UNSW Business School

School of Banking & Finance

FINS3775
Research Methods in Finance 1

Course Outline
Semester 2, 2017

Course-Specific Information

The Business School expects that you are familiar with the contents of this course outline. You must also be familiar with the School's Course Outlines Policies webpage which contains key information on:

- Program Learning Goals and Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Student Support and Resources

This webpage can be found on the Business School website:
https://www.business.unsw.edu.au/degrees-courses/course-outlines/policies

Table of Contents

COURSE-SPECIFIC INFORMATION

1 STAFF CONTACT DETAILS

Lecturer-in-charge:	Robert Tumarkin
Office:	Room 348, UNSW Business School Building
Email:	r.tumarkin@unsw.edu.au
Consultation times:	By appointment
Teaching weeks:	3 through 8

Lecturer:	Yixuan (Henry) Rui
Office:	Room 345L, UNSW Business School Building
Email:	y.rui@unsw.edu.au
Consultation times:	By appointment
Teaching weeks:	1, 2, and 9 through 12

2 COURSE DETAILS

2.1 Teaching Times and Locations

Lectures start in Week 1 and run through week 12. Lectures are Friday from 9:00 to 12:00 in UNSW Business School G21.

2.2 Units of Credit

The course is worth 6 units of credit. It is taught in parallel to both undergraduate and postgraduate students.

2.3 Summary of Course

This course is the first in a two-course sequence on research methods in finance. Research Methods in Finance 1 emphasises tools and techniques that constitute workhorse models in Finance. Students learn the theoretical background as well as the formulation, implementation, and interpretation of econometric models. The course begins with an introduction to foundational concept in probability theory and matrix algebra. Ordinary Least Squares is then covered in detail. Finally, the course reviews models that are either linear in nature or frequently appear in Finance research.

2.4 Course Aims and Relationship to Other Courses

This course provides an introduction to econometric theory and its applications in empirical finance. It is part of a two-course sequence. This first course has several aims that build the foundations of critical thinking on both econometric and Financial research issues:

- The basic tools (probability theory and matrix algebra) underlying much econometric theory.
- Expert knowledge on Ordinary Least Squares and related tools, which form the basis of most research in Finace.
- Apply econometric theory to actual research settings and understand when model have unbiased and/or consistent estimates.
- Develop and implement econometric models and tests.

The second course in the sequence, Research Methods in Finance 2, teaches more advanced econometric techniques, programming tools, and data management techniques.

Research Methods in Finance builds skills necessary for pursuing research projects. It is a pre-requisite for the undergraduate Honours program and must be successfully completed before applying.

Pre-requisites:
Enrolment in FINS3775 requires 70% or better in both FINS2623 and ECON1203 (or an equivalent course as specified in the UNSW student handbook). Enrolment in FINS5575 requires School approval.

2.5 Student Learning Outcomes

The Course Learning Outcomes are what you should be able to DO by the end of this course if you participate fully in learning activities and successfully complete the assessment items.

The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all undergraduate / postgraduate students in the Business School. Program Learning Goals are what we want you to BE or HAVE by the time you successfully complete your degree (e.g. 'be an effective team player'). You demonstrate this by achieving specific Program Learning Outcomes - what you are able to DO by the end of your degree (e.g. 'participate collaboratively and responsibly in teams').

For more information on Program Learning Goals and Outcomes, see the School's Course Outlines Policies webpage available at
https://www.business.unsw.edu.au/degrees-courses/course-outlines/policies
The following table shows how your Course Learning Outcomes relate to the overall Program Learning Goals and Outcomes, and indicates where these are assessed (they may also be developed in tutorials and other activities):

Program Learning Goals and Outcomes		**Course Learning Outcomes**	**Course Assessment Item**
This course helps you to achieve the following learning goals for all Business undergraduate / postgraduate coursework students:		*On successful completion of the course, you should be able to:*	*This learning outcome will be assessed in the following items:*
1	Knowledge	Analyse econometric models, data, and construct and test hypotheses. Critically evaluate Ordinary Least Squares and related models.	• Exams • Project • Homework • Participation
2	Critical thinking and problem solving	Extend knowledge on Ordinary Least Squares and related models to new settings.	• Exams • Project • Homework • Participation

		Read and critically assess papers in the finance literature. Determine suitable empirical tests.	
3a	Written communication	Construct written work which is logically and professionally presented.	• Exams • Project • Homework
3b	Oral communication	Communicate ideas in a succinct and clear manner.	• Participation
4	Teamwork	Work collaboratively with other researchers (students may work in groups on both the project and homework assignments). However, each student must hand in their own assignment and is assessed independently.	• Project (not separately assessed) • Homework (not separately assessed)
5a.	Ethical, social and environmental responsibility	Not specifically addressed in this course.	
5b.	Social and cultural awareness	Not specifically addressed in this course.	

For more information on developing student learning outcomes, see:
http://teaching.unsw.edu.au/curriculum-design-and-mapping

3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

This course is designed to help students actively pursue independent research projects in Finance. As such, the curriculum focuses on foundational tools in Finance so that students may actively engage with their research. Examples from the existing literature should help students contextualise the material. Lectures are intended to be interactive and subject matter will be geared to student interests. Homework contextualises theoretical concepts in simple practical settings. The project allows each student to pursue a complex problem in Finance, learn the structure of standard databases, and benchmark their findings against published work.

3.2 Learning Activities and Teaching Strategies

This course is presented primarily through lecture and classroom discussion. Lectures will be presented primarily through whiteboard notes contextualised within the context of existing research and student projects. Students are encouraged to ask questions based on their projects to ensure that the course material is relevant. Classroom discussion based on homework assignments is intended to engage students and ensure that everyone is learning the material at a sufficiently high level. Demonstrations of and in-class usage of statistical software packages will also be used to help translate theoretical concepts to practice.

4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50;
- make a satisfactory attempt at all assessment tasks (see below);

4.2 Assessment Details

Assessment Task	Weighting	Length	Due Date
1. Exams	40%	1 quiz/1.5 hour midterm/ 2 hour final	18 August/13 October/University Exam Period
2. Individual Project	30%	Approx. 10 pages + Appendices	3 November
3. Homework	20%	N/A	Ongoing
4. Participation	10%	N/A	Ongoing
Total	100%		

- **Exams**: There are three individual written assessments. A half-hour quiz is worth 5% of the overall grade; the midterm is worth 15% of the overall grade; and the final is worth 20% of the overall grade. The 45 minute quiz ensures students understand probability theory and matrix algebra. The 1.5 hour midterm tests ordinary least squares. The 2 hour final is a comprehensive test on the entire course. These exams assess the knowledge, critical thinking, and written communication learning goals.

- **Individual project**: Each student will replicate an existing study in Finance. These studies will be similar in nature (so that students may help each other), but sufficiently different to ensure each student learns the necessary tools to conduct independent Finance research. Students will hand in a report summarizing their findings, differences versus the original research, and a critique of the empirical design. Code used to assemble the database must also be submitted. The project assesses the knowledge, critical thinking, and written communication learning goals.

- **Homework**: Frequent homework assignments are used to ensure students learn theoretical concepts and can apply these concepts to real problems. Deliverables will vary per assignment. The homework assesses the knowledge, critical thinking, and written communication learning goals.

- **Participation**: Students should participate in class on a regular basis. Homework problems will be discussed in class, allowing students to ask questions and improve their knowledge. Marks will be determined based on the quality of the contribution. Asking questions to improve understanding will be valued just as much as providing answers to lecturer queries. Students that provide important contributions on a weekly basis will receive high distinction participation marks; those that provide important contributions on a regular (non-weekly) basis will receive distinction participation marks. Students that contribute infrequently will receive credit participation marks. Students that do not participate may receive failing marks for this component. Participation assesses knowledge, critical thinking, and oral communication.

4.3 Assignment Submission Procedure

Assignments must be submitted through Moodle. In the case of derivations and mathematic assignments, scans of hand-written work are acceptable. Student are reminded to keep a copy of all work submitted for assessment and to retain returned marked assignments.

4.4 Late Submission and Penalties

Students should make every effort to turn in assignments and projects in time. Late assignments may be accepted under special circumstances. Students are encouraged to talk with the lecturers early if they expect they will be unable to complete an assignment on time. Assignments that are late without explanation will be penalized the equivalent of a letter grade for each day they are late.

Quality Assurance
The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.

5 COURSE RESOURCES

Lecturers will provide notes that serve as the primary readings for the course. Materials will be provided in class or on the course Moodle website at http://moodle.telt.unsw.edu.au.

There are a number of excellent texts in econometrics worthy of consideration for purchase for students wanting further details and reference texts:

Introductory econometrics:

Gujarti, Damodar N. *Basic Econometrics (4th Edition)*. McGraw-Hill. 2004.

Kennedy, Peter. *A Guide to Econometrics (6th Edition).* Wiley-Blackwell. 2008.

Stock, James H. and Watson, Mark M., *Introduction to Econometrics (3rd Edition)*. Pearson. 2014.

Advanced econometrics and reference:

Hayshi, Fumio. *Econometrics*. Princeton University Press. 2000.

Green, William H., *Econometric Analysis* (8th Edition). Pearson. 2017.

Financial econometrics:

Campbell, John Y., Lo, Andrew W., and MacKinlay, A. Craig, *The Econometrics of Financial Markets (2nd Edition)*. Princeton University Press. 1996

Cochrane, John. H. *Asset Pricing.* Princeton University Press. 2005.

Hamilton, James Douglas. *Time Series Analysis.* Princeton University Press. 1994.

Tsay, Ruey S. *Analysis of Financial Time Series (3rd Edition).* Wiley. 2010.

Wooldridge, Jeffrey M. *Econometric Analysis of Cross Section and Panel Data (2nd Edition).* MIT University Press. 2010.

Software:

The class will primarily use STATA and SAS for the econometric analysis. The university has a site license for both STATA and SAS, and these programs are pre-installed on computers in the School of Banking and Finance.

6 COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's myExperience survey is one of the ways in which student evaluative feedback is gathered. In this course, we will seek your feedback through myExperience responses and classroom discussions. Students are encouraged to raise any issues or suggestions for improvement with the lecturers.

7 COURSE SCHEDULE

Week	Topic	Lecturer
Introduction		
28 July	Introduction/Basic Probability Theory	YR
4 July	Basic Probability Theory and Linear Algebra	YR
Ordinary Least Squares		
11 August	Ordinary Least Squares	RT
18 August	Ordinary Least Squares	RT
25 August	Ordinary Least Squares	RT
8 September	Ordinary Least Squares	RT
15 September	Ordinary Least Squares	RT
22 September	Ordinary Least Squares	RT
Topics in Financial Econometrics		
6 October	Panel data	YR
13 October	Time series analysis	YR
20 October	Dynamic models	YR
27 October	Limited dependent variables	YR