BRANCHES

BRANCH NAMES	Suggested Elective Courses
1- Commutative Algebra	1- Math 366 Number Theory 2- Math 456 Galois Theory 3- Math 389 Introduction to Commutative Ring Theory
2- Ring and Module Theory	1- Math 366 Number Theory 2- Math 389 Introduction to Commutative Ring Theory 3- Math 444 Introduction to Modules and Rings 4- Math 422 Introduction to Abelian Groups
3- Number Theory	1- Math 366 Number Theory 2- Math 456 Galois Theory 3- Math 443 Introduction to Analytic Number Theory 4- Math 389 Introduction to Commutative Ring Theory
4- Topology and Geometry	1- Math 372 Differential Geometry 2- Math 412 Hyperbolic Geometry 3- Math 440 Knot Theory and Its Applications 4- Math 441 Introduction to Geometric Topology 5- Math 387 An Introduction to Topology of Surfaces 6- Math 442 An Introduction to Topological Data Analysis
5- Mathematical Physics	1- Math 240 Analytical Mechanics 2- Math 401 Quantum Mechanics 3- Math 404 Quantum Computations and Information 4- Math 410 Green's Functions 5- Phys 203 Classical Mechanics 1 (M) 6- Phys 204 Classical Mechanics 2 (M) 7- Phys 222 Modern Physics (M)
6- Differential Equations and Dynamical Systems	1- Math 301 Dynamical Systems 2- Math 333 Introduction to Mathematical Modeling 3- Math 368 An Introduction to Mathematical Control Theory 4- Math 414 Introduction to Integral Equations 5- Math 481 Differential Eqations with Numerical Methods

7- Partial Differential Equations	1- Math 413 Linear and Nonlinear Waves 2- Math 455 Control of Infinite Dimensional Systems 3- Math 453 Introduction to Generalized Functions
8- Numerical Analysis	1- Math 381 Numerical Analysis 2- Math 382 Numerical Analysis 2 3- Math 481 Differential Eqations with Numerical Methods 4- Math 482 Numerical Solutions of Linear Integral Equations 5- Math 334 Introduction to Wavalet and Applications 6- Math 335 Mathematical Image Deblurring
9- Functional Analysis and Harmonic Analysis	1- Math 385 Special Functions of Applied Mathematics 2- Math 452 Functional Analysis 3- Math 453 Introduction to Generalized Functions
10- Hydrodynamics and Fluid Mechanics	1- Math 385 Special Functions of Applied Mathematics 2- Math 386 Fluid Dynamics 3- Math 410 Green's Functions 4- Math 407 Conformal Mappings
11- Cryptography	1- Math 311 Coding Theory 2- Math 313 Introduction to Cryptogtaphy 3- Math 406 Mathematics of Public Key Cryptography 4- Math 432 Analysis of Symmetric Encryption and Hash Functions 5- Math 445 Mathematical Aspects of Blockchain Technologies
12- Graphy Theory	1- Math 307 Introduction to Graph Theory 2- Math 408 Advanced Topics in Graph Theoy 3- Math 403 Combinatorial Design Theory

13- Combinatorics	1- Math 308 Introduction to Combinatorics 2- Math 409 Advanced Topics in Combinatorics
14- Statistics and Financial Mathematics	1- MBG 205 Biostatistics (M) 2- Econ 205 Principles of Economics (M)
15- Computer Science and Symbolic Computations	1- Math 201 Introduction to Mathematical Programming 2- Ceng 211 Programming Fundamentals (M) 3- Ceng 213 Theory of Computation (M) 4- Ceng 212 Conceps of Programming Languages (M) 5- Math 330 Trending Mathematical Algorithms 6- Math 338 Mathematics for Machine Learning 7- Math 430 Contemporary Applications of Mathematics