Faculty of Science  
Department of Applied Science  
Curriculum Title Forensic Science  

Curriculum Description (briefly introduce an overview of the curriculum offered)

The Forensic Science M.Sc. Program was founded to meet the increasing demand of the country due to the general increase in the exposure to forensic science in recent years. The main aim of the program is to produce graduate students equipped with knowledge of not only forensic science but also if the basic sciences so that they may apply new techniques to their field of work. In addition to science, students receive instructions in other relevant subjects, such as law and ethics. The graduates are expected to be able to assist the justice system with a high standard of morality. Students are also encouraged to participate in a life-long learning process. Our program endeavors to ensure that our graduates are also intellectually challenged and culturally stimulated.

Type of Program

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

Dissertation Themes (provide the areas of research for thesis)

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. Development of sample preparation and separation techniques in forensic chemistry
19. Paper based microfluidic device for forensic application
20. Development of test kits for drug abuse
21. Other research topics are available per student’s interest

Prospective students (provide the background and previous education of the student who wants to study e.g. the Bachelor degree gained.)

1. For Master’s by mixed mode (coursework and research), a Bachelor of Science in any field or related Bachelor’s degree depending on the discretion of the Program Committee
2. For Master’s by research only, a cGPA of 3.5/4.0 or a year of experience working in forensic science
Prospective advisors (provide the names of the potential advisors as well as their CV/research of interest. If possible, also provide e-mail addresses and other means to contact the prospective advisors.)

1. Asst. Prof. Dr. KARUN THONGPRAJUKAEW
2. Asst. Prof. Dr. PHUVADOL THANAKIATKRAI
3. Asst. Prof. Dr. THITIKA KITPIPIIT
4. Asst. Prof. Dr. WARAKORN LIMBUT
5. Dr. WONGKOT PHUPHUMIRAT
6. Dr. APICHAI PHONCHAI
7. Dr. SATHAPORN PRUTIPANLAI
8. Dr. SOPARK JANTARIT

Contact Information (provide the person who is in charged for the curriculum as well as his/her e-mail and affiliation)

Course coordinator : Asst. Prof. Dr. PHUVADOL THANAKIATKRAI
E-mail : pthanakiatkrai@gmail.com
Address : Department of Applied Science (Forensic Science), Faculty of Science,
         Prince of Songkla University
         15 Karnjanavanich Rd., Hat Yai, Songkhla 90110
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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, based on nutritional interpretation, are also interested. Ongoing Projects


**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 (2014-2018)**


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.

**Publications (2014-2018)**


**Asst. Prof. Dr. Warakorn Limbut**

**Position**  
Assistant Professor in Analytical Chemistry

**Company**  
Prince of Songkla University

**Email**  
Iwarakorn@yahoo.com, warakorn.l@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


Thipmanee, O., Numnuam, A., Limbut, W., Buranachai, C., Kanatharana, P., Vilaivan, T., ... Thavarungkul, P. (2016). Enhancing capacitive DNA biosensor performance by target overhang with application on screening test of HLA-B*58:01 and HLA-B*57:01 genes. *Biosensors and Bioelectronics, 82*, 99-104.


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 (2014-2018)**


**Dr. Sathaporn Prutipanlai**

**Position**  Lecturer  
**Company**  Prince of Songkla University  
**Email**  sataporn.p@psu.ac.th  

**Education**

- **Ph.D.** Toxicology, Mahidol University, Thailand 2005  
- **M.Sc.** Pharmacology, Chulalongkorn University, Thailand, 1992  
- **B.Sc.** Health care and midwife, Prince of Songkla University, Thailand, 1989  

**Publications (2014-2018)**

Dr. Sopark Jantarit

**Position**  Lecturer  
**Company**  Prince of Songkla University  
**Email**  sopark.j@psu.ac.th  

**Education**

- **Ph.D.** Biology, Prince of Songkla University, Thailand, 2014
- **M.Sc.** Ecology, Prince of Songkla University, Thailand, 2008
- **B.Sc.** Biology, Prince of Songkla University, Thailand, 2004

**Research Interest**

My core research centers on systematics, evolutionary radiations and phylogeography of hexapods (insect), especially the Sprigtails (Collembola) in Thailand and Southeast Asia. Collembola biodiversity assessment as well as the molecular evaluation of biodiversity (and cryptic diversity) through DNA barcoding are my current research activity. My interest also focuses on ecological questions and anthropic impacts upon species diversity and composition of Collembola fauna. I am also interested in forensic entomology in particular the insect succession and decomposition in Thai peninsula.

**Publications (2014-2018)**


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


