

## FACULTY OF SCIENCE

### MATHEMATICS

#### NAME OF THE DEGREE

- : Master of Science
- : M.Sc.

#### FACTULTY MEMBERS

##### Professors

- **Yupaporn Kemprasit, Ph.D. (Colorado State)**  
*Algebraic Semigroup Theory, Space Ring Theory, Hyperstructure Theory*
- **Kritsana Neammanee, Ph.D. (Chula)**  
*Probability Theory (Limit Theorems and Stein' s Method)*

##### Associate Professors

- **Ajchara Harnchoowong, Ph.D. (Penn. State)**  
*Number Theory*
- **Jack Asavanant, Ph.D. (Wisconsin, Madison)**  
*Fluid Mechanics, Applied Mathematics*
- **Patanee Udomkavanich, Ph.D. (Penn. State)**  
*Coding Theory, Syntactic Monoids of Prefix Codes, Algebraic Semigroup Theory*
- **Wanida Hemakul, Ph.D. (North Carolina)**  
*Graph Theory, Boundary Value Problems for O.D.E.*

##### Assistant Professors

- **Amorn Wasanawichit, Ph.D. (Chula)**  
*Algebra*
- **Anusorn Chonweerayoot, Ph.D. (Naresuan)**  
*Optimal Control of Distributed Parameter System, Applied Functional Analysis*
- **Imchit Termwuttipong, Ph.D. (Chula)**  
*Analysis, Fixed Point Theory*
- **Nataphan Kitisin, Ph.D. (UCLA)**  
*Geometric Analysis*
- **Paisan Nakmahachalasint, Ph.D. (California)**  
*Bio-Informatics, Number Theory*
- **Phichet Chaoha, Ph.D. (Illinois)**  
*Algebraic Topology, Fixed Point Theory*
- **Pornchai Satravaha, Ph.D. (Wollongong)**  
*BEM, DRM, Driven Cavity Flow*
- **Sajee Pianskool, Ph.D. (Wales Swansea)**  
*Algebra, Representation Theory, Hyperstructure Theory*
- **Wicharn Lewkeeratiyutkul, Ph.D.(Cornell)**  
*Functional Analysis, Analysis on Lie Groups*

##### Instructors

- **Chariya Uiyysathian, Ph.D. (Colorado, Denver)**  
*Combinatorics and Graph Theory*
- **Khamron Mekchay, Ph.D. (Maryland)**  
*Numerical Analysis, Partial Differential Equations*

- **Kittipat Wong, Ph.D. (Illinois)**  
*Probability Theory and Stochastic Analysis*
- **Nattakarn Chaidee, Ph.D. (Chula)**  
*Probability Theory (Limit Theorems and Stein' s Method)*
- **Pimpen Vejjajiva, Ph.D. (Chula)**  
*Mathematical Logic, Set Theory*
- **Songkiat Sumetkijakan, Ph.D. (Maryland)**  
*Wavelet Theory, Analysis on Fractals*
- **Sureeporn Chaopraknoi, Ph.D. (Chula)**  
*Algebraic Semigroup Theory, Hyperstructure Theory*
- **Tuangrat Chaichana, Ph.D. (Chula)**  
*Continued Fractions, Function Fields, p-adic Number Theory and Algebraic Independence*
- **Wacharin Wichiramala, Ph.D. (Illinois)**  
*Bubble Geometry, Classical Geometry*
- **Yotsanan Meemark, Ph.D. (Penn. State)**  
*Finite fields, Algebraic Function Theory, Graph Theory*

#### ADMISSION

Each applicant must hold a Bachelor' s degree in any fields and have taken at least 12 credits of mathematics courses.

In addition, the applicant must meet those requirements promulgated each year by the graduate school, or be approved by the Graduate Program Executive Committee of the Department of Mathematics.

Though regular applications are accepted yearly during September to December, prospective students may apply any time of the year. For foreign applicants, please contact our foreign affair office at [fa@sc.chula.ac.th](mailto:fa@sc.chula.ac.th) or visit <http://galaxy.sc.chula.ac.th/inter-national>.

#### DEGREE REQUIREMENTS

This program consists of at least 24 credits of course work, 18 credits of thesis work, a seminar course and a computer tools in Mathematics course which have to be completed within 4 academic years. Of the 24 course work credits, 9 are required to be chosen from alternatively required courses and at least 15 from elective courses.

The 18 credits of thesis work are earned by presenting an acceptable thesis and passing an oral defense of it. In addition, the thesis work is required to be presented at a conference with a proceeding or published in a national or an international journal.

A student who has fulfilled the above requirements with a grade point average not less

than 3.00 will be awarded the Degree of Master of Science in Mathematics.

## COURSE REQUIREMENTS

### 1) Required Courses non-credit

2301560 Computer Tools in Mathematics  
2301700 Seminar

### 2) Alternatively Required Courses 9 credits

Choose 3 courses from the following 2 different groups :

#### Algebra

2301610 Linear and Multilinear Algebra  
2301613 Abstract Algebra I  
2301614 Abstract Algebra II

#### Analysis

2301621 Real Analysis I  
2301622 Real Analysis II  
2301623 Complex Analysis

#### Topology and Geometry

2301631 Topology  
2301632 Algebraic Topology  
2301635 Differentiable Manifolds

#### Applied Mathematics

2301641 Methods of Applied Mathematics I  
2301650 Partial Differential Equations I  
2301653 Numerical Analysis I  
2301671 Foundations of Operations Research I

### 3) Elective Courses

Minimum 15 credits must be chosen from the following courses:

2301421 Mathematical Logic  
2301422 Set Theory  
2301510 Fundamentals of Abstract Mathematics  
2301532 Coding Theory  
2301601 Recursive Function Theory  
2301602 Model Theory  
2301615 Homological Algebra  
2301616 Algebraic Semigroup Theory  
2301617 Lie Algebras I  
2301618 Combinatorial Theory  
2301619 Algebraic Number Theory I  
2301620 Mathematical Analysis  
2301626 Measure and Integration Theory  
2301629 Functional Analysis  
2301642 Methods of Applied Mathematics II  
2301643 Introduction to Mathematical Fluid Dynamics  
2301644 Computational Fluid Mechanics  
2301647 Introduction to Boundary Element Methods

2301648 Special Functions and Integral Transforms  
2301654 Numerical Analysis II  
2301655 Systems and Mathematical Control Theory I  
2301661 Probability Theory  
2301665 Mathematical Statistics  
2301670 Graph Theory and Applications  
2301672 Foundations of Operations Research II  
2301673 Linear and Network Models  
2301674 Integer and Nonlinear Programming  
2301675 Mathematical Modeling  
2301676 Stochastic Models  
2301681 Design and Analysis of Algorithms  
2301682 High Performance Computing and Visualization  
2301683 Parallel Computing  
2301684 Compilers for Parallel Computing  
2301685 Design of Fault-Tolerant Digital Systems  
2301686 Fuzzy Logic  
2301687 Dynamical Systems and Chaos  
2301688 Signal Processing  
2301689 Artificial Neural Networks  
2301690 Special Topics in Advanced Mathematics  
2301691 Special Topics in Algebra  
2301692 Special Topics in Analysis  
2301693 Special Topics in Geometry  
2301694 Special Topics in Applied Mathematics  
2301695 Special Topics in Computational Science  
2301696 Selected Topics in Computational Science I  
2301697 Selected Topics in Computational Science II

In addition, courses not already taken as alternatively required courses may be chosen as elective courses.

### 4) Thesis 18 credits

2301813 Thesis

## ACADEMIC COLLABORATIONS

- o Special lectures occasionally given by experts in many areas
- o Research collaborations from well-known institutions in countries like Australia, Finland, Singapore, and the USA.

## FINANCIAL AIDS

- o Graduate teaching and research assistantships
- o Thailand Research Fund (TRF)
- o Office of the Higher Education Commission