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Doctor of Philosophy Programme in Chemistry (International Programme)

หลักสูตร ปรัชญาดุษฎีบัณฑิต

สาขาวิชา เคมี (หลักสูตรนานาชาติ) (ภาคปกติ)

Faculty of Science

Department of Chemistry

คณะวิทยาศาสตร์

ภาควิชา เคมี

Expected number of students to be accepted all year round : 45 Students

#### Admission Requirements

A candidate must:

1. have a Bachelor of Science in Chemistry or any equivalent degree with a minimum grade point average of 3.50 or
2. have a Master of Science in Chemistry or any equivalent degree with a minimum grade point average of 3.50
3. 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.

4. In case your qualification does not match to the admission criteria, candidates must prior attach a "Requesting Form for Examination" signed and approved by the program director. The form must be submitted before making the application. Kindly download here:

[http://www.grad.mahidol.ac.th/grad/admission/form\\_th.php](http://www.grad.mahidol.ac.th/grad/admission/form_th.php)

Exceptions from the above conditions may be granted by the Programme Committee and the Dean of Faculty of Graduate Studies;

**Written Examination** (Applicants must attend the examination date accurately to your admission round.)

<u>First Round</u> January 17, 2015		<u>Second Round</u> May 16, 2015	
Subjects for examination	Time	Subjects for examination	Time
1. English	8.30 - 11.30 a.m.	1. English	8.30 - 11.30 a.m.
2. General Knowledge	11.30 - 12.30 p.m.	2. General Knowledge	11.30 - 12.30 p.m.
<b>Examination Place</b> Mahidol University , Salaya , Nakhonpathom more details : <a href="http://www.grad.mahidol.ac.th">www.grad.mahidol.ac.th</a> or Announcement at Faculty of Graduate Studies branches.			

## Curriculum Structure

	<b>Credit</b>
<b>For students with Bachelor's degree in Chemistry or any equivalent degree</b>	
Required Courses	24
Elective Courses no less than	9
Thesis	48
<b>For students with Master's degree in Chemistry</b>	
Required Courses	6
Elective Courses no less than	6
Thesis	36
<b>For students with Master's degree in any equivalent degree</b>	
Required Courses	9
Elective Courses no less than	3
Thesis	36

	<b>Credit</b>
<b>Required Courses</b>	
<b>For students with Bachelor's degree</b>	
SCCH 701 Frontiers in Chemistry	3(3-0-6)
SCCH 702 Chemical Safety and Risk Management	1(1-0-2)
SCCH 703 Scientific Communications	1(1-0-2)
SCCH 704 Seminar in Chemistry	1(1-0-2)
SCCH 705 Progress in Chemistry	3(3-0-6)
SCCH 706 Research Skill Development I	3(3-0-6)
SCCH 707 Research Skill Development II	3(3-0-6)
SCCH 708 Special Problems in Chemistry	3(3-0-6)
<b>Additional required courses for students with Bachelor's degree (6 credits)</b>	
SCCH 711 Organic Structure Determination	3(3-0-6)
SCCH 712 Molecular Structures and Functions	3(3-0-6)
SCCH 731 Advanced Techniques in Analytical Chemistry	3(3-0-6)
SCCH 732 Instrumental Analysis Laboratory	3(1-6-4)
SCCH 751 Molecular Orbital Theory of Transition Metal Complexes	3(3-0-6)
SCCH 752 Characterization Techniques in Catalysis	3(3-0-6)
SCCH 771 Quantum Chemistry	3(3-0-6)
SCCH 772 Thermodynamics and Statistical Mechanics	3(3-0-6)
SCCH 791 Polymer Chemistry	3(3-0-6)
SCCH 792 Polymer Physics	3(3-0-6)
<b>Required courses for students with Master's degree in Chemistry</b>	
SCCH 707 Research Skill development II	3(3-0-6)
SCCH 708 Special Problems in Chemistry	3(3-0-6)

**Required courses for students with Master's degree in any equivalent degree**

SCCH 701 Frontiers in Chemistry	3(3-0-6)
SCCH 707 Research Skill development II	3(3-0-6)
SCCH 708 Special Problems in Chemistry	3(3-0-6)

**Elective Courses**

SCCH 713 Advanced Organic Synthesis	3(3-0-6)
SCCH 714 Advanced Organic Reaction Mechanism	3(3-0-6)
SCCH 715 Frontiers in Medicinal Chemistry	3(3-0-6)
SCCH 716 Chemical Biology	3(3-0-6)
SCCH 717 Advanced Natural Product Chemistry	3(3-0-6)
SCCH 718 Asymmetric Synthesis	3(3-0-6)
SCCH 719 Advanced Heterocyclic Chemistry	3(3-0-6)
SCCH 720 Current Topics in Organic Chemistry	3(3-0-6)
SCCH 733 Separation Techniques	3(3-0-6)
SCCH 734 Fluidic Technology for Analytical Science	3(3-0-6)
SCCH 735 Chemometrics	3(2-3-5)
SCCH 736 Solution Chemistry	3(3-0-6)
SCCH 737 Environmental Chemistry	3(3-0-6)
SCCH 738 Special Topics in Analytical Chemistry	3(3-0-6)
SCCH 739 Current Topics in Analytical Chemistry I	3(3-0-6)
SCCH 740 Current Topics in Analytical Chemistry II	3(3-0-6)
SCCH 753 Homogeneous Catalysis	3(3-0-6)
SCCH 754 Organotransition Metal Chemistry	3(3-0-6)
SCCH 755 Catalysis in Ring-Opening Polymerization	3(3-0-6)
SCCH 756 Heterogeneous Catalysis	3(3-0-6)
SCCH 757 Solid State Chemistry	3(3-0-6)
SCCH 758 Small Molecule Activation	3(3-0-6)
SCCH 759 Olefin Polymerization Catalysis	3(3-0-6)
SCCH 760 Biorefinery	3(3-0-6)
SCCH 761 Nanocatalysis	3(3-0-6)
SCCH 762 Special Topics in Catalysis	3(3-0-6)
SCCH 773 Structure and Chemical Bonding	3(2-3-5)
SCCH 774 Chemical Kinetics and Molecular Dynamics	3(3-0-6)
SCCH 775 Modern Chemical Physics	3(3-0-6)
SCCH 776 Mathematical Methods	3(3-0-6)
SCCH 777 Green Energy Technology	3(3-0-6)
SCCH 778 Physico-chemical Techniques	3(2-3-5)
SCCH 779 Surface Chemistry and Advanced Electrochemistry	3(3-0-6)
SCCH 780 Special Topics in Physical Chemistry	3(3-0-6)
SCCH 781 Special Topics in Chemical Physics	3(3-0-6)
SCCH 782 Seminar in Physical Chemistry and Chemical Physics I	1(1-0-2)
SCCH 783 Seminar in Physical Chemistry and Chemical Physics II	1(1-0-2)
SCCH 784 Seminar in Physical Chemistry and Chemical Physics III	1(1-0-2)

SCCH 793 Polymer Colloids	3(3-0-6)
SCCH 794 Polymer Characterization	3(3-0-6)
SCCH 795 Techniques in Polymer Science	2(1-3-3)
SCCH 796 Nanomaterials	3(3-0-6)
SCCH 797 Special Topics in Polymer Science and Technology	3(3-0-6)
SCCH 798 Current Topics in Polymer Science	3(3-0-6)
<b>Thesis</b>	
<b>For students with Master's degree</b>	
SCCH 699 Dissertation	36(0-108-0)
<b>For students with Bachelor's degree</b>	
SCCH 799 Dissertation	48(0-144-0)
<b>* These may change in cases where there are suggestions for the improvement of the curriculum</b>	

#### **Proposal / Concept Paper**

Not required

#### **Additional advantages of the programme**

- Multi-disciplinary research
- Active research environment
- Student Scholarships are available

#### **Details of Scholarships**

- Scholarship of the 60<sup>th</sup> Year Supreme Reign of His Majesty King Bhumibol Adulyadej
- Center of Excellence for Innovation in Chemistry (PERCH-CIC)
- Royal Golden Jubilee Ph.D. Scholarship Programme (RGJ)
- Teaching Assistantship
- NSTDA (TGIST)

#### **Additional information for applicants**

Applicants must also submit the following documents by post only to the Director of the Graduate Program in Chemistry, Department of Chemistry, Faculty of Science, Mahidol University, Rama VI Road, Rajthevee, Bangkok 10400. We accept these documents only with postal stamp by January 5th, 2015 (for the applicants in the First round) and by April 16th, 2015 (for the applicants in the Second round). *Both forms are available at [www.grad.mahidol.ac.th](http://www.grad.mahidol.ac.th)*

1. Statement of Purpose (in Thai or English) describing academic background, honors or awards received, research background and research interests.
2. Three letters of recommendation.

#### **Application Process**

Application is only available via online application at [www.grad.mahidol.ac.th](http://www.grad.mahidol.ac.th)

## Required Documents

- **Documents for online submission**

Prepare the following required documents to submit via online admission system. All documents must be in pdf format (maximum size 2 MB). Recent photograph must be in jpeg format only (maximum size 2 MB)

- Two (2) recent photographs (1x1 inch in size)
- A copy of an applicant's degree certificate or a letter of graduation certification (for an applicant with a degree completion) 2 copies
- A letter certifying that an applicant is currently in the final year prior to graduation (for an applicant seeking for a degree) 2 copies
- 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 semester prior to graduation 2 copies
- A copy of identification card 2 copies
- A copy of house registration certification 2 copies
- A copy of Certificate of English score: TOEFL/IELTS/MU-Test (if any). See detail here: [http://www.grad.mahidol.ac.th/grad/academicinfo/engstandard2553\\_th.php](http://www.grad.mahidol.ac.th/grad/academicinfo/engstandard2553_th.php) 2 copies  
Those who early submit a valid English score prior to the examination will be exempt from English test on the examination date.
- A copy of proof of payment.

- **Documents for submission by post**

Applicants must also submit the following documents **by post only**.

1. Statement of Purpose (in Thai or English) describing academic background, honors or awards received, research background and research interests,
2. Two or three letters of recommendation (from former advisor, university lecturer or manager).

The above documents must be sent by post the Director of the Graduate Program in Chemistry, Department of Chemistry, Faculty of Science, Mahidol University, Rama VI Road, Rajthevee, Bangkok 10400 with postal stamp not later than January 5<sup>th</sup>, 2015 (For the Applicants in the First round) and April 16<sup>th</sup>, 2015 (For the Applicants in the Second round. Both forms are available at [www.grad.mahidol.ac.th](http://www.grad.mahidol.ac.th)

## Job option after graduation

Academic scholars, researchers, scientists, working in the government sectors or in the industries, or doing business such as managing, producing or selling products or innovations related to chemistry or chemistry-related areas, particularly lead compounds and active ingredients for pharmaceutical and nutraceuticals products, new products for chemical sensors and test kits, new catalysts for petrochemical industries and innovative prototype for alternative energy resources.

Further information may be obtained from

**1. Assistant Professor Dr. Duangjai Nacapricha (E-mail: [dnacapricha@gmail.com](mailto:dnacapricha@gmail.com))**

Room C. 203/1, Chemistry Building ( 2<sup>nd</sup> Floor)

Department of Chemistry, Faculty of Science (Phayathai Campus), Rama 6 Road, Bangkok, 10400

Tel: 02-201-5127 Fax: 02-354-7151

**2. Dr. Darunee Soorukram (E-mail : [darunee.soo@mahidol.ac.th](mailto:darunee.soo@mahidol.ac.th))**

Room C. 418B, Chemistry Building (4<sup>th</sup> Floor)

Department of Chemistry, Faculty of Science (Phayathai Campus), Rama 6 Road, Bangkok, 10400

Tel: 02-201-5148 Fax: 02-354-7151

**Program Coordinator**

**Miss. Jenjira Sripetcharaporn (E-mail : [jenjira.sri@mahidol.ac.th](mailto:jenjira.sri@mahidol.ac.th))**

Room C. 116, Chemistry Building (1<sup>st</sup> Floor)

Department of Chemistry, Faculty of Science (Phayathai Campus), Rama 6 Road, Bangkok, 10400

Tel: 02-201-5110, 02-201-5112 Fax: 02-354-7151

**Note** 1. For more education information please visit this website: [www.grad.mahidol.ac.th](http://www.grad.mahidol.ac.th)

<p>For more information please contact The Student Admission Section. Tel . 0 2441 4125 ext. 208-210 , 0 2441 9129, E-mail : <a href="mailto:gradthai@mahidol.ac.th">gradthai@mahidol.ac.th</a></p>
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Department of Chemistry  
MAHIDOL UNIVERSITY

**Application form**  
APPLICANT: Please provide name

\_\_\_\_\_

(First)

(Last)

Please send this form to Director of Graduate Program in Chemistry by email to duangjai.nac@mahidol.ac.th

(Please specify the field of study, e.g., organic chemistry, inorganic chemistry, catalysis, analytical chemistry, physical chemistry, chemical physics, or macromolecules at the lower right corner of the envelope containing documents sent to the Department of Chemistry) This application form together with the statement of purpose must be sent by the applicant to the Director of Graduate Program in Chemistry, Department of Chemistry, Faculty of Science, Mahidol University, Rama 6 Road, Bangkok 10400 Thailand by post only. The three recommendation letters, each sealed in enveloped signed by the recommender, are sent separately to Director of Graduate Program in Chemistry at the above address. **within January 5<sup>th</sup>, 2015** (for the Applicants in the First round) or **by April 16<sup>th</sup>, 2015** (for the Applicants in the Second round).

Note to Applicant: Please type or write clearly in English.

1. PERSONAL INFORMATION:

Name of Applicant: Mr./Ms./Mrs \_\_\_\_\_  
(first name) (family name)

Date of Birth : \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Age : \_\_\_\_\_ years  
date month year

Country of Birth : \_\_\_\_\_ Country of Citizenship : \_\_\_\_\_

Mailing Address : \_\_\_\_\_ City: \_\_\_\_\_

Country: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Telephone: \_\_\_\_\_ Mobile: \_\_\_\_\_ e-mail: \_\_\_\_\_

2. PROPOSED FIELD OF STUDY:

- Organic Chemistry  Analytical Chemistry  Physical Chemistry and Chemical Physics  
 Catalysis  Inorganic and Materials Chemistry  Macromolecular Chemistry

DEGREE APPLIED:  M.Sc.  Ph.D.

3. EDUCATIONAL BACKGROUND:

University/Institution attended	Start year	Year of completion	Qualification obtained/intended award	Main subject	Actual/expected result (including grade, classification, GPA etc.)

4. EMPLOYMENT HISTORY:

Please list your work experience starting with most recent employment.

Employer	Location	Duration (mo./yr.- mo./yr.)	Activities	Job Title

5. ENGLISH PROFICIENCY:

Written:       Excellent     Good       Fair       Poor  
 Spoken:       Excellent     Good       Fair       Poor

Result of English Proficiency Test:       TOEFL \_\_\_\_\_       IELTS \_\_\_\_\_  
 Others \_\_\_\_\_       not available

6. HEALTH CONDITIONS:

Please summarize your health and medical history. List any physical handicaps, recent treatment by a physician or psychiatrist, mental health indicators or other relevant information.

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7. FINANCIAL SUPPORT:

Please indicate below the main sources of funding you are most likely to use to fund your tuition fees, college fees and living expenses.

Proposed Funding Sources e.g. family, scholarship, etc.	Status	Amount of Funding (Baht)	Period Covered	Expenses Covered (please specify whether this is University tuition fee, college fee or living expenses)
	<input type="radio"/> Intend to apply <input type="radio"/> Applied for <input type="radio"/> Secured			
	<input type="radio"/> Intend to apply <input type="radio"/> Applied for <input type="radio"/> Secured			
	<input type="radio"/> Intend to apply <input type="radio"/> Applied for <input type="radio"/> Secured			



8. References: Please indicate the name of referee. (It is a program's requirement that three references are provided.)

Referee name	Institutional/professional postal and email address of referee	Relationship to you

I certify that the above information is true.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

(.....)



Department of Chemistry  
MAHIDOL UNIVERSITY

**Statement of Purpose** (send by post only)

APPLICANT: Please provide name

\_\_\_\_\_ (First)

\_\_\_\_\_ (Last)

Please post to: Director of Graduate Program in Chemistry  
Department of Chemistry, Faculty of Science, Mahidol University  
Rama 6 Road, Bangkok 10400

**(Applicant must specify the field of study, e.g. organic chemistry, analytical chemistry, physical chemistry and chemical physics, catalysis, or macromolecular chemistry at the lower right corner of the envelope containing documents sent to the Department of Chemistry)**

*This Statement of Purpose must be posted to the Director of Graduate Program in Chemistry, Department of Chemistry at the above address with postal stamp by **January 5<sup>th</sup>, 2015** (for the Applicants in the First round) or **by April 16<sup>th</sup>, 2015** (for the Applicants in the Second round).*

**Applicant:** Please type or print.

Name of applicant: \_\_\_\_\_  
(first name) (family name)

Current E-mail address: \_\_\_\_\_

Degree applied:  M.Sc.  Ph.D.

Proposed field of study: *please indicate your first and second choices according to your interest*

Organic Chemistry  Analytical Chemistry  Physical Chemistry and Chemical Physics  
 Catalysis  Inorganic and Materials Chemistry  Macromolecular Chemistry

Signature of applicant: \_\_\_\_\_ Date: \_\_\_\_\_

**Awards/Distinctions:** List academic awards, prizes, honors, fellowships or other distinctions you have received.

**Work/Research Experience:** List research activities or employment occupation relevant to your graduate goals.

**Publications:** If relevant to your proposed field of study, please list your publications and any scholarly activities.

**Statement of Purpose:** On the back of this form or in an additional sheet, please state your purpose in applying for graduate study, your particular area of specialization within chemistry, your plans for future occupation or profession, and any additional information that may aid the selection committee in evaluating your preparation and your ability for graduate study.

If you have discussed your plans for graduate study with a faculty member in the Department, please list that person's name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



### 3. Additional information about the applicant

Please type or print your letter. Write candidly about the applicant to provide additional information which will serve as additional credentials for the applicant's admission to the Graduate Program. Indicate how long and in what capacity you have known the applicant. Discuss the applicant's qualifications and potential to carry on advanced study in the specified field, as well as his or her promise of professional success. In describing such attributes as motivation, intellects, and maturity, discuss both strong and weak points. Indicate rank in class, if possible. *The letter can be written in Thai or in English.*

4. Summary       Strongly recommend       Recommend with confidence  
                     Recommend                       Recommend with reservation  
                     Not recommended

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_ Title: \_\_\_\_\_

E-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

Institution: \_\_\_\_\_ Address: \_\_\_\_\_

Mailing the completed recommendation letter: Seal the recommendation letter and this completed form in an envelope and sign your name across the seal. Return the signed, sealed envelope to the applicant well before the deadline indicated. Alternatively, you may send it directly to the Director of Graduate Program in Chemistry, Department of Chemistry, Faculty of Science, Mahidol University, Rama 6 Road, Rajdhevee, Bangkok 10400. Tel: (02)-201-5110-2 or Fax: (02)-354-7151.

*(Please specify the field of study, e.g. organic chemistry, analytical chemistry, physical chemistry and chemical physics, catalysis, or macromolecular chemistry at the lower right corner of the envelope containing documents sent to the Department of Chemistry).*

This recommendation letter will remain confidential during the admission process and will only be used in its procedures in admission and fellowships.