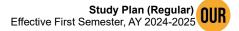# University of the Philippine Cebu
College of Science

Master of Science in Mathematics (MS MATH)
2024 Curriculum, Approved during the 1390th UP BOR Meeting on 31 May 2024

First Year, First Semester

Core	MATH 213	Theory of Matrices	3	MATH 120
Core	MATH 230	Real Analysis	3	MATH 155
Elective	Elective I		3	
Track	Track Course I		3	
			12	

First Year, Second Semester

Track	Track Course II		3	
Track	Track Course III		3	
Core	MATH 225	Topology	3	MATH 101
Elective	Elective II		3	
			12	

Second Year, First Semester

MATH 299	Graduate Seminar		1	none
MATH 300	Master's Thesis		3	none
			4	

Second Year, Second Semester

MATH 300	Master's Thesis		3	none
			3	

Total Credit Units: 31

PROGRAM TRACKS COURSES

Pure Mathematics Track

Code	Description	Prerequisite
MATH 211	Abstract Algebra	MATH 111
MATH 222	Finite Geometries	MATH 211
MATH 231	Functions of a Complex Variable	MATH 155

Applied Mathematics Track

AMAT 250	Numerical Simulation	none
AMAT 255	Mathematical Data Science	AMAT 105 or MATH 120
AMAT 266	Deterministic Mathematical Decision Models	AMAT 160 or COI

Mathematics Education Track

MAED 201	Mathematics Education	none
MAED 202	Mathematical Didactics	none
MAED 203	Mathematics Curriculum	MAED 202

ELECTIVE COURSES

Courses offered by IMSP

Code	Description	Prerequisite
AMAT 215	Mathematical Theory of Choice and Games	AMAT 105 or MATH 120
AMAT 250	Numerical Simulation	none
AMAT 255	Mathematical Data Science	AMAT 105 or MATH 120
AMAT 266	Deterministic Mathematical Decision Models	AMAT 160 or COI
AMAT 267	Probabilistic mathematical Decision Models	AMAT 160 or COI
AMAT 277	Mathematical Finance	MATH 281
AMAT 280	Biomathematics	none
MAED 201	Mathematics Education	none
MAED 202	Mathematical Didactics	none
MAED 203	Mathematics Curriculum	MAED 202
MATH 211	Abstract Algebra	MATH 111
MATH 215	Coding Theory and Cryptography	MATH 111
MATH 217	Algebraic Combinatorics	MATH 211
MATH 220	Algebraic Geometry	MATH 211
MATH 222	Finite Geometries	MATH 211
MATH 231	Functions of a Complex Variable	MATH 155

MATH 235	Functional Analysis	MATH 213
MATH 243	Graph Theory and Applications	none
MATH 252	Theory of Partial Differential Equations	none
MATH 281	Measure-theoretic Probability and Stochastic Processes	none
MATH 291	Special Topics	COI

Courses offered by other UPLB units		
AECO 210	Advanced Agricultural Production Economics	COI
AECO 240	Natural Resource Economics	ECON 101 or COI
AECO 241	Economic Analysis and Planning of Agricultural Projects	ECON 101 and ECON 102 or COI
AECO 250	Agriculture and Economic Development	ECON 101 and ECON 102 or COI
AECO 261	Food and Nutrition Economics	none
AGME 250	Micrometeorology	PHYS 13 or its equivalent
AGME 260	Tropical Agrometeorology	AGME 250
AGR 255/BIO 255	Population Genetics	BIO 130b and MATH 26
AGR 256	Quantitative Genetics	AGR 255
AGRI 211	Design and Assessment of Farming Systems	AGR 111 or COI
BIO 201/MBB 201	Advanced Molecular Biology	BIO 101
BIO 235	Evolutionary Genetics	BIO 30 or its equivalent
BIO 235	Developmental Genetics	BIO 103a
ChE 240	Advanced Control Theory	EE 130 or COI
CED 201	Philosophy of Education	COI
CED 202	Theory and Practice of Community Education	COI
CED 210	Managing Education for Community Welfare	COI
CED 211	Advanced Educational Psychology	COI
CED 213	Instructional Systems Design and Management	COI
CED 215	Leadership for Educational and Community Productivity	COI
CED 217	Educational Planning	COI
CED 220	Sociology of Education	COI
CED 224	Economics of Education	COI
CED 226	Educational Evaluation	COI
CED 227	Administrative Theory	COI
CMSC 244	Algorithms and Advanced Data Structure I	CMSC 142 or COI
CMSC 245	Algorithms and Advanced Data Structure II	CMSC 244
CMSC 250	Scientific Computing	MATH 28 or 38 or COI
DM 221	Fiscal Administration in Development	COI
DM 223	Project Development and management	COI
DMG 224	Governance Framework for Disaster Risk Reduction and Climate Change Adaptation	COI
DMG 225	Governance of Food Systems	COI
DMG 230	Microfinance, Microinsurance and Development	COI
DMG 231	Governance of Microfinance Institutions	DM 230 or COI
DMG 232	Governance of Microinsurance Institutions	DM 230 or COI
ECON 201	Macroeconomic Theory I	ECON 101 or COI
ECON 202	Microeconomic Theory I	ECON 102 or COI
ENS 242/ECON 275	Economic Valuation of Environmental and Natural Resources	COI
ENS 201	Ecosystem Structure and Dynamics	COT 150 or BIO 150 or COI
ENS 211	Systems Analysis and Quantitative Methods in Natural Resources Management	MGT 211 or COI
ENS 270	Dynamics of Population, Resources and Environment.	HUME 2 or COI
ENS 296	Environmental Impact Assessment: Perspectives from the Natural and Social Sciences.	COI
ENTR 201	Theory and Practice of Entrepreneurship	none
ENTR 271	Technology Commercialization and Technopreneurship	ENTR 201 or COI
FRM 204	Geospatial Methods in Natural Resources Management	FRM 104 or COI
FRM 287	Economic Analysis in Forest Management	COI
FST 220	Microbiological Aspects of Food Processing	COI
HFDS 232	Consumer Behavior	COI
MBB 211	Biocomputing in Molecular Biology and Biotechnology.	COI
MBB 251/PPTH 251	Molecular Plant-Pathogen Interactions	PTH 101 and BIO 101
MCB 285.	Predictive Microbiology and Modeling Applications in Food Safety	MCB 180 and Math 26 or COI
MGT 201	Organization and Management	none
MGT 203	Environment of Management	COI
MGT 207	Managerial Problem Solving and Decision-Making	COI
MGT 209	Economic Analysis	none
MGT 213	Management Accounting and Control I	none
MGT 215	Financial Management	none
MGT 221	Quantitative Methods in Administration	COI
MGT 231	Human Behavior in Organization	none
MGT 251	Marketing Management	none

MGT 273	Management of Small Business.	none
NRC 201	Perspectives and Approaches to Natural Resources Conservation	COI
NRC 241	Coastal Ecosystem Dynamics.	FBS 36 or BIO 150 or COI
PAf 201	Political Economy of Public Affairs	COI
PAf 203	Data Analysis and Modelling of Public Affairs.	COI
SOC 242	Population Studies	COI
SPPS 201	Strategic Planning: Theory and Methods.	COI
SPPS 232	Science and Technology Policy Analysis	COI
SPPS 272/ENS 272	Science, Technology and Development.	none
STAT 250	Multivariate Statistical Methods.	STAT 162 and MATH 120 or COI
STAT 251	Linear Models I	STAT 142 and STAT 235 or COI
STAT 252	Linear Models II	STAT 251
STAT 263	Sampling and Sample Surveys	STAT 141 or COI
STAT 264	Statistics for Epidemiology	STAT 1 or COI
STAT 266	Time Series Analysis I	COI
TM 232	Science and Technology Policy	none
VEPI 221	Veterinary Epidemiological Methods	COI
VEPI 222	Veterinary Surveillance	COI
VEPI 225	Veterinary Risk Analysis	COI
VEPI 226	Veterinary Informatics	COI
VEPI 227	Environmental Animal Health	none
WLDL 258	Wildlife Population Dynamics	none
ZOO 253	Ecology of Animal Parasites.	ZOO 173 or equivalent
ZOO 273	Advanced Animal Parasitology	COI

Courses offered by UP Diliman		
MATH 260	**Actuarial Theory and Practice**	MATH 164 or equivalent
MATH 261.1	**Survival and Loss Models**	MATH 164 or equivalent
MATH 262.1	**Actuarial Science I**	MATH 261 or COI
MATH 262.2	**Actuarial Science II**	MATH 262.1 or COI