Courses taken by students in Environmental Earth Systems Science with 2nd Major in Data Analytics (from AY22-23 onwards)

EESS Major Core		
Course Code	**Course Title**	**AU**
ES0001	Physical Environments of Singapore	3
ES0138	Introduction to Scientific Writing	2
ES1001	Environment and Society	4
ES1003	Solid Earth	4
ES2003	Biosphere	4
ES1007	Climate Change	3
ES1006	Introductory Field Experience	4
ES2001	Computational Earth Systems Science	4
ES2802	GIS and the Earth System	3
MH1802	Calculus for the Sciences	4

EESS Specialisation
Students can choose either one of the specialisations below: • Geosciences or • Ecology and Ecosystems or • Society and the Earth Systems

Data Analytics Courses Students are to complete 7 courses, 1 course in each knowledge area		
Course Code	**Course Title**	**AU**
Probability and Statistics		
MH2500	Probability & Introduction to Statistics	4
Linear Algebra		
MH2802	Linear Algebra for Scientists	3
Data Analysis / Computing		
ES2001	Computational Earth Systems Science (Double counted)	4
Algorithms		
MH1403	Algorithms and Computing	3
Database		
BC2402 **or** EE4791 **or** SC2207	Designing & Developing Databases **or** Database Systems **or** Introduction to Database* *Pre-requisite(s) apply (Students to complete one of the courses indicated above)	4 AU **or** 3 AU **or** 3 AU

Data Analytics Courses Students are to complete 7 courses, 1 course in each knowledge area		
Course Code	**Course Title**	**AU**
Data Mining		
MH4510 **or** EE4483 **or** SC4020	Statistical Learning & Data Mining* **or** Artificial Intelligence & Data Mining* **or** Data Analytics and Mining* *Pre-requisite(s) apply (Students to complete one of the courses indicated above)	4 AU **or** 3 AU **or** 3 AU
Data Visualization / Management		
BC2406 **or** SC4023 **or** SC4024	Analytics I: Visual and Predictive Techniques* Big Data Management* Data Visualization* *Pre-requisite(s) apply (Students to complete one of the courses indicated above)	4 AU **or** 3 AU **or** 3 AU

Data Analytics Electives To choose at least 3 electives		
Course Code	**Course Title**	**AU**
BC2407	Analytics II: Advanced Predictive Techniques*	4
BS3008	Computational Biology and Modeling*	3
BS4017	High-Throughput Bioinformatics*	3
CM4043	Molecular Modelling: Principles and Applications*	3
CM4044	Artificial Intelligence in Chemistry*	3
ES2001	Computational Earth Systems Science	4
ES2305	Introductory Statistics and Numerical Thinking*	3
MH3400	Algorithms for the Real World*@	4
MH3500	Statistics*@	4
MH3510	Regression Analysis*@	4
MH3511	Data Analysis with Computer*@	3
MH3701	Basic Optimization*	4
MH4500	Time Series Analysis*@	4
MH4513	Survival Analysis*@	4
MH4302	Theory of Computing*	4
MH4320	Computational Economics*@	4
MH4511	Sampling and Survey* @	4
MH4512	Clinical Trials*	4
MH4702	Probabilistic Methods in OR*@	4
CH4244	Numerical Method and Data Analytics*	3
SC4001/CZ4042	Neural Network and Deep Learning*	3
EE4414	Machine Learning Design & Application*	3

EE4497	Pattern Recognition & Machine Learning	3
Data Analytics Electives To choose at least 3 electives		
Course Code	**Course Title**	**AU**
MA4829	Machine Intelligence	3
MA4830	Real Time Software for Mechatronics System	3
MA4832	Microprocessor System	3
MS4671	Introduction to Materials Simulation	3
SC3020/CZ4031	Database System Principle*	3
SC4002/CZ4045	Natural Language Processing*	3
SC4021/CZ4034	Information Retrieval*	3
SC4022/CZ4071	Network Science*	3

* Pre-requisites apply

@ These courses require MH2500 as one of the pre-requisites or earlier pre-requisites

ICC (University Level)

Courses	AU	Semester
Inquiry and Communication in an Interdisciplinary World	2	Year 1 Sem 1
Ethics & Civics in a Multi-Cultural World	2	Year 1 Sem 1
Navigating the Digital World	2	Year 1 Sem 2
Healthy Living & Mental Wellbeing	3	Year 1 Sem 2
Career & Entrepreneurial Development for the Future World	2	Year 2 Sem 2
Science & Technology for Humanity	3	Year 2 Sem 1
Sustainability: Human, Social, Economic & Environment	3	Year 2 Sem 1
Total AU	**17**	

ICC (College Level)

Courses	AU	Semester
Fundamentals of Data Science for Earth and Environmental Systems Science	3	Year 3 Sem 2
Communication course	2	Year 3
Professional Attachment	5	Year 4
Total AU	**10**	