Faculty of Science

Department of Applied Science

Curriculum Title Master of Science in Forensic Science

Curriculum Description

The Forensic Science Program was founded in order to meet growing demands for forensic scientists both in Thailand and abroad. The main aim of the program is to produce Master's graduates equipped with knowledge of all branches of forensic sciences, including law and ethics. Two plans of study are available: a program with both coursework and research and a program with research only. The graduates are expected to be able to assist the justice system with a high standard of forensic skill and morality.

Our research focus on diverse areas of Forensic Chemistry, Forensic Biology and Molecular Biology, and Forensic Palynology. New analytical techniques have been developed for detections of drug, explosive element, gunshot residue, and fire debris. We have developed novel methods to rapidly identify wildlife and improve touch and trace DNA analysis. Using pollen and spore for legal purposes is another research interest that provides new investigation methods for Thailand’s justice system.

Type of Program

☑ Regular Program (Monday- Friday)
☐ Regular Program (Monday- Friday) and International Program
☐ Special Program (Saturday-Sunday)

Dissertation Themes

1. Application of next-generation sequencing to forensic genetics (human and wildlife DNA)
2. Recovery of trace human DNA from various types of evidence (IEDs, fingerprint, etc.)
3. Direct PCR assays for forensic purpose
4. Meat species identification in food and food products
5. Endangered species identification using novel DNA-based methods
6. Wildlife individualization using microsatellite markers
7. Population genetics of minority groups
8. Applications of forensic palynology and ecology for databases and casework
9. Characterization of forensic palynological and mineralogical evidence from beach environment
10. Pollen preservation in beach environment and its forensic implication
11. Pollen preservation in forensic evidence
12. Electrochemical detection for the forensic analysis, such as drugs of abuse and biological fluids
13. Trace DNA detection using electrochemistry
14. Development of sample preparation and separation techniques in forensic chemistry
15. Paper based microfluidic device in forensic application
16. Development of test kits for drug abuse
17. Advances in forensic toxicology
18. Other research topics are available per student’s interest
19. Development of sample preparation and separation techniques in forensic chemistry
20. Paper based microfluidic device for forensic application
21. Development of test kits for drug abuse
Prospective students

Plan A(1) – Research: A Bachelor of Science in related fields, such as Chemistry, Biology, and Biotechnology with
- at least one year of work experience in forensic science OR
- a cumulative GPA of 3.5 (out of 4.0 system) and above

Plan A(2) – Taught course: A Bachelor of Science in related fields, such as Chemistry, Biology, and Biotechnology.

Prospective advisors
1. Asst. Prof. Dr. PHUVADOL THANAKIATKRAI
2. Asst. Prof. Dr. THITIKA KITPIPIIT
3. Asst. Prof. Dr. WARAKORN LIMBUT
4. Asst. Prof. Dr. KARUN THONGPRAJUKAEW
5. Dr. WONGKOT PHUPHUMIRAT
6. Dr. APICHAI PHONCHAI

Contact Information
Asst. Prof. Dr. Phuvadol Thanakiatkrai, Program Director
Email: pthanakiatkrai@gmail.com / Phuvadol.t@psu.ac.th
Phone: +66-83-370-5363
Asst. Prof. Dr. Phuvadol Thanakiatkrai

Position
Assistant Professor in Forensic Molecular Biology

Position
Program Director for MSc Forensic Science

Company
Prince of Songkla University

Email
pthanakiatkrai@gmail.com, phuvadol.t@psu.ac.th

Education

Ph.D. Pure and Applied Chemistry, University of Strathclyde, UK, 2011
M.Sc. Forensic Science (Distinction), University of Strathclyde, UK, 2007
B.Sc. Biological Science (First class honor), Mahidol University International College, Thailand, 2006

Research Interest

My main research interest is in degraded DNA and low-template DNA, especially in how to obtain more information from these samples using a variety of techniques. I am also interested in applying Bayesian methods and modern statistics to forensic science research. My current research projects include the application of direct PCR to trace DNA samples, collection of trace DNA samples, direct PCR of foodborne pathogens and meat, and predicting bloodstain age using digital image analysis. My other interest is in population genetics of minority groups in Thailand.

Publications


**Research Grants**

- TRF Targeted Grant (Medical Industry) (under review)
- TRF Targeted Grant (Security Industry) (under review)
- Prince of Songkla University, Faculty of Science Grant (2016)
- TRF Targeted Grant (Security Industry) (2014)
- National Research Council of Thailand (NRCT) (2013)
- Prince of Songkla University, Faculty of Science Grant (2014)
- Prince of Songkla University, Faculty of Science Grant (2013)
- Prince of Songkla University General Grant (2012)
- Thailand Research Fund: Research grant for new scholar (2012)
- ทุนพัฒนาศักยภาพการท าวิจัยของอาจารย์ใหม่ งบประมาณ 2554

**Teaching Experience**

- Research Methods in Forensic Science (Semester 1/2015 - Now)
- Introduction to Forensic Science (Semester 1/2013 - Now)
- Forensic Molecular Biology (Semester 2/2011 - Now)
- Seminar in Forensic Science I (Semester 1/2011 - Now)
- Seminar in Forensic Science II (Semester 2/2011 - Now)
- Seminar in Science (Applied Science Department) (Semester 1/2011 - Now)
- Preparation for Seminar (Semester 2/2011 - Semester 2/2013)
- Extra-curricular activities (Semester 2/2011 - Now)
- Science, Technology, and Society (International Program, BBA) (Semester 1/2012)

**Professional Membership**

- Member of the Foundation for Open Access Statistics

**Past Positions**

- Program Coordinator for Forensic Science Program, Department of Applied Science, Faculty of Science, Prince of Songkla University (01/2016 - Now)
- Assistant Dean for International and Public Relations, Faculty of Science (12/2012 - 07/2015)
- Program Coordinator for Forensic Science Program, Department of Applied Science, Faculty of Science, Prince of Songkla University (06/2012 - 07/2015)

**Consultancy**

- Consultant at Office of Police Forensic Science 10 (07/2012 - Now)
- Consultant at DNAimaging Co., Ltd. (06/2015 - 11/2015)
Asst. Prof. Dr. Thitika Kitpipit

**Position**  Assistant Professor in Forensic Molecular Biology  
**Company**  Prince of Songkla University  
**Email**  thitika.k@psu.ac.th

**Education**

- **Ph.D.** Biological Science (Forensic Genetics), Flinders University, Australia, 2012  
- **M.Sc.** Forensic Science (International program), Mahidol University, Thailand, 2006  
- **B.Sc.** Biology (First class honors), Prince of Songkla University, Thailand, 2004

**Research Interest**

I am interested in the research in the field of Forensic Genetics dealing with the applications of genetic knowledge in applications to human and non-human materials for the legal resolutions.

**Ongoing Projects**

- Touch DNA collection from IED evidence  
- Detection of DNA on evidence surface  
- Direct PCR from biological evidence  
- Ivory identification assays  
- Microsatellite markers for elephant individualization

**Fundings Received**

I have received numerous research grants from the National Research Council, the Thailand Research Fund, the DPST Research Fund, the Prince of Songkla University, and the Faculty of Science of Prince of Songkla University.

**Publications**


**Prizes and Awards**

2007 The second prize for oral presentation in the 2nd International Conference on Forensic science and Medical Science, Phitsanulok, Thailand.

2005 First Class Honors of Bachelor’s Degree of Science (Biology), Prince of Songkla University, Thailand.

2004 – 2001 Outstanding Student with the high GPA and also participate in the university activities award from Prince of Songkla University, Thailand.
Asst. Prof. Dr. Warakorn Limbut

**Position**  
Assistant Professor in Analytical Chemistry  
**Company**  
Prince of Songkla University  
**Email**  
lwarakorn@yahoo.com, warakorn.1@psu.ac.th

**Education**

- **Ph.D.** Chemistry, Prince of Songkla University, Thailand, 2007  
- **M.Sc.** Chemical analysis, Prince of Songkla University, Thailand, 2001  
- **B.Ed.** Chemistry, Rajabhat Institute Phuket, Thailand, 1997

**Research Interest**

- Chemical sensor and Biosensor  
- Electrochemical analysis  
- Forensic electrochemistry

**Fundings Received**

- The Thailand Research Fund [TRF]  
- Agricultural Research Development Agency (Public Organization) [ARDA]  
- National Research Council of Thailand [NRCT]  
- National Research University [NRU]  
- Prince of Songkla University [PSU]


**Prizes and Awards**

2017 Outstanding Teacher Award 2016, Faculty of Science, Prince of Songkla University.
2016 The Blue Jacket Award 2016, Pride of PSU2016, Prince of Songkla University.
2016 The year 2016 Distinguished Alumni Award, Phuket Rajabhat University.
2015 Outstanding Science Teacher Award 2015, Prince of Songkla University.
2014 Distinguished Alumni Award, Phuket Rajabhat University.
2013 Outstanding Teacher Award 2016, Faculty of Science, Prince of Songkla University.
2012 The year 2013 Distinguished Alumni Award, Faculty of Science, Prince of Songkla University.
2011 Outstanding New Teacher Award 2015, Prince of Songkla University.
Asst. Prof. Dr. Karun Thongprajukaew

Position  Assistant Professor in Biology
Company  Prince of Songkla University
Email  karun.t@psu.ac.th, karun114@hotmail.com

Education

Ph.D. Biosciences-Zoology, Kasetsart University, Thailand, 2011
B.Sc. Biology (First class honors), Thaksin University, Thailand, 2006

Research Interest

My main research interest is in forensic nutrition, focusing on aquatic animal species, mainly economically consumed fishes and endangered marine turtles. My current research projects include the post-mortem changes in gastrointestinal functionality for the estimation of time of death in fish, and classification of wild and farm-raised fish origin using various nutritional parameters. Aspects in relation to aquatic animal cruelty investigations, base on nutritional interpretation, are also interested.

Ongoing Projects

Publications


Thongprajukaew, K., & Kovitvadhi, U. (2013). Effects of sex on characteristics and expression levels of digestive enzymes in the adult guppy poecilia reticulata. *Zoological Studies, 52*(1), Article number 3.

**Research Grants**

- Prince of Songkla University
- The Thailand Research Fund (TRF)
- National Research Council of Thailand (NRCT)
- Phuket Marine Biological Center (PMBC)
- The Office of Strategy and Management for Southern Province Cluster

**Teaching Experience**

**Undergraduate Degree**

- Co-curricular activities I (315–101)
- Feed chemistry (340-313)
- Preparation for seminar in science (340-381)
- Introduction to scientific research (340-391)
- Seminar in science (340–481)
- Project in science I (341–491)
- Project in science II (341–492)

**Graduate Degree**

- Forensic nutrition I (309–516)
- Seminar in forensic science I (309–671)
- Seminar in forensic science II (309–672)
- Thesis (309–691)

**Professional Membership**

- The Science Society of Thailand
- Thai Academy of Science and Technology
Dr. Wongkot Phuphumirat

**Position**  
Lecturer

**Company**  
Prince of Songkla University

**Email**  
pwongkot@gmail.com, wongkot.p@psu.ac.th

**Education**

- **Ph.D.** Biology, Universitaet Wien, Austria, 2014
- **M.Sc.** Forensic science, Prince of Songkla University, Thailand, 2008
- **B.Sc.** Biology, Prince of Songkla University, Thailand, 2006

**Research Interest**

- Forensic palynology
- Palaeopalynology

**Ongoing Projects**

- Pollen in the city and their potentiality to be forensic evidence
- Tertiary palynoflora from northern Thailand

**Fundings Received**

- Plant Genetic Conservation Project Under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn

**Publications**


Dr. Apichai Phonchai

Position  Lecturer in Forensic Chemistry
Company  Prince of Songkla University
Email  papichai_13@hotmail.com, apichai.ph@psu.ac.th

Education

Ph.D. Analytical Chemistry, Mahidol University, Thailand, 2016
M.Sc. Forensic science, Prince of Songkla University, Thailand, 2009
B.Sc. Chemistry, Prince of Songkla University, Thailand, 2006

Research Interest

My research interest is in the field of the sample preparation techniques, separation techniques and paper-based analytical devices for forensic applications.

Publications


Research Grants

• Prince of Songkla University General Grant (Under review)
• ทุนพัฒนาศักยภาพการท าวิจัยของอาจารย์ใหม่ ประจ าปีงบประมาณ 2559

Teaching Experience

• Introduction to Forensic Science (Semester 1/2016 - Now)
• Introduction to Drug Analysis (Semester 1/2016 - Now)
• Introduction to Scientific Research (Semester 2/2016 - Now)
• Forensic Chemistry (Semester 1/2016 - Now)
• Seminar in Forensic Science I (Semester 1/2016 - Now)
• Seminar in Forensic Science II (Semester 2/2016 - Now)
• Seminar in Science (Applied Science Department) (Semester 1/2016 - Now)
• Preparation for Seminar (Semester 2/2016 - Now)

Professional Membership

• Chemical Society of Thailand