Curriculum

☐ **Undergraduate Course**

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
Mandatory Basic Courses	MAS101	Calculus I	3:1:3(6)		*MA101
	MAS103	Honor Calculus I	3:1:3(6)		*MA102
	MAS102	Calculus II	3:1:3(6)		*MA103
	MAS104	Honor Calculus II	3:1:3(6)		*MA104
Elective Basic Courses	MAS109	Introduction to Linear Algebra	3:1:3(6)		*MA111
	MAS201	Differential Equations and Applications	3:1:3(6)		*MA201
	MAS202	Applied Mathematical Analysis	3:1:3(6)		*MA202
Elective Major Courses	MAS210	Introduction to Number Theory	3:0:3(6)		*MA210
	MAS212	Linear Algebra	3:0:3(6)		*MA212, *AM220
	MAS241	Analysis I	3:2:4(6)		*MA241 *AM241
	MAS242	Analysis II	3:2:4(6)		*MA242 *AM242
	MAS250	Probability and Statistics	3:1:3(6)		*MA250 *AM250
	MAS260	Applied Mathematics and Modeling	3:2:3(6)		*AM210
	MAS261	Computational Geometry and Computer Graphics	3:0:3(6)		*MA271
	MAS270	Logic and Set Theory	3:0:3(6)		*MA270 *AM311
	MAS275	Discrete Mathematics	3:0:3(6)		*MA260
	MAS311	Modern Algebra I	3:2:4(6)		*MA311
	MAS312	Modern Algebra II	3:0:3(6)		*MA312
	MAS321	Introduction to Differential Geometry	3:2:4(6)		*MA321
	MAS331	Topology	3:2:4(6)		*MA331
	MAS341	Complex Variables	3:0:3(6)		*MA341 *AM343
	MAS343	Ordinary Differential Equations and Dynamical systems	3:0:3(6)		*AM331
	MAS350	Elementary Probability Theory	3:0:3(6)		*MA450 *AM350
	MAS355	Mathematical Statistics	3:0:3(6)		*MA455 *AM360
	MAS364	Matrix Computation and Application	3:2:4(6)		*MA465 *AM320
	MAS365	Introduction to Numerical Analysis	3:2:4(6)		*MA365 *AM321
	MAS370	Information Mathematics	3:0:3(6)		*MA370
	MAS371	Introduction to Financial Mathematics	3:1:3(6)		*AM465
	MAS374	Optimization Theory	3:0:3(6)		*AM347
	MAS410	Introduction to Cryptography	3:0:3(6)		*MA411
	MAS411	Introduction to Algebraic Geometry	3:0:3(6)		
	MAS420	Analysis on Manifolds	3:0:3(6)		*MA420 *AM441
	MAS430	Combinatorial Topology	3:0:3(6)		*MA430

※ Course of 400 and 500 level can be taken by students in either undergraduate or master's program

   * These courses are replaceable with the one in the second column of the corresponding row.

□ **Undergraduate Course**

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
Elective Major Courses	MAS435	Matrix Groups	3:0:3(6)		*MA470
	MAS440	Introduction to Partial Differential Equations	3:0:3(6)		*MA440 *AM432
	MAS441	Lebesgue Integral Theory	3:0:3(6)		*MA441 *AM445
	MAS442	Fourier Analysis and Applications	3:2:3(6)		*AM442
	MAS455	Linear Models	3:0:3(6)		*AM461
	MAS456	Statistical Methods with Computer	2:3:3(6)		*AM462
	MAS457	Random Process and Signal Processing	3:0:3(6)		*AM452
	MAS458	Theory and Application of Transforms	3:0:3(6)		*AM448
	MAS464	Mathematical Mechanics	3:0:3(6)		*AM434
	MAS470	Mathematical Modeling	3:2:3(6)		*AM470
	MAS471	Financial Mathematics and Stochastic Models	3:0:3(6)		
	MAS472	Computer Simulations in Financial Mathematics	3:0:3(6)		*MA471
	MAS475	Combinatorial Theory	3:0:3(6)		*MA460
	MAS476	Game Theory	3:0:3(6)		
	MAS477	Introduction to Graph Theory	3:0:3(6)		
	MAS480	Topics in Mathematics	3:0:3(6)		*MA480 *AM480
	MAS481	Topics in Mathematics I	1:0:1		
	MAS482	Topics in Mathematics II	2:0:2		
Research	MAS490	Research in Mathematics	0:6:3	Spring, Fall	*MA490 *AM490
	MAS495	Individual Study	0:6:1	Spring, Fall	*MA495 *AM495
	MAS496	Mathematics Seminar	1:0:1	Spring, Fall	*MA496 *AM496

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❏ Graduate Course

Classification	Subject No.	Subject Name	Lecture:Lab. :Credit (Homework)	Semester	Remark
Mandatory General Courses	CC500	Scientific Writing	3:0:3 (4)	Spring, Fall	
	CC510	Introduction to Computer Application	2:3:3 (10)	Spring, Fall	
	CC511	Probability and Statistics	2:3:3 (6)	Spring, Fall	
	CC513	Engineering Economy and Cost Analysis	3:0:3 (6)	Spring, Fall	
	CC530	Entrepreneurship and Business Strategies	3:0:3 (6)	Spring, Fall	
Elective Courses	MAS501	Analysis for Engineers	3:0:3(6)		*AM501
	MAS502	Functional Analysis for Engineers	3:0:3(6)		*AM502
	MAS503	Algebra for Engineers	3:0:3(6)		*MA500
	MAS504	Applied Matrix Computation	3:0:3(6)		*AM504
	MAS510	Number Theory	3:0:3(6)		*MA510
	MAS511	Algebra I	3:0:3(6)		*MA511
	MAS512	Algebra II	3:0:3(6)		*MA512
	MAS520	Differential Geometry	3:0:3(6)		*MA520
	MAS530	Differential Topology	3:0:3(6)		*MA530
	MAS531	Algebraic Topology I	3:0:3(6)		*MA531
	MAS532	Algebraic Topology II	3:0:3(6)		*MA532
	MAS540	Real Analysis	3:0:3(6)		*MA540 *AM541
	MAS541	Complex Function Theory	3:0:3(6)		*MA541 *AM542
	MAS546	Wavelets and Applications	3:0:3(6)		*AM546
	MAS547	Approximation Theory	3:0:3(6)		*MA567 *AM547
	MAS548	Symbolic Dynamics	3:0:3(6)		*MA568
	MAS550	Probability Theory	3:0:3(6)		*MA650 *AM550
	MAS552	Queueing Theory with Applications	3:0:3(6)		*AM552
	MAS555	Advanced Statistics	3:0:3(6)		*AM560
	MAS556	Time Series Analysis	3:0:3(6)		
	MAS557	Theory and Application of Machine Learning	3:0:3(6)		*AM521
	MAS560	Methods of Applied Mathematics	3:0:3(6)		*AM511
	MAS565	Numerical Analysis	3:0:3(6)		*MA565 *AM520
	MAS571	Stochastic Methods in Financial Mathematics	3:0:3(6)		*MA569
	MAS575	Combinatorics	3:0:3(6)		*MA513
	MAS580	Recent Progress in Applied Mathematics	2:0:2(6)		*AM580
	MAS581	Topics in Mathematics I	1:0:1		
	MAS582	Topics in Mathematics II	2:0:2		
	MAS583	Topics in Mathematics	3:0:3		
	MAS611	Algebraic Geometry I	3:0:3(6)		*MA611
	MAS612	Algebraic Geometry II	3:0:3(6)		*MA612
	MAS613	Lie Algebra	3:0:3(6)		*MA613
	MAS620	Lie Groups	3:0:3(6)		*MA620
	MAS621	Riemannian Geometry	3:0:3(6)		*MA621
	MAS622	Symplectic Geometry	3:0:3(6)		
	MAS623	Complex Geometry	3:0:3(6)		
	MAS630	Geometric Topology	3:0:3(6)		*MA630
	MAS631	Homotopy Theory	3:0:3(6)		*MA631
	MAS640	Harmonic Analysis	3:0:3(6)		*MA640 *AM643

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Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
Elective Courses	MAS641	Functional Analysis	3:0:3(6)		*MA641 *AM641
	MAS642	Generalized Functions	3:0:3(6)		*MA643 *AM644
	MAS645	Partial Differential Equations	3:0:3(6)		*MA743 *AM530
	MAS646	Nonlinear Differential Equations	3:0:3(6)		*MA744
	MAS647	Ordinary Differential Equations	3:0:3(6)		*MA745
	MAS650	Stochastic Differential Equations	3:0:3(6)		*AM650
	MAS651	Stochastic Processes	3:0:3(6)		*MA750 *AM551
	MAS655	Graphic Models in Statistics	3:0:3(6)		*AM662
	MAS656	Multivariate Statistical Analysis	3:0:3(6)		*AM664
	MAS657	Computational Models of Neural Networks	3:0:3(6)		*AM621
	MAS660	Numerical Fluid Mechanics	3:0:3(6)		*AM670 *MAE613
	MAS661	Mathematical Fluid Mechanics	3:0:3(6)		*AM531 *MAE510
	MAS665	Numerical Partial Differential Equations	3:0:3(6)		*MA665 *AM620
	MAS667	High Speed Computation	3:0:3(6)		*AM675
	MAS671	Computational Methods in Financial Mathematics	3:0:3(6)		
	MAS710	Representation Theory	3:0:3(6)		*MA710
	MAS711	Cryptology and Coding Theory	3:0:3(6)		*MA711
	MAS712	Algebraic Number Theory	3:0:3(6)		*MA712
	MAS730	Knot Theory	3:0:3(6)		*MA730
	MAS731	Transformation Group Theory	3:0:3(6)		*MA731
	MAS740	Ergodic Theory	3:0:3(6)		*MA740
	MAS760	Mathematical Methods for Mechanics	3:0:3(6)		*AM730
	MAS765	Finite Element Method	3:0:3(6)		*MA765
	MAS771	Statistical Methods in Financial Mathematics	3:0:3(6)		
	MAS880	Topics in Mathematics	3:0:3(6)		*MA880 *AM801
	MAS881	Topics in Mathematics (Ph.D.)	1:0:1		
	MAS882	Topics in Mathematics (Ph.D.)	2:0:2		
Research	MAS960	M.S. Thesis		Spring, Fall	*MA960 *AM960
	MAS965	Independent Study in M.S.		Spring, Fall	*MA965 *AM965
	MAS966	M.S. Seminar	1:0:1	Spring, Fall	*MA966 *AM966
	MAS967	How to teach mathematics I (M.S.)	1:0:1	Spring, Fall	
	MAS968	How to teach mathematics II (M.S.)	1:0:1	Spring, Fall	
	MAS980	Ph.D. Thesis		Spring, Fall	*MA980 *AM980
	MAS986	Ph.D. Seminar	1:0:1	Spring, Fall	*MA986 *AM986
	MAS987	How to teach mathematics I (Ph.D.)	1:0:1		
	MAS988	How to teach mathematics II (Ph.D.)	1:0:1		

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