



**Spring Term**

**Basic Information:**

<b>Title:</b>	Financial Econometrics	<b>Code:</b>	FIN 342
<b>Program:</b>	BBIT	<b>Credit Hours:</b>	Three (03)
<b>Sessions:</b>	30 Classes + Mid Term + Final Term	<b>Pre-Requirement:</b>	STAT 291

**Course Description:**

*The course is designed for 3rd and fourth year students who have already taken statistic course and must have a background in Finance. The course mostly revolves around the techniques which are required to make use of financial data. The aim of this course is to provide more specialized training on econometric techniques used in finance and economics. This will be helpful to empirically test theories; understand relationships between variables that are of interest for businesses and financial institutions.*

**Learning Outcomes:**

*After the completion of this course, it is expected that students who will involve themselves in the knowledge base working of the course will be capable to*

- 1. Understand types and forms of data and how to use them in econometric analysis.*
- 2. Identify sources of financial data to retrieve necessary data for econometric analysis.*
- 3. Demonstrate knowledge in econometric methods such as regression analysis and time series analysis.*
- 4. Apply appropriate econometric methods using STATA software to deal with the financial problems.*
- 5. Demonstrate the ability to report and present results obtained from analysis.*

**Teaching Learning Methodology:**

*The formal teaching component of this course consists of active student participation in and contribution to all forms of teaching and learning i.e. lectures, discussions, research assignments and projects. Lectures will be twice a week of 90 min each.*

**Group Configurations:**

*One of the objectives of this course is to encourage and facilitate teamwork. Class will have to make a group of four for projects and research assignments. It is recommended that student will form their own groups. As a general guideline, your group should have members with diverse skill sets including people who are proficient or have aptitude for different subject areas.*

**Weekly Term Plan**

<b>Wk</b>	<b>Lecture Topic</b>
01	<i>Introduction to Econometrics, Data Types, Sources of Economic Data</i>
02	<i>Linear Regression</i>
03	<i>Interval Estimation and Hypothesis Testing</i>
04	<i>Prediction, Goodness of Fit and Modeling Issues</i>
05	<i>Multiple Regression</i>
06	<i>Practice Session: Excel and SPSS: Practice Session</i>
07	<i>Non parametric data and tests: Practice Session</i>
08	<i>Mid Term Examination</i>
09	<i>Heteroscedasticity</i>
10	<i>Multicollinearity</i>
11	<i>Auto-correlation</i>
12	<i>Practice Session: STATA (R package): Practice Session</i>
13	<i>Modelling Volatility</i>
14	<i>Issues with volatility models</i>
15	<i>CAPM and its failure</i>
16	<i>Final Term Examination</i>



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**Topics in Detail**

**Introduction to Econometrics**

- Why Study Econometrics?*
- What is Econometrics About?*
- The Econometric Model*
- How Are Data Generated?*
- Economic Data Types*
- Sources of Economic Data*

**The Simple Linear Regression Model**

- An Economic Model*
- An Econometric Model*
- The Least Squares Principle*
- Assessing the Least Squares Estimators*
- Estimating the Variance of the Error Term*

**Interval Estimation and Hypothesis Testing**

- Interval Estimation*
- The t-Distribution*
- Hypothesis Tests*
- Rejection Regions for Specific Alternatives (One and two tail)*
- The p-Value*

**Prediction, Goodness-of-Fit, and Modeling Issues**

- Least Squares Prediction*
- Measuring Goodness-of-Fit*
- Modeling Issues*

**The Multiple Regression Model**

- The Economic Model*
- The Econometric Model*
- Assumptions of the Multiple Regression Model*
- Interval Estimation*
- Hypothesis Testing*
- One-Tail Hypothesis Testing for a Single Coefficient*
- Hypothesis Testing for a Linear Combination of Coefficients*

**Nonparametric data and tests**

- Non parametric data*
- Tests for non-parametric data*
- Application in Excel and/or SPSS*

**Heteroskedasticity**

- The Nature of Heteroskedasticity*
- Heteroskedasticity in the Multiple Regression Model*
- Detecting Heteroskedasticity*

**Multicollinearity**

- Multicollinearity meaning*
- Problems with Measuring Multicollinearity*
- Solution to the Multicollinearity Problem*

**Auto-correlation**

- What is autocorrelation?*
- Measuring auto correlation.*

**Modelling Volatility**

- Meaning of volatility*
- Models to measure volatility*
- ARCH models*
- GARCH models*
- Extensions of base models*

**Issues with volatility models**

- Issues with various forms of volatility models*
- Extensions of GARCH models*

**CAPM and its failure**

- CAPM model*
- Issues with CAPM*
- Reasons of failure*

**Text & Recommended Readings**

1. Principles of Econometrics  
Guay C. Lim, R. Carter Hill, and William Griffiths  
4th Edition 2011 ISBN: 978-1118032077
2. Introductory Econometrics: A Modern Approach  
Jeffrey Wooldridge  
6th Edition 2016 ISBN 978-1305270107

**Assignment Specification**

- Microsoft Word for Documentation*
- Headings Arial 11pt Bold*
- Normal Text Times New Roman 10pt*
- Header Footer Times New Roman 8pt*
- Paragraph Single Line Spacing*
- First Line Indent 1.0 cm*
- Page Margins 2 cm from each side*



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**Grading Policy:**

Final Grade for this course will be the cumulated result of the following term work with relevant participation according to the quoted percentage.

<b>Sessional</b>	<b>25%</b>		<b>Mid Term</b>	<b>35%</b>		<b>Final Term</b>	<b>40%</b>
Assignments	10 %		Mid Term Exam	25%		Final Exam	30%
Quizzes	10%		Major Report/Work	10%		Case Study/ Project/ Term Paper	10%
Presentations	05%						

*Remember subdivision of Mid Term and Final Term Examination should be done only in extreme cases of very essential and major Grading Instruments.*

**Dishonest Practices & Plagiarism**

Any student found responsible for dishonest practice/cheating (e.g. copying the work of others, use of unauthorized material in Grading Instruments) in relation to any piece of Grading Instrument will face penalties like deduction of marks, grade 'F' in the course, or in extreme cases, suspension and rustication from IBIT.

For details consult Plagiarism Policy of PU at <http://pu.edu.pk/dpcc/downloads/Plagiarism-Policy.pdf>

**Grading System:**

Letter Grade	Grade Point	Num Equivalence
A	4.00	85 – 100 %
A-	3.70	80 – 84 %
B+	3.30	75 – 79%
B	3.00	70 – 74 %
B-	2.70	65 – 69 %
C+	2.30	61 – 64 %
C	2.00	58 – 60 %
C-	1.70	55 – 57 %
D	1.00	50 – 54 %
F	0.00	Below 50 %
I	Incomplete	*
W	Withdraw	*

**Norms to Course:**

- ✓ Submission Date and Time for the term instruments is always **Un-Extendable**.
- ✓ 5 Absentees in class will result in forced withdrawal. **(PU Policy)**
- ✓ Re-sit in Mid and Final Term will cause you a loss of 2 and 3 grade marks respectively. **(PU Policy)**
- ✓ This is your responsibility to keep track of your position in class evaluation units.
- ✓ After the submission date, NO excuse will be entertained.
- ✓ **Keep a copy of all submitted Grading Instruments.**
- ✓ Assignment is acceptable only in its Entirety.
- ✓ No make up for any assignment and quiz.
- ✓ Copied & Shared work will score Zero.
- ✓ Assignments are Individual.

**Good Luck**  
 For the Spring Term