List of SMU Courses for Sharing AY2021-2022 Term 2

No.	Course Code	Course Title	Course Units	Class Timetable	Pre-requisites	Short write-up on the Course/Course Description
School of Accounting						
1	ACCT703	Analytical and Empirical Research in Accounting	1.0 CU	TBC	Nil	This course introduces analytical and empirical studies in accounting research, emphasizing both theory construction and methodology. The first half of the course introduces empirical research topics and the econometric intuitions behind commonly used empirical methods. The class covers various topics, such as financial reporting, disclosure, governance, and taxation, and various methods, such as instrumental variables, and natural experiments, and regression discontinuity. The second half of the course focuses on accounting theory as it applies to the motivation, intuition, and interpretation of empirical accounting work. Having an appreciation for theory and some experience of how to approach the theory literature makes it easier to form research ideas, develop hypotheses, and understand the results of your work.
School of Economics						
2	ECON602	Macroeconomics I	1	TBC	A working knowledge of mathematics (including elementary calculus)	This course, which is the first course of a two-part Macroeconomics sequence, focuses on familiarizing students with the models, concepts, and techniques commonly used in modern macroeconomic theory and its applications.
3	ECON622	Macroeconomics II	1	TBC	A working knowledge of mathematics (including elementary calculus)	The aim of this course is to learn: 1) this important class of heterogeneous agents model, and 2) how to solve numerically for the equilibrium of these economies, a necessary step to use these models for quantitative research.

4	ECON623	Econometrics II	1	TBC	Requires basics of matrices, probability, and statistic	This is an overview of time series econometrics, designed to introduce students to a range of material in stationary time series, nonstationary time series, multivariate time series, including unit root theory, state-space models, VAR models, and cointegrated models.
5	TBC (New course)	Topics in Health Economics	1	TBC	Microeconomics, Macroeconomics.	Health economics is a rapidly growing and increasingly popular field in economics. This course will survey recent work in health economics. The course will mainly cover evidence based empirical research using recent econometric tools such as regression discontinuity design and randomized controlled trials. Topics include demand and supply of healthcare services, economic returns to medical care, economic issues in health insurance reforms, long-term effects of early-life health shocks, health care in developing countries, etc. We will also discuss how to apply cutting-edge health economic research in the context of the Singapore Health Care Market. The objective of this course is to equip doctoral students with frontier knowledge on the cutting-edge empirical research techniques in health economics and an ability to write a research paper on health economics topics.
6	ECON690	Computational Macroeconomics	1	TBC	Macroeconomics	This course equips students with powerful computational tools to be used in macroeconomic analysis. Students learn how to solve macroeconomic models using computational methods, calibrate these models, and use calibrated models to address interesting questions in macroeconomics. While students are exposed to some basic macro models throughout the course, the main objective is computer implementation of these models, possibly with real data.
7	TBC (New course)	High Frequency Econometrics	1	TBC	Econometrics	This course presents a topical introduction to urban and regional economics. Students will learn various fundamental models/tools used in urban and regional economics, including monocentric city models, core-periphery new economic geography models, spatial competition models, type-of-cities models, and quantitative spatial economics. We will also study various topics/issues in the recent literature of urban and regional economics, including the inner structure of cities, the system of cities, city size distribution, spatial

						friction, natural amenities, and the roles of transportation, urban policies, and urban policies and developments.
8	TBC (New course)	Topics in Labour Economics	1	TBC	Microeconomics, Macroeconomics, Econometrics.	This course provides an overview of major topics in labour economics, including labour supply and human capital theory. Throughout the course, we consider life-cycle models of consumption, labour supply, and human capital accumulation. We also discuss the estimation of the life-cycle models, focusing on practical methods for estimating dynamic discrete choice models and its application.
9	TBC (New course)	Topics in Microeconomic Theory	1	TBC	Microeconomics	TBC.
10	ECON703	Time Series Econometrics	0.5	TBC	Econometrics	The course covers topics in Time Series, Panel Econometrics, and Nonparametric Regression with Applications. Each module includes a selection of topics in time series and stochastic process econometrics that are suited to Ph.D students advancing in any area of econometrics or financial econometrics.
School of Computing and Information Systems						
11	CS702	Computational Interaction	1 CU	Tue, 7pm – 10:15pm	- Basic programming skills - (Recommended) Undergraduate-level knowledge in linear algebra, calculus, probability and statistics	Computational capabilities enable new ways to design and develop novel interaction technologies. At the same time, it allows us to evaluate and better understand users' behaviors. In this course, we will: • Review topics on user-centered design and programming interactive systems that are necessary for completing assignments • Learn how to apply machine learning and optimization techniques like Gaussian process and

					- (Recommended) Undergraduate-level knowledge and skills on usercentered design (e.g., IS211 Interaction Design and Prototyping)	integer programming for designing user interfaces and information visualizations • Use modern and emerging sensing technologies like speech recognition and gesture recognition to design novel input methods • Learn to model people's behaviors using statistical techniques like Bayesian methods
12	CS703	Optimization and Computing	1 CU	Fri, 7pm – 10:15pm	Good working knowledge in Linear algebra, probability & statistics, calculus, programming is required.	This course will introduce students to fundamentals of convex optimisation (such as the notions of convexity, convex sets and functions, linear and quadratic programs, optimality conditions, duality theory etc), and enable students to recognise and solve convex optimisation problems that arise in a variety of computing applications (particularly in the context of AI, machine learning and operations research). Mathematical optimization has become the backbone of several successful AI/ML applications (e.g., linear programming for solving Markov decision problems, quadratic programming for support vector machines, algorithms such as gradient descent for deep learning among several others). The course will endeavour to provide solid foundations in optimization basics that will enable students to understand a variety of such practical applications of mathematical optimization.
13	IS702	Information Security	1 CU	Wed, 7pm – 10:15pm	• Basic understanding of TCP/IP networking • Basic algebra and probability	This course studies the key facets of information security, from theory to applications in a networked environment. Topics to be covered include symmetric key cryptosystems, number-theoretical foundations, public key cryptosystems, authentication, key exchange, access control, Internet security architecture, and emerging security standards.
14	IS706	Software Mining and Analysis	1 CU	Mon, 7pm – 10:15pm	• Intermediate to advanced programming skills • Undergraduate-level course(s) on software engineering	This course introduces participants to advanced techniques and tools for mining and analyzing software data, which includes but not limited to source code, executable code, code repository records, code specifications, test cases, bug reports, execution profiles, and documentations. Major topics include static program analysis, dynamic program analysis, software repository mining, and specification mining. While

					• Undergraduate-level course(s) on data structures and algorithms • Undergraduate-level course(s) on probability and statistics	not sidestepping mining and analysis theories, the course aims to equip participants with knowledge and skills that can be applied to resolve software issues in their own research and development projects.
School of Social Sciences						
15	PSYC 604	Multivariate Statistics	1.0	Friday, 12 – 3:15pm	-	
16	PSYC 608	Industrial And Organizational Psychology	1.0	Tuesday, 3:30 – 6:45pm	• Undergrad course in Intro to Psychology • Undergrad course in methods/statistics/measurement	
17	PSYC 610	Evolutionary Psychology	1.0	Wednesday, 12 – 3:15pm	-	
18	PSYC 625	Psychology of Self	1.0	Thursday, 12 – 3:15pm	-	

Lee Kong Chian School of Business						
19	IDIS 701	Applied Econometrics For Social Sciences Research	1.0	Monday, 3.30pm-6.30pm	N.A.	This is a university-wide Ph.D. seminar course in applied econometrics for social science research. The course aims to expose students to current and classic studies in various empirical methods across various social science disciplines: economics, finance, accounting, strategy, organizational behaviour, social science, political science, etc. The topics which will be covered in the course include linear regression models, panel data, instrumental variables, (quasi)natural experiment, difference-in-differences, regression discontinuity, matching and selection models, standard errors, etc. The class format combines lecturing and student presentation of pre-assigned papers. The lectures by the instructor will teach various econometric techniques (in an intuitive and not-so-technical way), and the paper presentations will expose students to how these techniques are used in research in various fields.
20	OPIM 708	Topics in Interdisciplinary Research in Operations Management	1.0	Thursday, 2.00pm-5.30pm	N.A.	This course aims to introduce online learning and its applications in OM. We will discuss several important topics by studying recently developed methods in the online learning problem and reviewing journal articles in this area. Specifically, we will cover theoretical results followed by applications in revenue management, resource allocation problems, healthcare operations, and others. Students will develop relevant modeling, analytical skills through reviewing these journal articles. After taking the course, the students will gain some basic understanding of the interdisciplinary works between learning and OM.