Doctor of Philosophy Promgramme in Mathematics(International Programme)

หลักสูตร ปรัชญาดุษฎีบัณฑิต   สาขาวิชา คณิตศาสตร์ (หลักสูตรนานาชาติ) (ภาคปกติ)

Faculty of Science   **Department of Mathematics**

คณะวิทยาศาสตร์   ภาควิชา คณิตศาสตร์

Expected number of students to be accepted all year round : 10 Students

Admission Requirements

A candidate must:

1. hold a Bachelor's degree in Mathematics or an equivalent area with at least fourty-five (45) credits of mathematics courses and a grade point average of at least 3.25 or;

2. hold a Master's degree in any areas with a Bachelor's degree in mathematics or an equivalent area which includes at least fourty-five (45) credits of mathematics courses with a grade point average of at least 3.50

2. for students who are studying in Master of Science Program in Applied Mathematics (International Program), Mahidol University, and want to change student status to a doctoral student have already taken and passed course work at the master's degree level for no less than 2/3 of the number of credits in required courses and have received a GPA of no less than 3.50 with approvals from the master's program committee and the doctoral program committee as well as the Dean of the Faculty of Graduate Studies

4. have a TOEFL score of at least 500, TOEFL computer-based score of 173, TOEFL Internet-based score of 61, or IELTS score of 5 .

    Those who do not have any of the test scores specified above will have to take the English Proficiency Examination of the Faculty of Graduate Studies on the specified examination day.

Curriculum Structure

	Credit
For a student with Bachelor's degree	
Plan 1	
Thesis	72
Plan 2	
Elementary Courses	-
Required Courses	9
Elective Courses no less than	15
Thesis	48
For a student with Master's degree	
Plan 1	
Thesis	48

Plan 2	
Elementary Courses	-
Required Courses	9
Elective Courses no less than	3
Thesis	36

	Credit
Elementary Courses	
SCMA 501 Linear Algebra	3(3-0-6)
SCMA 502 Advanced Calculus	3(3-0-6)
SCMA 503 Differential Equations	3(3-0-6)
SCMA 504 Probability and Statistics	3(3-0-6)
SCMA 505 Computer Programming I	3(3-0-6)
SCMA 506 Complex Variables	3(3-0-6)
SCMA 507 Vector Analysis	3(3-0-6)
SCMA 508 Calculus of Several Variables	3(3-0-6)
SCMA 509 Principle of Partial Differential Equations	3(3-0-6)
SCMA 510 General Topology	3(3-0-6)
Required Courses	
SCMA 612 Analysis II	3(3-0-6)
SCMA 615 Algebra	3(3-0-6)
SCMA 692 Mathematics Seminar I	1(1-0-2)
SCMA 693 Mathematics Seminar II	1(1-0-2)
SCMA 700 Mathematics Seminar III	1(1-0-2)
Elective Courses	
SCID 518 Generic Skills in Science Research	1(1-0-2)
SCMA 602 Applied Analysis II	3(3-0-6)
SCMA 603 Theory of Ordinary Differential Equations	3(3-0-6)
SCMA 604 Algebraic Topology I	3(3-0-6)
SCMA 605 Algebraic Topology II	3(3-0-6)
SCMA 606 Topology	3(3-0-6)
SCMA 607 Functional Analysis	3(3-0-6)
SCMA 608 Modern Algebra	3(3-0-6)
SCMA 609 Current Topics in Mathematics I	3(3-0-6)
SCMA 610 Real Analysis	3(3-0-6)

SCMA 614 Numerical Analysis II	3(3-0-6)
SCMA 617 Computer Methods for Statistical Applications	3(2-2-5)
SCMA 619 System Science	3(3-0-6)
SCMA 620 Complex Analysis	3(3-0-6)
SCMA 625 Partial Differential Equations	3(3-0-6)
SCMA 626 Applied Functional Analysis	3(3-0-6)
SCMA 627 Differentiable Manifolds	3(3-0-6)
SCMA 628 Finite Element Methods	3(3-0-6)
SCMA 629 Current Topics in Computational Mathematics	3(3-0-6)
SCMA 630 Operations Research	3(3-0-6)
SCMA 631 Decision Analysis	3(3-0-6)
SCMA 632 Game Theory	3(3-0-6)
SCMA 633 Stochastic Processes	3(3-0-6)
SCMA 634 Queuing Theory	3(3-0-6)
SCMA 635 Inventory Theory	3(3-0-6)
SCMA 636 Simulation Modeling	3(3-0-6)
SCMA 637 Combinatorial Mathematics	3(3-0-6)
SCMA 638 Graph Theory	3(3-0-6)
SCMA 639 Current Topics in Statistical Mathematics	3(3-0-6)
SCMA 640 Probability Theory	3(3-0-6)
SCMA 641 Multivariate Analysis	3(3-0-6)
SCMA 642 Advanced Experimental Design	3(3-0-6)
SCMA 643 Time Series Analysis	3(3-0-6)
SCMA 644 Linear Models	3(3-0-6)
SCMA 645 Generalized Linear Models	3(3-0-6)
SCMA 646 Numerical Methods I	3(3-0-6)
SCMA 647 Numerical Methods II	3(3-0-6)
SCMA 648 Advanced Numerical Analysis	3(3-0-6)
SCMA 649 Current Topics in Mathematics II	3(3-0-6)
SCMA 651 Classical Mechanics	3(3-0-6)
SCMA 652 Electromagnetic Theory	3(3-0-6)
SCMA 653 Quantum Mechanics	3(3-0-6)

SCMA 658 Advanced Topics in Applied Mathematics I	3(3-0-6)
SCMA 659 Advanced Topics in Applied Mathematics II	3(3-0-6)
SCMA 660 Theoretical Physics I	3(3-0-6)
SCMA 662 Compressible Fluid Dynamics	3(3-0-6)
SCMA 664 Optimization and Control	3(3-0-6)
SCMA 665 Numerical Methods in Partial Differential Equations	3(3-0-6)
SCMA 666 Applications of Complex Analysis	3(3-0-6)
SCMA 667 Applied Partial Differential Equations	3(3-0-6)
SCMA 668 Differential Geometry	3(3-0-6)
SCMA 669 Current Topics in Mathematical Physics I	3(3-0-6)
SCMA 670 Advanced Differential Equations	3(3-0-6)
SCMA 671 Mathematical Physics I	3(3-0-6)
SCMA 673 Dynamical Systems	3(3-0-6)
SCMA 674 Mathematical Models in The Life Sciences	3(3-0-6)
SCMA 675 Statistical Mechanics	3(3-0-6)
SCMA 676 Mathematics for Computing	3(3-0-6)
SCMA 677 Data Mining	3(3-0-6)
SCMA 678 Mathematics for (Natural) Language Processing I	3(3-0-6)
SCMA 679 Mathematics for (Natural) Language Processing II	3(3-0-6)
SCMA 680 Mathematical Methods for Artificial Intelligence	3(3-0-6)
SCMA 681 Special Topics in Applied Mathematics I	3(3-0-6)
SCMA 682 Special Topics in Applied Mathematics II	3(3-0-6)
SCMA 683 Special Topics in Applied Mathematics III	3(3-0-6)
SCMA 684 Dynamic Meteorology I	3(3-0-6)
SCMA 685 Dynamic Meteorology II	3(3-0-6)
SCMA 686 Numerical Weather Prediction	3(3-0-6)
SCMA 687 Advanced Topics in Mathematical Methods for Artificial Intelligence	3(3-0-6)
SCMA 688 Statistical Inference	3(3-0-6)
SCMA 689 Bayesian Statistics	3(3-0-6)

Thesis

Plan 1
SCMA 898 Dissertation	48(0-144-0)
SCMA 898 Dissertation	72(0-216-0)

<table>
<tr><td colspan="2">Plan 2</td></tr>
<tr><td>SCMA 699 Dissertation</td><td>36(0-108-0)</td></tr>
<tr><td>SCMA 799 Dissertation</td><td>48(0-144-0)</td></tr>
<tr><td colspan="2">* These may change in cases where there are suggestions for the improvement of the curriculum</td></tr>
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Additional advantages of the programme include :

    The information has been changed as in the enclosed document

Details of Scholarships

1. Scholarship of the 60th Year Supreme Reign of His Majesty King Bhumibol Adulyadej.
2. Partial support on the tuition and research supplies fee.

Additional information for applicants

    Ph.D. Programme in Mathematics operates on a rolling admission system (all year round).

Application Process

Application is only available via online application at www.grad.mahidol.ac.th

Required Documents

Prepare the following required documents to submit via online admission system or post :

- Two (2) recent photographs (1x1 inch in size)
- A copy of an applicant's degree, certificate or a letter of graduation certification   2 copies
  (for an applicant with a degree completion)
- A letter certifying that the applicant is currently in the last semester prior to graduation   2 copies
  (for an applicant seeking a degree)
- A detailed transcript of a degree (for an applicant with a degree completion)   2 copies
- A grade report with course names and grades received from the first to the current   2 copies
  semester prior to graduation
- A copy of identification card   2 copies
- A copy of house registration certification   2 copies
- A copy of proof of payment.

Submitting documents via online admission system.

- All documents must be in <u>pdf format</u> (maximum size 2 MB)
- Recent photograph must be in <u>jpeg format</u> only (maximum size 2 MB)

Job options after graduation

- Lecturer
- Researcher
- Government agencies
- Private companies, such as banks, insurance companies, etc.

Further information may be obtained from the Chair of the Ph.D. Programme Committee : Mathematics :

1. **Prof. Yongwimon Lenbury** (E-mail : yongwimon.len@mahidol.ac.th)
   Room B205/1, B Building, Floor 2,
   Department of Mathematics, Faculty of Science.
   Tel. : 0 2201 5448   Fax. : 0 2201 5343

Program Coordinator

   Mr. Natthawooth Siangdee (E-mail : natthawooth.sin@mahidol.ac.th)
   Room M203/1, M Building, Floor 2,
   Department of Mathematics, Faculty of Science.
   Tel. : 0 2201 5342   Fax. : 0 2201 5343

<u>Note</u>   1. For more education information : **www.grad.mahidol.ac.th**

For more information please contact The Student Admissions Section.
Tel . 0 2441 4125 ext. 208-210 , 0 24419129, E-mail : gradthai@mahidol.ac.th