edward Elgar, 1999.

* Parmenter, B. R., "Inter-Industry Analysis", ch. 5 in L. R. Webb and R. H. Allen (eds.) *Industrial Economics: Australian Studies*, Allen & Unwin, 1982, pp. 69-110, ss. 1, 2, 3.1, 4.

Nana, Ganesh, *A Multi-Industry Computable General Equilibrium Model with Dynamic Investor and Consumer Behaviour*, PhD thesis, Victoria University of Wellington, 1999, ch. 1.

Claus, Iris and Kathy Li (2003), "New Zealand's Production Structure: An International Comparison", New Zealand Treasury Working Paper 03/16, September 2003, www.treasury.govt.nz.

Stroombergen, Adolf (2008), "ESSAM general equilibrium model: estimation of 2005/06 input-output tables", Motu Working Paper 08-01, April, www.motu.org.nz.

Claus, Iris (2009), "New Zealand's economic reforms and changes in production structure", *Journal of Economic Policy Reform*, 12:2, 133-143.

Giesecke, James (2008), "The effects of recent structural, policy and external shocks to the Australian economy, 1996/97- 2001/02", *Australian Economic Papers*, March, 15-37.

Giesecke, James and Chris Schilling (2010), “The economic impact of the New Zealand fiscal stimulus package”, *New Zealand Economic Papers*, December, 231-257.

2, 3. Comparative Static CGE modelling (2 sessions)

Introduction, Input-Output Data and Models, The Johansen Approach

* Dixon, Peter B., B. R. Parmenter, Alan A. Powell and Peter J. Wilcoxon (DPPW), *Notes and Problems in Applied General Equilibrium Economics*, North-Holland Advanced Textbooks in Economics Volume 32, 1992, chs. 1, 2 (pp. 19-45).

* Parmenter (1982), s. 3.2 (a).

For a perspective on the basic data for New Zealand, see Nana, ch. 2; *Inter-Industry Study 1996 - 49 Industries – Interim Release of Tables*, Statistics New Zealand, available from www.stats.govt.nz (search ‘input-output tables’); also Stroombergen (2008).

* Further detail can be found in Dixon, Peter B., B. R. Parmenter, John Sutton and D. P. Vincent (DPSV), *ORANI: A Multisectoral Model of the Australian Economy*, North-Holland Contributions to Economic Analysis Volume 142, 1982, chs. 1, 2 (ss. 3-7), 4 (ss. 24-27, 29), 5 (ss. 30-32, 34).

Construction of a Model for Practical Policy Analysis

* Parmenter (1982), s. 3.2 (b).

* DPSV, ch. 3 (especially ss. 13, 14, 18, 19, 22)

4. A dynamic CGE modelling application (1 session)

* Nana, Ganesh, ch. 1.

Malakellis, Michael, “Should Tariff Reductions be Announced? An Intertemporal Computable General Equilibrium Analysis”, *The Economic Record*, 74 (225), June 1998, pp. 121-138.

* Giesecke, James (2008), “The effects of recent structural, policy and external shocks to the Australian economy, 1996/97- 2001/02”, *Australian Economic Papers*, March, 15-37.

* Giesecke, James and Chris Schilling (2010), “The economic impact of the New Zealand fiscal stimulus package”, *New Zealand Economic Papers*, December, 231-257; a version tailored to wider audiences is available as Giesecke and Schilling (2009), “Short term gain, long term pain?”, NZIER Working paper 2009/3, via <http://nzier.org.nz/publications/browse-by-type/results/taxonomy%3A5>

NZIER Working Paper 2010/2, “Save now, prosper later: increasing new Zealand’s savings rate – a preliminary dynamic CGE analysis”, prepared by James Zuccollo and John Ballingal, available via <http://nzier.org.nz/publications/browse-by-type/results/taxonomy%3A5>

5. Introduction to macroeconomic modelling for the generation of forecasts and projections, and for policy analysis (1 session)

The modelling process. Forms of macroeconomic modelling. International perspectives.

* *Economic Modelling*, 15(3), July 1998, Special Issue: Empirical Models and Policy Making: contributions by G. Zalm, “The relevance of economic modelling for policy decisions”, pp. 309-316; Duguay, Pierre and David Longworth, “Macroeconomic models and policymaking at the Bank of Canada”, pp. 357-376.

* Murphy, Christopher W. et al., *A Macroeconometric Model of the Australian Economy for Medium-Term Policy Analysis*, Office of EPAC Technical Paper No. 2, Office of EPAC, Canberra, June 1986, chs. 1-3.

* Fukac, Martin and Adrian Pagan, “Structural Macro-Econometric Modelling in a Policy Environment”, RBNZ DP2009/16, December 2009; available from <http://www.rbnz.govt.nz>.

* De Grauwe, Paul (2010), “Top-Down versus Bottom-Up Macroeconomics”, *CESifo Economic Studies*, December, 56(4), 465-497.

* Black, Richard, Vincenzo Cassino, Aaron Drew, Eric Hansen, Benjamin Hunt, David Rose and Alasdair Scott, *The Forecasting and Policy System: the core model*, Research Paper No. 43, Reserve Bank of New Zealand, Wellington, August 1997, ss. 1, 2; available from <http://www.rbnz.govt.nz>.

* Delbrück, F., A. Dunstan, D. Hargreaves, A. Lienert, H. Pepper, and C. Sleeman (2008). The evolution of the Forecast and Policy System (FPS) at the Reserve Bank of New Zealand. RBNZ Discussion Paper Series, 2008/11.

* Lees, Kirdan, “Introducing KITT: The Reserve Bank of New Zealand new DSGE model for forecasting and policy design”, *Reserve Bank of New Zealand Bulletin*, 72 (2), June 2009, 5-20; <http://www.rbnz.govt.nz/research/bulletin>.

* Jaromír Beněš, Andrew Binning, Martin Fukáč, Kirdan Lees, Troy Matheson, *K.I.T.T.: Kiwi Inflation Targeting Technology*, Reserve Bank of New Zealand, 2009, ch. 1; available from <http://www.rbnz.govt.nz/research/kitt/>

Szeto, Kam Leong, “A dynamic computable general equilibrium (CGE) model of the New Zealand economy”, New Zealand Treasury Working Paper 02/07, June 2002; available from <http://www.treasury.govt.nz/workingpapers/2002>

Ryan, Michael and Kam Leong Szeto, “An Introduction to the New Zealand Treasury Model”, New Zealand Treasury Working Paper 09/02

The following websites can also be investigated to gain a useful perspective on quality, model-based technical reports and working papers:

www.bankofcanada.ca/en/pubs.htm

www.norges-bank.no

www.riksbank.com

www.bcentral.cl/eng/stdpub
www.econtech.com.au
www.sensiblepolicy.com
www.rbnz.govt.nz
www.treasury.govt.nz

The key macroeconomic relations. Long run and dynamic relations. Core and satellite models. Uncertainty. Economic Projections.

* *American Economic Review, Papers and Proceedings*, 87 (2), May 1997, “Is There a Core of Practical Macroeconomics that We Should All Believe?”, pp. 230-246, contributions by Robert M. Solow, John B. Taylor, Martin Eichenbaum, Alan S. Blinder, and Olivier Blanchard; also *American Economic Review, Papers and Proceedings*, 91(2), May 2001, John B Taylor, “The Role of the Exchange Rate in Monetary-Policy Rules”, 263-267.

* *Journal of Economic Perspectives*, Fall 2006, 20 (4), “Macroeconomic Lessons”, pp 3-46, contributions by V. V. Chari and Patrick J. Kehoe and by N. Gregory Mankiw.

* Blanchard, Olivier (2008), “The State of Macro”, NBER Working Paper 14259, August, <http://www.nber.org/papers/w14259>.

* Woodford, Michael (2009), “Convergence in Macroeconomics: Elements of the New Synthesis”, *American Economic Journal: Macroeconomics*, 1(1), 267-279.

* Fair, Ray C. (2009), “Has Macro Progressed?”, Cowles Foundation Discussion Paper No. 1728, September, <http://cowles.econ.yale.edu/P/cd/d17a/d1728.pdf>

* Pesaran, M Hashem and Ron P Smith (2011), “Beyond the DSGE Straitjacket”, Institute for the Study of Labour (IZA) Discussion Paper No. 5661, April.

* Wickens, M. R. (2010), “What’s Wrong with Modern Macroeconomics? Why its Critics have Missed the Point?”, *CESifo Economic Studies*, December, 56(4), 536-553.

* Black *et al.*, s. 2.

* Jaromír Beněš, Andrew Binning, Martin Fukáč, Kirdan Lees, Troy Matheson, *K.I.T.T.: Kiwi Inflation Targeting Technology*, Reserve Bank of New Zealand, May 2009, chs. 1, 6

* Conway, Paul, “Monetary Policy in an Uncertain World”, *Reserve Bank of New Zealand Bulletin*, 63 (3), September 2000, pp. 5-15; available from <http://www.rbnz.govt.nz/research/bulletin>.

* *Monetary Policy under Uncertainty*, Benjamin Hunt and Adrian Orr (eds.), Reserve Bank of New Zealand, 1999, pp. 1-9; available from <http://www.rbnz.govt.nz>.

Labbé, Felipe and Hamish Pepper (2009), “Assessing recent external forecasts”, pp 19-25 in *Reserve Bank of New Zealand Bulletin*, Vol. 72, No. 4, December 2009; available from <http://www.rbnz.govt.nz/research/bulletin>.

Lees, K., T. Matheson, and C. Smith (2007), “Open economy DSGE-VAR forecasting and policy analysis — head to head with the RBNZ published

forecasts”, Reserve Bank of New Zealand Discussion Paper Series, 2007/01.

Khoon Lek Gho and Daniel Lawrence, “Treasury’s Forecasting Performance: A Head-to-Head Comparison”, New Zealand Treasury Working Paper 06/10, July 2006; available from <http://www.treasury.govt.nz/workingpapers/2006>

<http://www.treasury.govt.nz/publications/informationreleases/forecastingperformance/reviews/tsyforperf11.pdf>

6. A Deterministic Practical Application, using NBNZ-DEMONZ (1 session)

* Hall, Viv B. and David Rae, “Fiscal Expansion, Monetary Policy, Interest Rate Risk Premia, and Wage Reactions”, *Economic Modelling*, 15 (4), 1998, pp. 621-640.

* Rae, David, “NBNZ-DEMONZ: A Dynamic Equilibrium Model of New Zealand”, *Economic Modelling*, 13 (1), 1996, pp. 91-166.

Szeto, Kam Leong, “A dynamic computable general equilibrium (CGE) model of the New Zealand economy”, New Zealand Treasury Working Paper 02/07, June 2002; “An econometric analysis of a production function for New Zealand”, Working Paper 01/30; Kam Leong Szeto and Melody Guy, “Estimating a New Zealand NAIRU”, Working Paper 04/10, September 2004; Ryan, Michael and Kam Leong Szeto, “An Introduction to the New Zealand Treasury Model”, New Zealand Treasury Working Paper 09/02, available from <http://www.treasury.govt.nz/workingpapers/>

7. FPS: An Application (1 session)

Hall, Viv B, “An Australasian currency, New Zealand adopting the US dollar, or an independent monetary policy?”, CAMA Working Paper 21/2005, October 2005, available from <http://cama.anu.edu.au/publications.htm>

* Drew, Aaron, Viv Hall, C John McDermott and Robert St. Clair, “Would adopting the Australian dollar provide superior monetary policy in New Zealand?”, *Economic Modelling*, 21(6), December 2004, 949-964.

* Hall, Viv and Angela Huang, “Would adopting the US dollar have led to improved inflation, output and trade balances for New Zealand in the 1990s?”, *New Zealand Economic Papers*, 38(1), June 2004, 49-63.

Hall, Viv B and C John McDermott (2011), “Is there an unobserved components common cycle for Australasia? Implications for a common currency”, *New Zealand Economic Papers*, published online 15 November 2011 (iFirst); available from <http://www.tandfonline.com/action/showAxaArticles?journalCode=rnzp20> or <http://dx.doi.org/10.1080/00779954.2011.623297>.

8. KITT: Model design, microfoundations and economic structure

* Jaromír Beněš, Andrew Binning, Martin Fukáč, Kirdan Lees, Troy Matheson, *K.I.T.T.: Kiwi Inflation Targeting Technology*, Reserve Bank of New Zealand, 2009, Chs. 1, 2, 7.

* Lees, Kirdan, "Introducing KITT: The Reserve Bank of New Zealand new DSGE model for forecasting and policy design", *Reserve Bank of New Zealand Bulletin*, 72 (2), June 2009, 5-20; <http://www.rbnz.govt.nz/research/bulletin>.

Beněs, J. (2008), The IRIS toolbox for DSGE models, <http://www.iris-toolbox.com/>, site accessed 25 February 2010.

Binning, Andrew, "KITT Book Equations Derivation", 2009, available from <http://www.rbnz.govt.nz/research/kitt/>

9. KITT: The log linear model, data, steady state, estimation and model evaluation

* Jaromír Beněs, Andrew Binning, Martin Fukáč, Kirdan Lees, Troy Matheson, *K.I.T.T.: Kiwi Inflation Targeting Technology*, Reserve Bank of New Zealand, 2009, Chs. 2.16, 3, 4.

10. KITT: Some further tools to assist model evaluation and "storey telling", some dynamic responses to selected shocks.

* Jaromír Beněs, Andrew Binning, Martin Fukáč, Kirdan Lees, Troy Matheson, *K.I.T.T.: Kiwi Inflation Targeting Technology*, Reserve Bank of New Zealand, 2009, Chs. 6, 5.

11. An RBNZ model application (1 session)

Specific application, presenter from the RBNZ: Reading to be advised

Materials and Equipment

No additional materials or equipment is required for this course.

Assessment Requirements and relation to Course Learning Objectives

From Trimester 1, 2014, a revised Assessment Handbook will apply to all VUW courses: see <http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>.

In particular, there will be a new grade scheme, in which the A+ range will be 90-100% and 50-54% will be a C-.

For assessment purposes, you are required to sit the final examination in the Trimester One final examination period, and to complete coursework requirements. The coursework consists of two short assignments (to be distributed in the first half of the trimester), and an essay of no more than 2500 words (see the final page of this outline). Unlike the situation that exists in undergraduate papers, your final grade will be determined on the basis of your overall performance in the Honours programme. However, as a guide to the allocation of your efforts, the assessment in ECON 423 will be based on:

15% for assignments: Ass. 1 due no later than 5 pm Friday 28 March (1/3 week 4);
: Ass. 2 due no later than 5 pm Thursday 17 April (1/3 week 7)
25% for the essay: due no later than 5 pm Friday 30 May (1/3 week 11)
60% for the final two-hour examination.

Preparing for and completing assignments 1 and 2 will assist the student to achieve Course Learning Objectives 1, 2 and 4; depending on the particular essay topic chosen, preparing for and completing the essay requirement will assist the student to achieve various aspects of Course

Learning Objectives 1 to 4; preparing for and sitting the Final Exam will assist the student to achieve Course Learning Objectives 1 to 4.

Penalties

Coursework submitted late will not be graded.

Use of Turnitin

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine <http://www.turnitin.com>. Turnitin is an on-line plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and submitted to Turnitin. A copy of submitted materials will be retained on behalf of the University for detection of future plagiarism, but access to the full text of submissions will not be made available to any other party.

Examinations

Students who enrol in courses with examinations are obliged to attend an examination at the University at any time during the formal examination period. The final examination for this course will be scheduled at some time during the following period:

Friday 13th June – Wednesday 2nd July (inclusive)

Mandatory Course Requirements

There is no mandatory course requirement, other than obtaining an overall course mark of 50% or better.

If you cannot complete an assignment or sit a test or examination, refer to

www.victoria.ac.nz/home/study/exams-and-assessments/aegrotat

Class Representative

A class representative will be elected in the first class, and that person's name and contact details made available to VUWSA, the course coordinator and the class. The class representative provides a communication channel to liaise with the course coordinator on behalf of students.

Communication of Additional Information

Additional information regarding the course or any material changes will be announced at lectures and via a Blackboard announcement.

Student feedback

Student feedback on University courses may be found at

www.cad.vuw.ac.nz/feedback/feedback_display.php

Link to general information

For general information about course-related matters, go to

<http://www.victoria.ac.nz/vbs/studenthelp/general-course-information>

Note to Students

Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning objectives as required for accreditation and academic audit. The findings may be used to inform changes aimed at improving the quality of VBS programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

**Victoria University of Wellington
School of Economics and Finance**

ECON 423

1/3 2014

ESSAY

(Due no later than 5 pm Friday 30 May 2014)

Critically evaluate any one major reference or set of references (not covered directly in class sessions), relevant to any one of ECON 423's Computable General Equilibrium or Macroeconomic Modelling topics 1 to 7.

Guidelines

- The maximum length (excluding footnotes, list of references, and a 100 word Abstract) is 2500 words.
- The essay should be written legibly, typed or word-processed on A4 paper, with adequate margins on each side and spacing between lines.
- The original should be submitted on or before the above date. You should retain a copy of your essay.

Viv Hall
February 2014