NTU-NUS/SMU/SUTD PhD Student Exchange Programme

List of NTU Courses to be offered in Semester 2 AY2025-26

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
ADM	AP7055	Art in the Age of Creative Machine	3	This graduate-level course introduces you to the most recent research and critical machine learning theories in creative fields such as media art, music, performance, and literature. You will review and analyse how machine learning has transformed art and culture by examining and comparing human-based and machine-based art practices and Artificial Intelligence (AI) tools to enhance creativity and production. The course explores the future of creativity, the artist's role, and how machine learning will transform our understanding of what it means to be creative. You will explore cultural, historical, philosophical, and spiritual aspects of creativity and develop unique concepts and artistic prototypes utilising AI's uniquely visual, narrative, and performative potential. This course develops a foundation for students interested in exploring the creative possibilities of AI technologies and how they can assist artists with their creative process for new forms of storytelling, visual arts, and performance.	Monday, 1330-1620	Subject to approval by course lecturer Letter grading
ADM	AP7057	Seminar in Design & Colours	3	In this seminar you will analyse and discuss the historical development of two-dimensional design and colour through the lens of Western and Chinese ink paintings. You will study works from the 15th to early 20th century, a period that marks the most significant development of art concepts and technical progress of both Western and Chinese ink painting. Through this comparative analysis you will examine the parallel developments of color theory, space structures and design concepts. This course will deepen your awareness and comprehension of art and design development across these two cultural areas.	Thursday, 1330-1630	Subject to approval by course lecturer Letter grading

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ASE	ES7011	Ocenography	3	The ocean plays a critical role in modulating Earth's Climate and chemical fluxes. Understanding this system in the context of the laws of thermodynamics is critical to understanding the oceans role in the Earth System. The following subjects will be covered in detail: Elements to be covered (not equally weighted) 1. Introduction to oceanography 2. The Miracle of Sea Water and Density 3. Introduction to the Atmosphere 4. Ocean Currents 4.1 Surface Currents 4.2 Deep Currents 4.3 Geostrophic Motion 5. Introduction to Chemicals in the Ocean 5.1. Chemical Inputs – Rivers, Vents, Gas Exchange 5.2. Nutrients in the Ocean 5.3. Oxygen and other Gases 5.4. Carbon in the Ocean 6. Large Scale Ocean and Climate Systems 6.1 El Nino 6.2 NAO	Lecture, Tuesday, 1330hr - 1520hr Tutorial, Thursday, 0930hr - 1020hr	Student must seek approval from the course instructor and attached the email approval.
ASE	ES7012	Structural Geology	4	This course will cover the deformation of Earth materials, from the scale of individual grains to large mountain belts. Much of the course will rely on the use of industry tools and data, with hands-on labs in addition to lecture content. Students should come out of the course with a thorough understanding of how Earth materials deform under stress, how we can observe and interpret this deformation, and how this is relevant to both the oil and gas industry and to our understanding of earthquake hazards. Elements to be covered (not equally weighted): 1. Introduction to structural geology 2. Structural geometry 3. Strain 4. Stress 5. Rock strength 6. Fractures (joints and faults) 7. Ductile deformation 8. Folds 9. Thrust faulting and mountain belts 10. Normal faulting and rift basins 11. Strike-slip margins 12. Salt tectonics and passive margins 13. Structural geology and earthquakes	Lecture, Tuesday, 1230hr - 1420hr Tutorial, Thursday, 1130hr - 1220hr	Student must seek approval from the course instructor and attached the email approval.

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
ASE	ES7013	Climate & Climate Change	3	To learn how the climate system works, what caused climate change in the past, and how climate is and will be changed by human activity. To become familiar with analytical and mathematical tools to study the climatic state. And finally, to be able to link the theory to the observation data. This course introduces the climate system and climate change. 1. The state of the climate system based on understanding of physics and chemistry. 2. Past, present and future climate. 3. Human impact on the climate system and climate change.	Lecture, Friday, 1130hr - 1420hr	Student must seek approval from the course instructor and attached the email approval.
ASE	ES7020	Introduction to Geophysics	4	The main goal of this class is to provide students with general understanding of some techniques that are used to probe the Earth's surface. The techniques that will be presented during this class are used in both private sectors as well as in earth science in general. By the end of the course students should be able to identify which technique should be used depending on the question they have to answer. Students should be able to appreciate the quality of the data that they collect/analyse. And they should be able to interpret those data. Wherever possible field campaign, within Singapore, will be run to have direct hands-on experience, and use real-world data for classes and labs.	Lecture, Monday, 1230hr - 1420hr Tutorial, Tuesday, 1530hr - 1620hr	Student must seek approval from the course instructor and attached the email approval.

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
ASE	ES7023	Fundamentals of Data Science for EESS	3	Modeling using statistical learning and data science methods are powerful tools for earth and environmental systems science. This course will cover the major concepts for building and evaluating models, including fundamentals of statistical and machine learning. Topics covered include (1) basic concepts and tools in data science, (2) statistical thinking, (3) goals and principles of scientific modeling, (4) model development, (5) model calibration and selection, (6) sensitivity analysis, (7) model evaluation, (8) model predictions, (9) results visualization and communication. Students will gain hands-on experience in developing models and simulations (using R programing language). Such skills will prepare students for further research in earth and environmental systems, or careers in data-science.	Lecture, Tuesday, 0930hr - 1120hr Lab, Wednesday, 0930hr - 1220hr	Student must seek approval from the course instructor and attached the email approval.
ASE	ES7026	Coupled Human and Natural Systems	4	The course will introduce the study of coupled human and natural systems drawing primarily from land systems science research, which is the study of past, current, and projected state and dynamics of land use. The course will focus on identifying social and ecological components and processes in coupled human and natural systems (used interchangeably with socioecological systems) and apply established frameworks to the study of connections and linkages across social and ecological realms. The aims of this course are to apply established socioecological frameworks, develop a working knowledge of social science research methods and spatial analyses when studying coupled human and natural systems. Graduate students interested to make their research more applied and policy-relevant can consider taking this course.	Lecture, Wednesday, 0930hr - 1120hr	Student must seek approval from the course instructor and attached the email approval.
CCDS	CE6121	Human Computer Interaction Theory and Practice	3		Friday, 6.30-9.30pm	No formal exam
CCDS	CE6127	Artificial Intelligence in Game Design	3		Monday, 9.30am-12.30pm	No formal exam
CCDS	CE7404	Virtual Reality	3		Thursday, 1.30-4.30pm	No formal exam

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CCDS	CE7412	Computational and Systems Biology	3		Tuesday, 2.30-5.30pm	No formal exam
CCDS	CE7453	Numerical Algorithms	3		Monday, 2.30-5.30pm	Formal Exam
CCEB	BG7002	Molecular Biophysics	3	Course Information | School of Chemistry, Chemical Engineering and Biotechnology (CCEB) | NTU Singapore	Friday, 9:30am to 12:20pm	Grading
CEE	CV7002	Advanced Strength of Materials	3		Mon, 1.30PM - 4.30PM	
CEE	CV7003	Engineering Mathematics and Machine Learning	3		Fri, 6:30PM - 9:30PM	
CEE	CV7501	Membrane Science & Technology	3		Wed, 2.30PM - 5.30PM	
EEE	EE7207	Neural Networks and Deep Learning	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-computer-control-automation#curriculum	Thursday (6.30 pm to 9.30 pm)	Letter grade Limited slots, capped at 10 slots
EEE	EE7403	Image Analysis & Pattern Recognition	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-signal-processing#curriculum	Friday (6.30 pm to 9.30 pm)	Letter grade Limited slots, capped at 5 slots
EEE	EE7602	Integrated Circuit Technology	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-electronics#curriculum	Wednesday (6.30 pm to 9.30 pm)	Letter grade Limited slots, capped at 5 slots
EEE	EE7603	Semiconductor Physics & Applications	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-electronics#curriculum	Tuesday (6.30 pm to 9.30 pm)	Letter grade Limited slots, capped at 10 slots

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LKCMedicine	MD7102	Bio-Entrepreneurship	3	LKCMedicine's Team-Based Learning Bio-Entrepreneurship course provides post-graduate students with an understanding of the entire drug discovery and development process starting from basic and translational research to creating viable partnerships with BioPharma companies or establishing Spin-Offs. The course is open to students from diverse backgrounds ranging from medicine, life sciences and engineering to humanity and social sciences. To understand biotech investing, each student will be assigned virtual USD 500,000. Each student will use online analytic tools (e.g. Morningstar) to evaluate BioPharma companies from a list we provide, and then use the USD 500K to create an investment portfolio. Students will track their portfolio during the course, buying and selling shares on a weekly basis.	Tuesdays: 2.30 - 5.20 pm 13 Jan - 14 Apr 2026	

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LKCMedicine	MD7107	Latest Development in Infectious Disease Research	3	This course is intended to students interested by the latest development in infectious diseases research. Learning objectives: critical assessment and debate on cutting-edge articles; analyse diagnostic approaches and new therapeutic strategies for viral, bacterial and fungal infections; discuss the global danger and challenges of antimicrobial resistance; discuss and propose solution for current global health challenges in communicable diseases; develop and defend research global health challenges; analyse the clinical relevance of microbiomes and redefine the Koch postulates. A project-based learning approach will be followed that includes team-based analysis of cutting-edge papers; team-based development and defence of solutions for medically relevant problems; elaboration and presentation of research proposals to solve global health issues. •Infectious Arboviruses: research towards a cure •New drug development for tuberculosis: progresses and application to other bacterial infections •Emerging superbugs in Asia •Fungal Infections (aspergillus, candida) •New approaches to viral and bacterial diagnosis •The microbiome as a source of infectious diseases: redefining the Koch postulates •Vaccines/host-directed therapies •Alternative to antibiotics for controlling bacterial infection •Regional field research on neglected tropical diseases •Infectious Disease in the Clinical Setting	Wednesdays: 9.30 am - 12.20 pm 14 Jan - 15 Apr 2026	

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LKCMedicine	MD7114	Neuroengineering	3	The course will introduce PhD students to various concepts from engineering that are used in neuroscientific research. Course content will include the following topics: • Signal processing for neural spike detection, sorting and decoding. • fMRI signal processing • Human kinematic modelling, experimentation and data analysis • Signal processing and experimentation for EEG • Eye tracking & Virtual reality as tools for neuroscientists • Medical device design and System integration fundamentals In addition to providing a strong theoretical framework, the course will give students an opportunity to perform laboratory measurements of human kinematics.	Fridays: 2.30 - 5.20 pm 16 Jan - 17 Apr 2026	
LKCMedicine	MD7115	Introduction to Biostatistics with R	3	This course will cover basic statistical principles applied to biological data analysis. Statistical theory will be introduced although the focus will be on the practical usage and applications in biology. The course will be a mixture of lectures and practical sessions in the statistical language R.	Mondays: 9.30 am - 12.20 pm 12 Jan - 13 Apr 2026	
LKCMedicine	MD7116	Introduction to Neuroscience, Neural Systems and Behavior	3	This course provides an introduction to the concepts, principles and technologies of contemporary cellular, molecular neuroscience, and systems neuroscience, including sensory and motor systems, behaviour, memory and cognition. Contents include: •Introduction to Neuroscience •Electrical signals of nerve cells •Voltage-dependent conductance •Ion Channels •Synaptic transmission Neurotransmitters and their receptors •Molecular signaling within neurons •Synaptic plasticity •Early brain development •Construction of neural circuits •Systems neuroscience including sensory and motor systems, behaviour, memory and cognition	Wednesdays: 2.30 - 5.20 pm 14 Jan - 15 Apr 2026	
MAE	MA7111	Mechanics of Solids and Fracture	3		Thursday, 7pm to 10pm	

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NBS	BR7311	Seminar in Capital Market Research in Accounting	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7374	Seminar in Entrepreneurship	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7331	Seminar in Information Systems Research	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7332	Contemporary Issues in Information Systems	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7351	Seminar in Consumer Behaviour	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7327	Empirical Research (Corporate)	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7352	Seminar in Marketing Modelling	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7354	Advanced Seminar in Quantitative Marketing	3		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7531	Advanced Research Methods: Meta-Analysis	TBA		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7371	Advanced Topic in Strategic Management	TBA		Academic Calendar | Nanyang Business School | NTU Singapore	
NBS	BR7361	Optimisation	TBA		Academic Calendar | Nanyang Business School | NTU Singapore	
NCPA	PM6132	Singapore Public Administration	3		TBC	Grading
NCPA	PM6143	Innovation in Public Sector and Policy Design	3		TBC	Grading
NIE	MAS919	GIS and Geospatial Learning in Sustainability	4	Sustainability has become a key theme in higher education globally. It is also by now a core component of the revised MAHE programme. The spatial thinking tools and applications that you will learn in GIS will help you to better comprehend sustainability issues as well as devise solutions for such problems. This course will enable you to apply GIS vis-a-vis cross-disciplinary perspectives in the Humanities with respect to the Southeast Asian context.		LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MAS940	Curriculum Leadership in Social Studies	4	Many issues and challenges are involved in the implementation of Social Studies, one of the most important subjects for citizenship education. This course prepares you to lead in the development of curriculum and pedagogy for Social Studies. You will be encouraged to explore the multiple meanings of curriculum and the role of curriculum leaders in Social Studies. Opportunities will also be provided for you to engage in discourses on the theory and practice of curriculum leadership.		LetterGrade
NIE	MAS951	Global History of Development	4	Development is the purported goal of every state, whether it seeks to develop, to maintain its level of development, or to change the course or shape of its current level of development. But what do states mean when they talk about development? Why has development become so central to how we view the world? How has the definition of development changed over time? What is the relationship between development and sustainability? This course will help you question conventional assumptions about development, and to critically assess development in different historical contexts, with a particular focus on Asia and Africa. You will sharpen your critical thinking skills, widen your understanding of the global community, and gain tools to analyse present-day events in a historical framework. This course is for students who are interested in globalization, global inequality, the history of empires, the Cold War, geopolitics, and economics.		LetterGrade
NIE	MAS982	Inquiry and Perspective in the Humanities	2	Recognising that inquiry is a valuable experience for postgraduate students, this 2 AU course offers you a chance to trace lines of inquiry with respect to a humanities related topic of your choice. Given that this is a 2AU course, the course assignment format, expectations, and workload are designed such that they would be manageable for you.		LetterGrade
NIE	MCL901	Language Planning and Language Education	4	Language planning and language education complement each other. Language planning undergoes a stringent and comprehensive developmental process, providing recommendations to be implemented under language education. Language planning varies in different region in order to meet their respective needs, hence, resulting in the differences in language education. Understanding the relationship between language planning and language education will enable students to analyse, compare and objectively review the local language education.		LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MCL903	The Instructional Use of Children and Young Adults' Literature in Chinese Language Teaching and Learning	4	As a Chinese language teacher in a primary or secondary school, it is imperative to understand the relationship between children and adults literature and pedagogies. This course will help to enhance the understanding of the applications in children and young adults literature, allowing teachers to hone their teaching pedagogies. This course will examine the instructional use of children and young adults literature in Chinese language teaching and learning.		LetterGrade
NIE	MCL904	Chinese Literature and Culture and Its teaching	4	As a Chinese literature teacher in a secondary school or junior college, this course is helpful in enhancing understanding the developments in Chinese literature and culture and allowing teachers to hone their teaching pedagogies. This course will examine the historical regularity and characteristics of Chinese literature and culture, and related pedagogical theory and practice based on the development of Chinese literature and culture.		LetterGrade
NIE	MCL906	Chinese Educational Linguistics	4	Educational Linguistics is one of the major sub-fields of Applied Linguistics. It is an area of study that integrates the research tools of linguistics and other related disciplines of the social sciences in order to investigate holistically the broad range of issues related to language and education. With an in-depth knowledge of the educational linguistics, the teacher is better equipped to plan more effective and meaningful pedagogy. Overseas renowned scholars will be invited to share their forefront ideas, thoughts and experiences which will greatly benefit the students.		LetterGrade
NIE	MGE900	Communication in the Digital Age	2	This course demonstrates and explains new approaches to language use and communication in the digital age. The central idea is to experience directly what it is like to compose and share with others a text that combines a range of ways of representing knowledge (e.g., images, sounds, gestures, movie clips) for different purposes (e.g., storytelling, comparison, documentary, entertainment or education). During the course, there will be frequent opportunities to discuss current ideas and practices in contemporary communication, consider various real-world examples (e.g., Whatsapp, Instagram, YouTube and Facebook), learn with and from others and see the things and events around us in new and exciting ways. This is a blended learning course delivered through face-to-face and online sessions (e.g., Zoom)	Start 13 Jan 2026, Tues, 6 - 8pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MLS962	Environmental Health and Toxicology	4	The study of the effect of pollution on natural ecosystems by examining biological responses at all organismal levels (molecular to whole organism) using biomarkers is an increasingly popular tool for managing environmental health by various governmental bodies. MSc (LS) Environmental Science candidates who take this course will have an opportunity to run laboratory experiments using known pollutants. Field sampling will be conducted to examine possible correlations with environmental contamination, allowing candidates to experience a direct application of ecotoxicology techniques as an environmental management tool. This experimental extension allows for a more rigorous assessment of a research-based course.	Start 14 Jan 2026, Weds, 10am - 1pm	LetterGrade
NIE	MLS964	Global Environmental Change and Vulnerable Ecosystems	4	Accelerated change in the environment on a global scale has been observed in the Anthropocene. The drivers of these global scale changes are attributed to human activities that relate to an unsustainable rate of development. Natural ecosystems (both terrestrial and aquatic) are impacted by environmental change, particularly when the scale and intensity of change exceeds the natural resilience and tolerance states of these ecosystems. It is important to be able to monitor and understand the impacts of environmental change to whole systems, especially vulnerable tropical ecosystems which largely support more than half of the earths human populations. This course aims to look at global environmental change and their impacts on vulnerable ecosystems from a scientific perspective, utilising state of the science technologies and newly developing knowledge. The course will be delivered as a practice-based field-orientated programme, which will have an overseas field component.	Start 15 Jan 2026, Thurs, 6.30 - 9.30pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MLS985	Chemical Ecology	4	This course explores the role and function of chemistry in mediating interactions among a variety of organisms, including intraspecific and interspecific interactions. The course will cover the range of compound classes involved in chemical ecology. In addition, we will discuss the diversity of species interactions and chemical compounds in terrestrial and aquatic systems, and methods (e.g. analytical and molecular techniques) used to detect these compounds. We will cover defensive and offensive chemistry mediating antagonistic interactions; the evolution of defenses; chemicals mediating mutualisms, competition, and sociality; the physiology of chemical production and recognition; and how chemical ecology affects humans. The biotechnological applications of chemical ecology will also be discussed. This course will include paper discussions of relevant recent literature.	Start 12 Jan 2026, Mons, 9.30am - 12.30pm	LetterGrade
NIE	MME913	Algebra and the Teaching of Algebra	4	This is a specialisation elective course for the MEd (Mathematics) programme. This course contributes to the following programme objectives particularly in the area of algebra and its teaching: (1) build the participants knowledge of the mathematics subject matter; (2) develop the participants competencies in conducting educational research. In addition, the course also addresses teachers and students misconceptions in the learning of algebra in support of another programme objective of providing participants with knowledge related to specific ideas in mathematics education.	Start 14 Jan 2026, Weds, 6 - 9pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MME931	Contemporary Issues in Mathematics Education	4	This is a specialisation elective course for the MEd (Mathematics) programme that offers special topics in mathematics education. It contributes to one or more of the following programme objectives: (1) develop the participants competencies in conducting educational research; (2) provide participants with the knowledge and skills related to specific ideas in mathematics education; (3) develop the participants ability to relate the theoretical ideas in mathematics education to the authentic problems of practice faced by teachers in the classroom; (4) develop the participants ability to relate the theoretical ideas in mathematics education to the authentic problems of practice faced by teachers in the classroom, or (5) develop the participants disposition of inquiry towards issues and topics in mathematics education. This course also serves to enhance the programme by tapping into the knowledge and expertise of researchers who are involved in cutting edge research in this field of study. This course may be structured in such a way that it is offered as an intensive course within a short period of about two weeks. As such, it is suitable for full-time students or students who need to take courses over a shorter period of time.	Start 12 Jan 2026, Mons, 1.30 - 4.30pm	LetterGrade
NIE	MML915	Assessment for Learning in Malay Language Classroom	4	This course aims to explore the theoretical understanding, issues and complexities of authentic and alternative assessments within the classroom context and alongside the traditional examinations practices. The course highlights the three principles of Assessment for Learning. Firstly, the principle of Making Learning Explicit focuses on the role of the teacher to make learning and assessment meaningful for the learner. The second principle, Promoting Learner Autonomy focuses on the role of the teacher in developing independent learners. Finally, the third principle, Focusing on Learning {Not Performance} aims to get participants to focus on their roles as teachers to challenge traditional assessment attitudes in favor of assessment that is more formative and focused on the learning process.		LetterGrade

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NIE	MSC903	Science as Practice	4	* To provide more science education courses for participants to choose in the MEd programme * To strengthen the theory and practice nexus of science as practice in science teaching * To enable participants to make connections between the ideas of science as practice to other classroom practices	Start 12 Jan 2026, Mons, 5.30 - 8.30pm	LetterGrade
NIE	MSC908	STEM Education History, Policies, and Research Trends	4	This course provides an overview of the history of STEM education, including the emergence of STEM and STEM education in the US and its development in other regions, such as Europe and Asia. STEM education policies in selected countries, including Singapore, will be examined and discussed. Empirical studies will be analyzed and discussed to highlight trends in STEM education research. Differences in interpretation of STEM education will be highlighted in light of the STEM education policies and research discussed.	Start 13 Jan 2026, Tues, 5.30 - 8.30pm	LetterGrade
NIE	MSM903	Algebra	4	This course in abstract algebra aims to introduce you to rings, groups, and possibly other algebraicstructures such as modules, and to present a range of examples to facilitate the understanding of theabstract theory so that you have a good grasp of the fundamental concepts in abstract algebra. Thiscourse is intended for educators, especially secondary and post-secondary school teachers, to help themto have an in-depth conceptual understanding of some topics in school mathematics such as numbersystems, polynomials, from an advanced and structural perspective of abstract algebraic systems. Thiscourse will also lay a foundation for students who plan to pursue a PhD in areas related to abstractalgebra.	Start 14 Jan 2026, Weds, 6 - 9pm	LetterGrade
NIE	MSM906	Discrete Mathematics	4	This course aims to expose mathematics educators to counting principles which will enhance theircontent knowledge of teaching permutations and combinations, as well as elementary probability.Additionally, this course introduces a useful branch of discrete mathematics called graph theory whichhas many applications in modelling real-life contexts. This course also lays a foundation for students who plan to pursue a PhD in the area of discrete mathematics.	Start 15 Jan 2026, Thurs, 6 - 9pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MSM908	Number Theory	4	This course in number theory aims to introduce you to fundamental concepts in elementary numbertheory, including divisibility and primes, unique factorization, congruences and quadratic reciprocity. Thiscourse is intended for educators, especially secondary and post-secondary school teachers, to help themdevelop in-depth conceptual understanding of some topics in school mathematics such as numbersystems, greatest common divisor, and the Fundamental Theorem of Arithmetic. Real world applicationsof number theory will also be discussed. Examples include the use of check digits for error detection inour National Registration Identity Card (NRIC) numbers and the RSA encryption system for secure onlinetransactions. This course will also lay a foundation for students who plan to learn more advancedmathematics in areas related to algebra and number theory.	Start 16 Jan 2026, Fris, 6 - 9pm	LetterGrade
NIE	MTCL901	Language Code: Theory and Practice	4	As Chinese characters are ideographic in nature, the phonetic functions are weak. Furthermore, the structure of Chinese characters are complex and difficult to recognize, to read as well as to write. Therefore, phonetic system, Hanyu Pinyin was developed to aid in learning Chinese. Chinese characters and Chinese phonics operates with two different set of rules. Chinese characters represent single syllables while Hanyu Pinyin operates with a set of standard basic rules in relation to different forms of Chinese words. As instructors of TCIL, it is important to understand the characteristics of these two codes in order to effectively teach Chinese as an international language.		LetterGrade
NIE	MTCL902	Vocabulary and Grammar: Theory and Practice	4	The fundamental purpose of learning any language is for communication purpose. Be it in spoken or written communication, vocabulary and grammar are two of the most important components in any language learning, as they play a vital role in building up language proficiency. In teaching Chinese as an international language, instructors must understand the grammatical rules and its effect on vocabulary on the target language to bring about effective teaching. Hence, this course will lay a good foundation in Chinese vocabulary and grammar basics, so as to effectively teach Chinese as an international language.		LetterGrade

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NIE	MTCL903	Chinese-English Contrastive Analysis & Its Application	4	The use of translation in learning a foreign language is widely used as a teaching and learning strategy to help students remember, comprehend and acquire the use of the target language. The influence of the learners first language, however, will have substantial impact in the language acquisition process. Hence understanding the major difference between Chinese-English through contrastive analysis in theories and practice of translation and its application in TCIL is necessary to equip TCIL instructor with the fundamental understanding to implement the bilingual model in TCIL.		LetterGrade
NIE	MTCL904	Teaching of Listening & Speaking Skills in TCIL	4	Listening and speaking are two important skills required in any language learning. They are complex skills that need to be developed consciously. In any interaction, comprehending the language used is necessary for effective communication. Hence, as instructors for TCIL, it is important to acquire the various communicative language teaching pedagogical approaches in order to teach effective communication skills. Besides acquiring pedagogical approaches in teaching non-native learners, keeping abreast with recent developments and research on the teaching of Chinese language listening and speaking content and skills are also essential to build the competencies to effectively TCIL to the 21st century learners.		LetterGrade
NIE	MTCL905	Teaching of Reading And Writing Skills In TCIL	4	Reading and writing are two important literacy skills one requires to function effectively in everyday life. These two skills are interconnected and can be developed together. With global economies and emerging new technologies, new literacies are already becoming part of the educational landscape. Hence, as instructors for TCIL, it is important to understand the various teaching pedagogical approaches to engage learners of this new age. Besides acquiring pedagogical approaches in teaching non-native learners, keeping abreast with recent developments and research on the teaching of Chinese language reading and writing content and skills are also essential to build the competencies to effectively TCIL to the 21st century learners.		LetterGrade

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NIE	MTCL906	Application of Information Technology in TCIL	4	In todays 21st century education, the use of ICT for teaching and learning had infiltrated schools at a rapid pace. To ensure that todays digital learners are future-ready for the workforce of tomorrow, educators must understand and embrace the need to employ the use of ICT to create a 21st century learning environment. A 21st century educator must be competent to use technology with ease in teaching and learning, be it in the classroom or out of classroom where learning takes place anytime, anywhere. Hence, as TCIL instructors, it is important to understand the application of technological tools with content and pedagogical approaches, and appreciate how ICT can create an effective learning environment for TCIL.		LetterGrade
NIE	MTCL907	Language Testing & Assessment in TCIL	4	Testing and assessment is an integral part of the learning process, and must be closely aligned with curricular objectives, content and pedagogy. It serves as the central function of getting the best possible evidence on what the students have learned. Teachers and students can then use this information to decide what to do next in the teaching and learning process. It is important that TCIL instructors be equipped with the necessary assessment competencies, so that quality teaching and learning can be achieved in all TCIL classrooms, bearing in mind the varied language backgrounds and proficiency levels of TCIL learners.		LetterGrade
NIE	MTCL908	Analysis & Development of Instructional Materials for TCIL	4	Over the last three decades, there are many TCIL curriculums and instructional materials developed for non-native learners globally. However, TCIL instructors find it challenging to identify proper instructional materials for learners of differing abilities. This course aims to enhance the knowledge and skills of TCIL instructors in analysing the instructional materials developed by different editors and publishers. In addition, through better understanding of principles of the curriculum design and instructional materials development for TCIL, instructors will be well equipped in developing instructional materials for different learners.		LetterGrade
NIE	MTCL909	Global Chinese and Contemporary China	4	The rapid rise of China as a global economy has driven an increase to the educational and pragmatic value of learning Chinese language globally. Understanding the history and development of Chinas rise and economic globalization is essential to TCIL instructors as they thread beyond the grounds of China in TCIL to non-native learners.		LetterGrade

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NIE	MTCL911	Professional English for TCIL Instructors	4	All teachers need to possess skills that enable them to communicate effectively with a range of stakeholders in the educational settings. Being able to apply these skills in a second language is all the more critical for Chinese language teachers who will need to fulfill school related tasks and communicate with other members of staff, students and their parents in the English medium. This course helps to prepare participants who will be working in international settings as they move through their careers.		LetterGrade
NIE	MTCL912	Early Childhood Education in TCIL: Theory and Practice	4	Early childhood education is crucial as it has direct impact on the development of learning skills, social and emotional abilities of a child. It is during the early childhood years that we should accentuate the development of language, speech and literacy, as it will significantly enhance the childs learning in the later years. Educators should leverage on the varied learning styles and characteristics of early childhood learners, from infancy to the age of eight, apply corresponding learning theories into practice, to bring about effective teaching and learning of Chinese as an international language.		LetterGrade
NIE	MTCL913	Chinese Language Education for International Schools	4	According to the study by International School Consultancy Research (2017), there is a rapid surge in the growth of international schools globally. With a growth in expatriate families and an increase in enrolment within the schools host country, the increasing trend is expected to continue in the next ten years. This growing demand corresponds to the need to develop professionally-trained Chinese language educators for International schools. Language offerings in international schools are unique and vary over different school programme. However, each aims to provide students with an edge in this competitive and ever-changing world. Hence, this course will broaden participants knowledge of teaching Chinese language in international school settings and provides constructive career development opportunities to participants.		LetterGrade

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NIE	MTL902	Tamil Literature in Education	4	The course aims to provide a comprehensive coverage to develop various theories and theoretical approaches through the study of Tamil literature. Introduction and history and components of new poems and drama in Tamil Language. An in-depth study of selected topics on Tamil history and culture in Sangam poems, medieval and modern literature will be taught. By studying Singapore Tamil literature, teachers would be able to comprehend the educational, historical and social changes in Tamil culture and its relevance in todays society. For example, teachers would be able to perform a critical analysis on the readings of curriculum literary texts.		LetterGrade
NIE	MTL908	An Introduction to Sociolinguistics and Bilingualism for Tamil	4	This module aims to widen students knowledge on Language acquisition theories and background theories on monolingual, bilingual and multilingual contexts. This module also covers the key concepts of Sociolinguistics and bilingualism policy in Singapore. This module will provide additional understanding on student profiling and learning strategies for effective learning acquisition. Creating content and language development lessons to students. The module elaborate on the importance of Standard Spoken Tamil and its development in Singapore.		LetterGrade
NIE	SA830	Writing and Communication Skills for PhD Students	3	This course aims to improve the academic writing and oral communication skills of PhD students. Participants will learn about the concept of an academic discourse community, learn to negotiate the expectations of this community, consider the discourse practices and linguistic conventions of academic writing and academic presentations in their own disciplines, and come to understand the thinking processes underlying those practices and conventions. A range of topics will be explored in the course, including writing different sections of a thesis/research paper (introduction, literature review, methodology, findings and discussion, conclusion, and abstract); conceptualising research writing as argument; avoiding plagiarism; using language and visual resources for effective communication; preparing for PhDconfirmation seminars and oral examinations; presenting research at academic conferences; and understanding the Three-Minute Thesis (3MT) genre. In order for students to benefit most from this course, it is recommended that they enrol after having completed at least the first semester of their PhD candidature.	Start 14 Jan 2026, Weds, 6 - 9pm / Start 15 Jan 2026, Thurs, 6.30 - 9.30pm	PassFailGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
RSIS	IR6025	Global Governance	2	Global governance is a form of government on a planetary scale that is either very old or very new. Across time, it might retrospectively refer to the federation of sovereign nation-states under a centralized, world government, or a federation of kingdoms under a common supranational religion. Since the late 1990s, the term has referred to a process of cooperative leadership that brings together national governments, intergovernmental organizations, and civil society to achieve commonly accepted goals. It provides strategic direction and then marshals collective energies to address global challenges. This is the International Monetary Fund's definition biased in favour of attributing a consultative process. In reality, global governance is a series of political contestations between states, non-state actors and intergovernmental organizations over the nature of democracy, development, the environment, communications, culture, and above all the meaning of sustainable humane society on a planet faced with permeable geographical and social borders.	Trimester 3: 2 March – 29 May 2025; (13 weeks) Every Monday 2:00pm - 5:00pm	Graded
RSIS	SR6016	The Study of War	2	In one of the earliest known treatises devoted to the conduct of war, Sun Tzu argued that strategists should "deeply ponder" the effects of military leaders' temperament and emotions on military effectiveness (The Art of War, pp. 114-115). Almost everything that happens in war, Carl von Clausewitz maintains, is "through the hidden process of intuitive judgment." (On War, VI/8, 389 italics in original) At its best, expert intuition allows war leaders to achieve stunning successes. At its worst, it is a source of misperceptions and defeats. How do war leaders really decide? Why do they make sensible choices that help achieve military effectiveness in some cases, yet misjudge the odds and make the wrong decisions in others? Should war leaders rely on their expert intuition? The goal of this class is to explore the influence of command decisions on military effectiveness. We examine how research on the psychology of judgment and choice can shed light on generalship; and, in turn, how the study of human cognition is enriched by asking questions that are unique to the political and strategic	Trimester 3: 2 March – 29 May 2025; (13 weeks) Every Tuesday 6:30pm - 9:30pm	Graded

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SBS	BS7001	Foundation Course in Molecular & Cell Biology	3	https://www.ntu.edu.sg/sbs/admissions/programmes/graduate/research/curriculum-courses/bs7001---foundational-course-in-molecular-cell-biology	To be confirmed	
SBS	BS7005	Practical Course in Mulitdimensional NMR spectroscopy	3	https://www.ntu.edu.sg/sbs/admissions/programmes/graduate/research/curriculum-courses/bs7005---practical-course-in-multidimensional-nmr-spectroscopy	To be confirmed	
SBS	BS7016	Bioentrepreneurship	3	https://www.ntu.edu.sg/sbs/admissions/programmes/graduate/research/curriculum-courses/bs7016---bioentrepreneurship	To be confirmed	
SBS	BS7019	Fundamentals of Immunology-Concepts and Experiments	3	https://www.ntu.edu.sg/sbs/admissions/programmes/graduate/research/curriculum-courses/bs7019-fundamentals-of-immunology-concepts-and-experiments	To be confirmed	
SBS	BS7107	Special Topics in Computational Biology & Modeling	3	https://www.ntu.edu.sg/sbs/admissions/programmes/graduate/research/curriculum-courses/bs7107---computational-biology-modelling	To be confirmed	
SoH	HC7006	Special Topics in Modern/Contemporary Chinese Literature	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/chinese#Content_C002_Col02	Friday, 9.30am-12.20pm	Nil
SoH	HC7015	East Asian Cultural Interaction: Text & Image Studies	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/chinese#Content_C002_Col02	Tuesday, 1.30pm-4.20pm	This course is conducted in Chinese.
SoH	HH7114	Crafting Research: Archives, Theories, & Methods	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/history#Content_C006_Col02	Friday, 12.30pm-3.20pm	Nil
SoH	HL7101	Graduate Seminar in the History of Literary Theory	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/english-(creative-writing)#Content_C003_Col02	Wednesday, 10.30am-1.20pm	Requires background in literary studies
SoH	HL7103	Graduate Seminar in Drama	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/english-(creative-writing)#Content_C003_Col02	Monday, 2.30pm-5.20pm	Requires background in literary studies
SoH	HL7110	Graduate Seminar in Contemporary Literature & Culture	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/english-(creative-writing)#Content_C003_Col02	Tuesday, 2.30pm-5.20pm	Requires background in literary studies
SoH	HL7118	Graduate Seminar in Literature and Religion	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/english-(creative-writing)#Content_C003_Col02	Thursday, 2.30pm-5.20pm	Requires background in literary studies or religious studies
SPMS	PH7007	Experimental Techniques in Condensed Matter Physics	4		Monday 10:30am – 12:20pm	
SPMS	PH7015	Advanced Optics	4		Monday 3:30pm – 5:20pm Thursday 3:30pm – 5:20pm	

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SPMS	PH7020	Magnetism and Spintronics	4		Monday 1:30pm – 3:20pm Thursday 1:30pm – 3:20pm	
SPMS	PH7024	Graduate Quantum Mechanics	4		Thursday 10:30am – 12:20pm	
SPMS	MH7001	Continuous Methods	4		Wednesday 9:30am – 11:20am	
SPMS	MH7007	Topics in Scientific Computation I	4		Monday 10:30am – 12:20pm	
SPMS	MH7009	Topics in Probability and Statistics I	4		Monday 1:30pm – 3:20pm Wednesday 1:30pm –	
SPMS	MH7014	Graduate Seminar – Discrete Mathematics I	4		Thursday 1:30pm – 5:20pm	
SSS	HE7003	Econometrics II	3	This course provides a detailed treatment of models for analyzing both cross-sectional and time series data. The course emphasizes application rather than theory; hence, the models introduced are illustrated with examples using real-life data. In general, theoretical developments are often carried to the extent that they enhance understanding of the model. Website: https://www.ntu.edu.sg/sss/graduate-education/graduate-research/economics#Content_C047_Col00	TBA	Letter Graded Course

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SSS	HE7105	Seminar in International Economics	3	Course description at: https://www.ntu.edu.sg/sss/admissions/graduate-education/graduate-research/economics#Content_C094_Col00 This course aims to equip students with knowledge and skills to analyse economic relationships between countries covering both trade and monetary issues. The first half of the course deals with international trade theory and policy. Key topics include analyses on why countries trade with each other, the effects of trade on welfare and income inequality, the effects of trade barriers to trade and economic integration, the role of firm heterogeneity in international trade and the relationship between globalization and inequality. The second half of the course focuses on issues related to international macroeconomics. This part of the course begins by laying out balance of payments accounts and open economy income identities. The course then focuses on some main questions in open economy macroeconomics. These include discussions on the issues of global imbalances, provision of frameworks to understand why countries run large current account surpluses or deficits, discussions on the determination of nominal and real exchange rates and reviews of episodes of currency and financial crises.	Day: Tuesday Time: 2 to 5pm Venue: TBC	Letter Graded Course Interested Students are to contact Course Instructor Asst Prof Fred Seunghyun at seunghyun.maeng@ntu.edu.sg
SSS	HE7106	Topics In Mathematical Econometrics & Microeconomics	3	This course intends to equip the postgraduate students with advanced mathematical theories, methodologies and computational algorithms that are widely applied both in economic analysis and financial analysis. Topics include but not limit to Log-Concave Distributions, Optimization of Submodular Functions, Genetic Algorithm, Artificial Intelligence, Neural Network, Wavelet Analysis, Support Vector Machine, Perturbation Theory, Agent-based Modelling, and Qualitative Comparative Statistics etc. It will not only update the researchers with most recent advances but also let the students have hands-on experience on the relevant applications in economic modeling, simulation and forecasting. Website: https://www.ntu.edu.sg/sss/graduate-education/graduate-research/economics#Content_C047_Col00	TBA	Letter Graded Course