THE CHINESE UNIVERSITY OF HONG KONG

X & Aerospace Science and Earth Informatics Double Major Programme

Lists of Substitute / Equivalent / Alternative Courses between CUHK and CUHK(SZ)

(for 2024-25 and thereafter)

(for students admitted by CUHK(SZ))

Note:
The substitute / equivalent / alternative coursers are not transitive. If Courses A and B are substitute / equivalent / alternative courses, and courses A and C are substitute / equivalent / alternative courses, it does not necessarily follow that B and C are also substitute /equivalent / alternative courses. Nonetheless, students should not take both courses B and C.

School Package

Courses offered by CUHK(SZ)		Courses offered by CUHK	
CSC1001	Introduction to Computer Science: Programming Methodology	ENGG1110	Problem Solving by Programming
MAT1001	Calculus I	MATH1010	University Mathematics
MAT1001	Calculus I	MATH1510	Calculus for Engineers
MAT1001	Calculus I	MATH1520	University Mathematics for Applications
MAT1011	Honours Calculus I	MATH1010	University Mathematics
MAT1011	Honours Calculus I	MATH1510	Calculus for Engineers
MAT1011	Honours Calculus I	MATH1520	University Mathematics for Applications
URM2010	Cities, Society and Environment	GRMD1401	A World of Diversity

1st Major: Data Science and Big Data Technology (offered by CUHK(SZ))

Courses offered by CUHK(SZ)		Courses offered by CUHK	
CSC3100	Data Structures	CSCI2100	Data Structures
CSC3170	Database System	CSCI3170	Introduction to Database Systems
CSC4120	Design and Analysis of Algorithms	CSCI3160	Design and Analysis of Algorithms
DDA3005	Numerical Methods	EESC4520	Numerical Methods and Modeling for Earth and Environmental Sciences
DDA3020	Machine Learning	MAEG3080	Fundamentals of Machine Intelligence
DDA3020	Machine Learning	CSCI3320	Fundamentals of Machine Learning
DDA3020	Machine Learning	STAT4001	Data Mining and Statistic Learning
DDA4002	Stochastic Simulation	STAT3006	Statistical Computing
DDA4220	Deep Learning and Applications	ELEG5491	Introduction to Deep Learning

DDA4250	Mathematical Introduction to Deep Learning	STAT4012	Statistical Principles of Deep Learning with Business Applications
MAT1002	Calculus II	MATH2010	Advanced Calculus I
MAT1012	Honours Calculus II	MATH2010	Advanced Calculus I
MAT2050	Mathematical Analysis	MATH2050	Mathematical Analysis I
MAT3007	Optimization	MAEG4070	Engineering Optimization
MAT3220	Optimization II	SEEM3440	Operations Research II
MAT3220	Optimization II	MATH4230	Optimization Theory
MAT3280	Probability Theory	MATH3280	Introductory Probability
STA2001	Probability and Statistics I	STAT2001	Basic Concepts in Statistics and Probability I
STA2002	Probability and Statistics II	STAT2006	Basic Concepts in Statistics and Probability II
STA3001	Linear Models	STAT3008	Applied Regression Analysis
STA3020	Statistical Inference	EESC4510	Statistical Methods and Data Analysis for Earth and Environmental Sciences
STA3020	Statistical Inference	STAT4003	Statistic Inference
STA4001	Stochastic Processes	MATH4240	Stochastic Processes
STA4001	Stochastic Processes	STAT3007	Introduction to Stochastic Processes
STA4002	Multivariate Statistical Analysis	STAT4002	Applied Multivariate Analysis
STA4003	Time Series	STAT4005	Time Series
STA4020	Statistical Modelling in Financial Markets	RMSC4003	Statistical Modelling in Financial Markets

1st Major: Urban Management (offered by CUHK(SZ))

Courses offered by CUHK(SZ)		Courses offered by CUHK	
GLB3060	Global Change and Environmental Sustainability	EESC3800	Global Environmental Change
URM2020	Urban Economics	URSP2200	Urban Economic Studies
URM2030	Statistical Analysis and Application	GRMD2102	Fundamental Statistics for Geographers
URM3010	Urban Sustainability	URSP2100	Urban Sustainability
URM3020	Research Methods for Urban Studies	GRMD3102	Research Design and Methodology
URM3030	Urban Environmental Management and Policy	GRMD3203	Urban Environmental Problems
URM3040	Urban and Regional Planning	GRMD3323	Urban and Regional Planning
URM3050	Urban Form, Design and Place Making	URSP2800	Urban Form, Sense of Place and Well-Being
URM3110	Urban History and Culture	URSP2030	Urban Cultures
URM3120	Population, Urbanization and Sustainability	GRMD3302	Population and Migration
URM3130	Globalization and Cities	URSP2400	Studies of Cities in Comparative Perspective
URM3130	Globalization and Cities	GRMD2303	Urban Geography
URM3140	Urban Transportation System	URSP3300	Sustainable Urban Transport

URM4010	Smart Cities and Management	GRMD4503	Smart City Policies and Governance
URM4020	Urban Data and Informatics	GRMD4502	Urban Big Data Analysis and Application
URM4110	Urban Security and Risk Management	GRMD3404	Natural Hazards and Human Responses
URM4120	Urban Housing and Land Market	URSP3100	Housing Issues and Policy
URM4150	Urban Spatial Analysis and Modeling	GRMD3106	Advanced GIS

1st Major: Electrical and Computer Engineering (offered by CUHK(SZ))

Courses offered by CUHK(SZ)		Courses offered by CUHK	
CSC3002	C/C++ Programming	CSCI1120	Introduction to Computing Using C++
CSC3100	Data Structures	CSCI2100	Data Structures
CSC3150	Operating Systems	CSCI3150	Introduction to Operating Systems
CSC3180	Fundamentals of Artificial Intelligence	CSCI3230	Fundamentals of Artificial Intelligence
CSC4001	Software Engineering	IERG3080	Information and Software Engineering Practices
CSC4005	Parallel Programming	CSCI4160	Distributed and Parallel Computing
DDA3020	Machine Learning	CSCI3320	Fundamentals of Machine Learning
ECE2001	Basic Circuit Theory	IERG2060	Basic Analog and Digital Circuits
ECE2050	Digital Logic and Systems	ELEG2201	Digital Circuits and Computing Systems
ECE3001	Signal and Systems	IERG2051	Signal and Systems
ECE3050	Principles of Communication Systems	IERG2310	Principles of Communication Systems
ECE3060	Introduction to Robotics	MAEG3060	Introduction to Robotics
ECE3280	Networks: Technology, Economics and Society	lERG3280	Networks: Technology, Economics, and Social Interactions
ECE4003	Wireless Communication Systems	lERG4100	Wireless Communication Systems
ECE4010	Machine Intelligence and Applications	MAEG3080	Fundamentals of Machine Intelligence
ECE4016	Computer Networks	IERG3310	Computer Networks
ECE4300	Systems Design in Human-Computer Interaction	IERG3320	Social Media and Human Information Interaction
ECE4512	Digital Image Processing	IERG4160	Image Processing and Visual Understanding
ERG4902	Capstone Project II	IERG4998	Final Year Project I
ERG4902	Capstone Project II	IERG4999	Final Year Project II
MAT1002	Calculus II	MATH2010	Advanced Calculus I
MAT1012	Honours Calculus II	MATH2010	Advanced Calculus I

MAT3007	Optimization	MAEG4070	Engineering Optimization
MAT4007	Introduction to Cryptography	IERG4150	Introduction to Cryptography
MAT4220	Partial Differential Equations	MATH4220	Partial Differential Equations
STA2001	Probability and Statistics I	STAT2001	Basic Concepts in Statistics and Probability I
STA4001	Stochastic Processes	MATH4240	Stochastic Processes

1st Major: New Energy Science and Engineering (offered by CUHK(SZ))

Courses offered by CUHK(SZ)		Courses offered by CUHK	
CSC3002	C/C++ Programming	CSCI1120	Introduction to Computing Using C++
CSC3150	Operating System	CSCI3150	Introduction to Operating Systems
DDA3020	Machine Learning	CSCI3320	Fundamentals of Machine Learning
ECE2001	Basic Circuit Theory	ELEG2202	Fundamentals of Electric Circuits
ECE3001	Signal and Systems	IERG2051	Signal and Systems
ENE3004	Fundamentals of Photovoltaic Materials and Devices	EEEN4020	Solar Energy and Photovoltaic Technology
ENE3005	Fundamentals of Electrochemistry and Batteries	EEEN4050	Energy Storage Devices and Systems
ENE3006	Energy Materials and Carbon Neutralization	EEEN3030	Engineering Materials
ENE3050	Electrical Power Systems	ELEG3601	Introduction to Electric Power Systems
ENE4001	Green Engineering and Environmental Compliance	EESC4240	Air Pollution Science and Engineering
ENE4005	Energy Resources and the Environment	EEEN2020	Renewable Energy Technologies
ENE4007	Energy Economics	EEEN2030	Energy and Environmental Economics and Management
ENE4008	Power Electronics	ELEG3207	Introduction to Power Electronics
ENE4011	Smart Grid	EEEN4060	Energy Distribution
ERG4902	Capstone Project II	EEEN4998	Final Year Project I
MAT3007	Optimization	MAEG4070	Engineering Optimization
STA2002	Probability and Statistics II	STAT2006	Basic Concepts in Statistics and Probability II

1st Major: Physics (offered by CUHK(SZ))

Courses offered by CUHK(SZ)		Courses offered by CUHK	
MAT1002	Calculus II	PHYS2051	Quantitative Methods for Basic Physics
MAT1002	Calculus II	MATH2010	Advanced Calculus I

MAT1012	Honours Calculus II	MATH2010	Advanced Calculus I
MAT1012	Honours Calculus II	PHYS2051	Quantitative Methods for Basic Physics
MAT2001	Honours Ordinary Differential Equations	MATH3270	Ordinary Differential Equations
PHY1010	Principles of Physics II (Thermodynamics and EM)	PHYS2041	University Physics III – Introduction to Heat and Electromagnetism
PHY1910	Physics Laboratory I	PHYS1712	Physics Laboratory I
PHY1920	Physics Laboratory II	PHYS2711	Physics Laboratory II
PHY2002	Thermodynamics	PHYS3031	Thermodynamics and Statistical Physics
PHY2020	Principles of Physics III (Optics and Modern Physics)	PHYS1122	University Physics II – Introduction to Optics and Modern Physics
PHY2610	Mathematical Methods in Physics I	PHYS3051	Methods in Theoretical Physics I
PHY2650	Computational Physics and AI Tools	PHYS2061	Basic Computational Physics
PHY3002	Electrodynamics I	PHYS3041	Electromagnetic Theory I
PHY3110	Classical Mechanics I	PHYS3011	Classical Mechanics I
PHY3120	Classical Mechanics II	PHYS4011	Classical Mechanics II
PHY3310	Electromagnetic Theory I	PHYS3041	Electromagnetic Theory I
PHY3320	Electromagnetic Theory II	PHYS4041	Electromagnetic Theory II
PHY3410	Quantum Mechanics and its Applications I	PHYS3021	Quantum Mechanics I
PHY3420	Quantum Mechanics and its Applications II	PHYS3022	Applied Quantum Mechanics
PHY3650	Computer Simulation of Physical Systems	PHYS3061	Introduction to Computer Simulation of Physical Systems
PHY3810	Modern Optical Physics	PHYS4450	Optical Physics
PHY3820	Introduction to Astronomy and Astrophysics	PHYS4430	Astrophysics
PHY3950	Basic Electronics	PHYS3410	Practical Electronics
PHY3960	Basic Instrumentation	PHYS3730	Basic Instrumentation
PHY4001	Solid-State Physics	PHYS4050	Solid State Physics
PHY4002	Electrodynamics II	PHYS4041	Electromagnetic Theory II
PHY4270	Senior Project I	PHYS4610	Senior Project I
PHY4280	Senior Project II	PHYS4620	Senior Project II
PHY4510	Statistical Mechanics and its Applications	PHYS4031	Statistical Mechanics
PHY4810	Relativity	PHYS4460	Relativity
STA2001	Probability and Statistics I	STAT2001	Basic Concepts in Statistics and Probability I

2nd Major: Aerospace Science and Earth Informatics - Required Courses

Courses offered by CUHK		Courses offered by CUHK(SZ)	
ENGG1120	Linear Algebra for Engineers	MAT2040	Linear Algebra
GRMD2104	Remote Sensing of Environment	URM2110	Introduction to Urban Remote Sensing
GRMD2105	Introduction to GIS	URM2040	Principles and Application of GIS in Urban Management
PHYS1110	Engineering Physics: Mechanics and Thermodynamics	PHY1001	Mechanics
PHYS1110	Engineering Physics: Mechanics and Thermodynamics	PHY1011	Honours Mechanics
PHYS1111	Introduction to Mechanics, Fluids and Waves (University Physics I)	PHY1001	Mechanics
PHYS1111	Introduction to Mechanics, Fluids and Waves (University Physics I)	PHY1011	Honours Mechanics

2nd Major: Aerospace Science and Earth Informatics – Elective Courses (covering all areas)

Please refer to the study scheme for the elective courses specific to each area of study.

Courses offered by CUHK(SZ)		Courses offered by CUHK	
CHM1001	General Chemistry	CHEM1070	Principles of Modern Chemistry
DDA3005	Numerical Methods	EESC4520	Numerical Methods and Modeling for Earth and Environmental Sciences
DDA3020	Machine Learning	MAEG3080	Fundamentals of Machine Intelligence
ECE2001	Basic Circuit Theory	ELEG2202	Fundamentals of Electric Circuits
ECE2050	Digital Logic and Systems	ENGG2020	Digital Logic and Systems
ECE3060	Introduction to Robotics	MAEG3060	Introduction to Robotics
ECE4010	Machine Intelligence and Applications	MAEG3080	Fundamentals of Machine Intelligence
ENE3004	Fundamentals of Photovoltaic Materials and Devices	EEEN4020	Solar Energy and Photovoltaic Technology
ENE3005	Fundamentals of Electrochemistry and Batteries	EEEN4050	Energy Storage Devices and Systems
ENE3006	Energy Materials and Carbon Neutralization	EEEN3030	Engineering Materials
ENE3050	Electrical Power Systems	ELEG3601	Introduction to Electric Power Systems
ENE4007	Energy Economics	EEEN2030	Energy and Environmental Economics and Management
ENE4008	Power Electronics	ELEG3207	Introduction to Power Electronics
GLB3060	Global Change and Environmental Sustainability	EESC3800	Global Environmental Change
MAT1002	Calculus II	MATH2010	Advanced Calculus I

MAT1002	Calculus II	PHYS2051	Quantitative Methods for Basic Physics
MAT1012	Honours Calculus II	MATH2010	Advanced Calculus I
MAT1012	Honours Calculus II	PHYS2051	Quantitative Methods for Basic Physics
MAT2001	Honours Ordinary Differential Equations	MATH3270	Ordinary Differential Equations
MAT3007	Optimization	MAEG4070	Engineering Optimization
PHY1010	Principles of Physics II (Thermodynamics and EM)	PHYS2041	University Physics III – Introduction to Heat and Electromagnetism
PHY1910	Physics Laboratory I	PHYS1712	Physics Laboratory I
PHY2002	Thermodynamics	PHYS3031	Thermodynamics and Statistical Physics
PHY2020	Principles of Physics III (Optics and Modern Physics)	PHYS1122	University Physics II – Introduction to Optics and Modern Physics
PHY2610	Mathematical Methods in Physics I	PHYS3051	Methods in Theoretical Physics I
PHY2650	Computational Physics and AI Tools	PHYS2061	Basic Computational Physics
PHY3002	Electrodynamics I	PHYS3041	Electromagnetic Theory I
PHY3031	Thermodynamics and Statistical Mechanics	PHYS3031	Thermodynamics and Statistical Physics
PHY3110	Classical Mechanics I	PHYS3011	Classical Mechanics I
PHY3310	Electromagnetic Theory I	PHYS3041	Electromagnetic Theory I
PHY3320	Electromagnetic Theory II	PHYS4041	Electromagnetic Theory II
PHY3410	Quantum Mechanics and its Applications I	PHYS3021	Quantum Mechanics I
PHY3420	Quantum Mechanics and its Applications II	PHYS3022	Applied Quantum Mechanics
PHY3650	Computer Simulation of Physical Systems	PHYS3061	Introduction to Computer Simulation of Physical Systems
PHY3810	Modern Optical Physics	PHYS4450	Optical Physics
PHY3820	Introduction to Astronomy and Astrophysics	PHYS4430	Astrophysics
PHY3950	Basic Electronics	PHYS3410	Practical Electronics
PHY3960	Basic Instrumentation	PHYS3730	Basic Instrumentation
PHY4001	Solid-State Physics	PHYS4050	Solid State Physics
PHY4002	Electrodynamics II	PHYS4041	Electromagnetic Theory II

PHY4510	Statistical Mechanics and its Applications	PHYS4031	Statistical Mechanics
STA2001	Probability and Statistics I	STAT2001	Basic Concepts in Statistics and Probability I
STA3020	Statistical Inference	EESC4510	Statistical Methods and Data Analysis for Earth and Environmental Sciences
URM3010	Urban Sustainability	URSP2100	Urban Sustainability
URM3030	Urban Environmental Management and Policy	GRMD3203	Urban Environmental Problems
URM3120	Population, Urbanization and Sustainability	GRMD3302	Population and Migration
URM4010	Smart Cities and Management	GRMD4503	Smart City Policies and Governance
URM4020	Urban Data and Informatics	GRMD4502	Urban Big Data Analysis and Application
URM4110	Urban Security and Risk Management	GRMD3404	Natural Hazards and Human Responses
URM4150	Urban Spatial Analysis and Modeling	GRMD3106	Advanced GIS

Remark: Pairs of substitute / equivalent / alternative coursers marked with 'TBC' are yet to be confirmed.