Faculty of Fisheries, Kasetsart University

Subject: 01252535  
Ecology of Sediment  
Semester Credit 3  
(lecture-laboratory-self study: 3-0-6)

Key words: Bottom Sediments, Benthic Ecology

Lecturer: Associate Professor Dr. Charumas Meksumpun  
(Principle laboratory building; room 108)  
(on Thursday; 1-3 pm)

Objective: 1. To understand the sources, types, and function of sediments in the aquatic ecosystems  
2. To understand the inter-relation among the sediments and other abiotic and biotic resources in various types of aquatic ecosystems  
3. To apply the knowledge for conservation and remediation management of the aquatic resources


Class schedule:  1. Introduction / the importance of sediments  
2. Sources and types of the sediments  
3. The survey and collection of the sediments  
4. The physical characteristics of the sediments  
5. The physical characteristics of the sediments  
6. The chemical characteristics of the sediments  
7. The chemical characteristics of the sediments  
8. The biological characteristics of the sediments  
9. The biological characteristics of the sediments  
10. Nutrient cycles in the benthic boundary layer  
11. Benthic production and food chain  
12. Benthic decomposition  
13. Human impacts and sediment pollution  
14. Sediment remediation and conservative management  
15. Paper seminar / open discussion

Important items: Sediment Ecology and Conservative Management

Self-studies and advices: Data bases of US EPA, Website of Woods Hole Oceanographic Institute USA

Textbook: The Ecology of Sediments (Gray, 1981)  
Sediments (Meksumpun, 2005)

Condition: Principle of Aquatic Ecology

Assessment method: 1) Mid-term and Final-examination,  
2) Literature review, report, and seminar,  
3) Group discussions / class attention

Evaluation criteria: Total > 50% = pass, class-group based criteria

Relevant matters: Early diagenesis of benthic boundary layer
Faculty of Fisheries, Kasetsart University

Subject: 01255543 Marine Biological Diversity
Semester Credit 3 (lecture-laboratory-self study: 3-0-6)

Key words: Biodiversity, Ecology, Marine Science

Lecturer: Associate Professor Dr.Chittima Aryuthaka, Dr.Napkhwon Whanpetch, Dr.Yaowaluk Monthum
(please insert room no. and building) MS 5228, Marine Science building
(please insert contact hours) 8:30-16:30 Tel. 02-561-4288

Objective: Provide student with an understanding of concepts and principles of marine biological diversity, mathematical models on distribution of marine organisms, biodiversity index, Laws and conventions for marine biodiversity

Class outline: Marine ecological concepts and principle, terms and definitions of marine biological diversity, mathematical models on distribution patterns of marine resources, measuring biological diversity and its potential for marine environmental monitoring and assessment, including relevant legislations and conventions.

Class Schedule

1. Introduction and description of marine biological diversity.
2. Term and definitions of marine diversity.
3. History of marine ecological concepts and principle.
4. Distribution of marine organisms.
5. Measuring of biological.
6. Utilization and potential of marine biological diversity index for marine environmental monitoring and assessment.
7. Law and relevant legislation and conventions for marine biological diversity

Important items:

Self-studies and advices 3 hrs./week

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Condition: Nil

Assessment method: Examination and continuously assessment on the report and participation into class and discussion.

Assessment criteria:

Relevant matters: Conducted in English
Faculty of Fisheries, Kasetsart University

Subject: 01253511
Coastal and Marine Fishery Management
Credit: 3
Semester: 3
(lecture-laboratory-self study: 3-0-6)

Key words:

Lecturer: Assistant Professor Dr. Jiraporn Trisak
(please insert room no. and building)
(please insert contact hours)

Objective:
1. Understand general principles and objectives and of fisheries management
2. Lean and understand principles and applications of fish population dynamics and fisheries stock assessment from classic case studies in fisheries
3. Develop skill in analyzing data and information on fish and fisheries as well and in interpreting the results by providing scientific evidence.

Class outline:

Class schedule:
1. Introduction: Review-Objective of fishery management; History of fisheries management; Modeling
2. Growth, Morality, Catch Process
3. Biomass of a cohort
4. Whale fishery
5. 1st MIDTERM-In class (TBA), 1st Midterm Solution,
6. Biomass Dynamic Models
7. Biomass Dynamic Models (cont.), Fisheries Management Techniques & Tools
8. Fisheries Management Techniques & Tools (cont.)
9. Small Shoaling Pelagic Fisheries
10. Small Shoaling Pelagic Fisheries (cont.), Review & Wrapping up
11. 2nd MIDTERM-In class (TBA), 2nd Midterm Solution,
12. MSY, MEY, and CPUE
13. The Northern Prawn Fisheries
14. Yield per Recruit Model, Tropical Penaeid Shrimp Fishery
15. Spawner Recruit Model, FINAL-In class

Important items:
Self-studies and advices: TBA

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Condition: Nil

Assessment method: Examination and continuously assessment on the report and participation into Class and discussion.

Assessment criteria: Grading: ≥91% A, 86-90% B+, 81-85% B, 76-80% C+, 71-75% C, 66-70% D+, 61-65% D, ≤60% F

Relevant matters: Conducted in English
Faculty of Fisheries, Kasetsart University

Subject: 01253512  
Fishery Resources and Management  
Semester Credit  
3  
(lecture-laboratory-self study: 3-0-6)

Key words:

Lecturer: Dr. Sansanee Wangvoralak  
(Room no. 4108 at Department of Fishery Management)  
(9.00-16.00 from Monday to Friday)

Objective: 1. Understanding of fishery resources and fishery management  
2. Familiarity with legal and institutional considerations in national and international level

Class outline: Structure of fisheries industry, important of fisheries industry, Fisheries in Thailand and the world, fishery resources and fisheries, concept and theory in fishery management, fishery management measures, laws, regulations and agreements in relation to fishery management in national and international level, Fishery management in Thailand and the world.

Class schedule: 1. Important of fisheries industry and fisheries problems  
2. Knowledge relevant to fishery management: water resource, fishery resources and structure of fisheries  
3. Biology and ecology aspects for fishery management (1)  
4. Biology and ecology aspects for fishery management (2)  
5. Economic aspect relevant to fishery management  
6. Concept and theory in fishery management (1)  
7. Concept and theory in fishery management (2)  
8. Present and discuss on self-study report  
9. Fishery Governance (1)  
10. Fishery Governance (2)  
11. Fishery management measures  
12. Coastal, Off-shore and oversea fishery resources Management  
13. Laws, regulations and agreements in relation to fishery management in national and international level (1)  
14. Laws, regulations and agreements in relation to fishery management in national and international level (2)  
15. Fishery management in Thailand and the world

Important items: Self-studies and advices


Condition: Assessment method:
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<th>A</th>
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<td></td>
<td>B+</td>
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Relevant matters:
Faculty of Fisheries, Kasetsart University

Subject: 01253521  Fishery Resource Economics  Semester 3  
(lecture-laboratory-self study: 3-0-6)

Key words: Fishery resource economics, Resource Economics

Lecturer: Dr. Varunthat Dulyapurk  
Rm#4211 Department of Fishery Management, Faculty of Fisheries  
9.00 – 16.00 (Mon-Fri)  
Appointment preferred.

Objective: This course will familiarize students with the theory and application of economics to fishery resource problems and management schemes.


Class schedule:  
1. Mathematical Economics I  
2. Mathematical Economics II  
3. Microeconomics  
4. Fishery Resource Economics: Static optimization perspective I  
5. Fishery Resource Economics: Static optimization perspective II  
7. Fishery Resource Economics: Dynamic optimization perspective II  
10. Fishery Resource Economics: Search Fisheries I  
11. Fishery Resource Economics: Search Fisheries II  
12. Fishery Resource Economics: Multi-species Fisheries I  
13. Fishery Resource Economics: Multi-species Fisheries II  
15. Fishery Resource Economics: Impact Assessment II

Important items: none

Self-studies and advices none

Textbook:  

Condition: -

Assessment method: Examinations, term paper and homework assignments.

Assessment criteria: -

Relevant matters: -
Faculty of Fisheries, Kasetsart University

Subject: 01251521 Advanced Freshwater Aquaculture  
Semester Credits: 3  
(lecture-laboratory-self study: 3-0-6)

Key words: Freshwater Aquaculture, Sustainable Aquaculture

Lecturer: Dr.Suchart Inghamjitr –Principal Instructor  
Assistant Professor Dr.Ruangvit Yoonpundh  
Mek Boonpharm Building, Department of Aquaculture  
Monday-Friday afternoon official hours 08.30-16.30 hours

Objective:  
1. To overview global aquaculture and freshwater aquaculture in Thailand  
2. To understand principle of different freshwater aquaculture systems; constraints and challenges  
3. To promote sustainable freshwater aquaculture development

Class outline: Freshwater aquaculture systems. Principle, advantage and disadvantage of each culturing system and the prospect of freshwater aquaculture development.

Class schedule:  
1. Overview of freshwater aquaculture  
2. Interactions between aquaculture and the environment  
3. Systems carrying capacities and operation intensities  
4. Species cultured and culture system development  
5. Reductions in wastes from freshwater aquaculture  
6. Nutritional strategies and present approach to waste management  
7. Technologies for sustainable aquaculture development  
8. Integrating aquaculture systems  
9. Recirculating aquaculture systems  
10. Organic aquaculture systems  
11. The legal regime governing aquaculture  
12. Aquaculture certification  
13. Seminar : Project presentation assignment  
14. Seminar : Project presentation assignment  
15. Seminar : Project presentation assignment

Important items: All topics

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Self-studies and advices  
Reading textbooks involving sustainable aquaculture, freshwater aquaculture, and Journal of Aquaculture, etc.

Condition: Nil

Assessment method: Examination and continuously assessment on the report and participation into class and discussion.

Assessment criteria: -

Relevant matters: Conducted in English
Faculty of Fisheries, Kasetsart University

Subject: 01251523 Hormone in Aquaculture
Semester Credit 3
(lecture-laboratory-self study: 3-0-6)

Key words: Aquaculture, Hormone, Growth

Lecturer: Assistant Professor Dr. Oraporn Meunpol
(Department of Aquaculture Bldg. )
(0900-1600)

Objective:
1. To understand roles of hormones in aquatic fauna
2. To study hormone manipulation in aquaculture

Class outline: Endocrine systems related to reproduction and growth of aquatic animals. Hormone application and control in aquatic animals for aquaculture.

Class schedule:
1. Roles and importance of hormones on aquatic fauna
2. Hormone mechanisms
3. Endocrine glands and their hormones
4. Growth hormone, Thyroid hormones
5. Feed controlled hormones
6. Steroid hormones
7. Reproductive hormones (1)
8. Reproductive hormones (2)
9. Other hormones: bioamines, stress, immunity, behaviour etc.
10. Crustacean hormones: endocrine glands and their hormones
11. Moult controlling hormones
12. Crustacean hyperglycemic hormones
13. Reproductive hormones
14. Other hormones: steroids, pigment controlling hormones, pheromones, bioamines etc.
15. Hormone application in aquaculture

Important items: Hormone mechanisms, growth and reproductive hormone

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Self-studies and advices
Condition: Nil

Assessment method: Examination and continuously assessment on the report and participation into class and discussion.

Assessment criteria: Conducted in English
Faculty of Fisheries, Kasetsart University

Subject: Application of Chemicals and Drugs in Aquaculture
Semester: 3
Credit: (lecture-laboratory-self study: 3-0-6)

Key words: antimicrobial agents; disinfectants; aquaculture

Lecturer: Dr. Nontawith Areechon
Rm 315, Department of Aquaculture
Monday till Friday 9.00-16.00

Objective: To learn about the principle of the application of disinfectants, antimicrobial agents and other compounds that can be applied in aquaculture. Students will be informed about mode of actions, residual effects and other information of each chemical.

Class outline: Chemicals and drugs used in aquaculture for improving water quality and prevention and control of diseases. Mode of action and effect of water quality on mode of action of chemicals and drugs. Effect of chemicals and drugs on pond ecosystem.

Class schedule:
1: Relationship between aquaculture systems and disease outbreaks
2: Significant diseases in freshwater and brackish water aquaculture
3: Significant diseases in freshwater and brackish water aquaculture
4: Definitions and sources of drugs
5: Units and calculation methods for the drug applications in Aquaculture
6: Units and calculation methods for the drug applications in Aquaculture
7: Considerations for the effective applications of chemicals and drugs in aquaculture
8: Considerations for the effective applications of chemicals and drugs in aquaculture
9: Applications of disinfectants in aquaculture
10: Applications of disinfectants in aquaculture
11: Applications of anti-microbial agents in aquaculture
12: Applications of anti-microbial agents in aquaculture
13: Applications of other compounds in aquaculture: vitamins, probiotics, immunostimulants, algicide etc
14: Applications of other compounds in aquaculture: vitamins, probiotics, immunostimulants, algicide etc
15: Applications of other compounds in aquaculture: vitamins, probiotics, immunostimulants, algicide etc

Important items:
Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Self-studies and advices
Condition: Nil
Assessment method: Examination and continuously assessment on the report and participation into class and discussion.
Assessment criteria: Overall performances from examination, report and other assignments

Relevant matters: Conducted in English
Faculty of Fisheries, Kasetsart University

Subject: 01252571
Diseases of Aquatic Animals
Semester Credit 3
(lecture-laboratory-self study: 2-2-5)

Key words: Diseases, Aquatic Animals

Lecturer: Assistant Professor Dr. Niti Chuchird
(please insert room no. and building) FI 602
(please insert contact hours)

Objective:
1. To understand the disease process in aquatic animals
2. To understand the basic principles of diagnosis of diseases of aquatic animals
3. To understand the prevention and control of diseases of aquatic animals

Class outline: Aquatic animal diseases caused by bacteria, virus and fungi. Diseases protection and treatment.

Class schedule:
1. Class orientation, Introduction to disease, Basic disease terminology
2. Introduction to viral diseases
3. Introduction to bacterial and fungal diseases
4. Invertebrate defense system
5. Vertebrate immunity
6. Viral diseases of shrimp
7. Bacterial diseases of shrimp
8. Viral diseases of fishes
9. Bacterial diseases of fishes
10. Protozoa and parasites of shrimp
11. Protozoa and parasites of fishes
12. Non infectious diseases
13. Disease management
14. Water qualities
15. Chemical and drug use in aquaculture

Important items:

Textbook:

Self-studies and advices
Condition: -

Assessment method:
Midterm examination 20%
Assignment 20%
Laboratory project 20%
Final examination 40%

Assessment criteria:
Grade Lowest Cutoff
A 80
B+ 75
B 70
C+ 65
C 60
D+ 55
D 50
F less than 50

Relevant matters: -
Faculty of Fisheries, Kasetsart University

Subject: 01254531  
Fishery Product Biotechnology  
Semester Credit 3  
(lecture-laboratory-self study: 3-0-6)

Key words: Biotechnology; Fish; Fishery Products

Lecturer: Assistant Professor Dr. Yoawapha Waiprib  
Room no. 803  
Boon Indrambarya Building

Objective: Upon successful completion of this course, students will  
1. able to demonstrate a principal knowledge, and scope of biotechnology;  
2. uire mastery with the major issues, concepts, and subject areas in food biotechnology;  
3. uire mastery of sourcing and synthesizing information in aspects of biotechnology as it applies to fish and fishery products;  
4. able to demonstrate sufficient knowledge about the occurrence and significance of biotechnology being used in fish and fishery products and be able to apply that knowledge for advanced analysis in the context of the food system, and regulatory aspects.

Class outline: Overview and scope of food biotechnology, basic principle of food fermentation, fish fermentation technology, fishery products derived from fermentation process, and genetic engineering, current issues in fishery product biotechnology, field trip required.

Class schedule:  
1. Overview and scope of food biotechnology  
2. Traditional biotechnology  
3. Modern biotechnology  
4. Basic principles of fermentation  
5. Downstream process  
6. Fish fermentation  
7-11. Fishery products derived from fermentation process  
12. Fishery products derived from modern biotechnology  
13. Food safety risk analysis of food derived from modern biotechnology  
14. Current issues in fishery product biotechnology  
15. Field trip

Important items: Relationship of grading strategy and student learning outcomes:  
1. Homework will require an understanding of lecture material and reading assignments.  
2. Exams will require students to demonstrate mastery of course material and synthesize available information into practical demonstrations of food biotechnology concepts.  
3. Case study will require the student to demonstrate their subject matter mastery, communication skill, and ability to obtain primary sources of best available information in an applied science interpretative challenge.

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Self-studies and advices  
Condition: Nil.

Assessment method: Examination and continuously assessment on the report and participation into class and discussion.
Assessment criteria:

Grade scale:
- A  >80%
- B+  75-79%
- B  70-74%
- C+  65-69%
- C  60-64%
- D+  55-59%
- D  50-54%
- F  ≤49

Grading Breakdown:
- Homework and discussion  20%
- Mid semester exam          25%
- Final exam                 25%
- Case study                 30%

Relevant matters: Conducted in English.
Faculty of Fisheries, Kasetsart University

Subject: 01254521  
Food Additives in Fish and Fishery Products  
Semester Credit 3  
(lecture-laboratory-self study: 3-0-6)

Key words: Food Additives; Fish; Fishery Products

Lecturer: Assistant Professor Dr. Yoawapha Waiprib  
Room no. 803  
Boon Indrambarya Building

Objective: Upon successful completion of this course, students will
1. be able to demonstrate a principal knowledge of food additive;
2. acquire mastery with the major issues, concepts, and subject areas in food additives being used in fish and fishery products;
3. acquire mastery of sourcing and synthesizing information in aspects of food safety as it applies to fish and fishery products;
4. be able to demonstrate sufficient knowledge about the occurrence and significance of major food additive used in fishery products and be able to apply that knowledge for advanced analysis in the context of the food system, and regulatory aspects.

Class outline: Classification, properties, and uses of food additives in fish and fishery products, safety and regulation related food additives, current issues in food additives.

Class schedule:  
1. Classification of food additives  
2. Food preservatives  
3. Natural antimicrobial agents  
4. Acidulants  
5. Phosphates  
6. Sequestrants  
7. Emulsifiers  
8. Enzymes  
9. Coloring agents  
10. Flavoring agents  
11. Antioxidants  
12. Gums and phyco-colloids  
13. Nutritional additives and nutrition labeling  
14. Laws and regulations on use  
15. Current issues in food additives.

Important items: Relationship of Grading Strategy and Student Learning Outcomes:  
1. Homework will require an understanding of lecture material and reading assignments.  
2. Exams will require students to demonstrate mastery of course material and synthesize available information into practical demonstrations of food additive concepts.  
3. Case study will require the student to demonstrate their subject matter mastery, communication skill, and ability to obtain primary sources of best available information in an applied science interpretative challenge.

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Self-studies and advices  
General standard for food additives (CODEX STAN 192-1995).  
http://www.codexalimentarius.net/gsfaonline/docs/CXS_192e.pdf

Condition: Nil.

Assessment method: Examination and continuously assessment on the report and participation into class and discussion.
Assessment criteria:

Grade scale:
A  >80%
B+  75-79%
B   70-74%
C+  65-69%
C   60-64%
D+  55-59%
D   50-54%
F   ≤49

Grading Breakdown:
Homework and discussion  20%
Mid semester exam        25%
Final exam               25%
Case study              30%

Relevant matters: Conducted in English.
Faculty of Fisheries, Kasetsart University

Subject: 01254524  
Marine Biotoxins  
Semester Credit  3  
(lecture-laboratory-self study: 3-0-6)

Key words: Biotoxins; Marine; Marine biotoxins; Toxins; Marine organisms; Risk and food safety management; Toxin analysis; Public health awareness

Lecturer: Assistant Professor Dr. Kangsadan Boonprab  
Room 704; Boon Intrasrumpun Building; Faculty of Fisheries, Kasetsart University  
Contact hours: Available any time; except lecture hours

Objective: To know and realize the knowledge, current research, practical skill of the research and risk and food safety management related to class outline

Class outline: Marine biotoxins, types, cause of origin, pharmacological and chemical characteristics, control and prevention of intoxication, research in marine toxins.

Class schedule: 1. Guide line to the whole course outline; Lecturer contact; textbook for study; home work; report; current research seminar and presentation; criteria for evaluation; Pre-test
2. (1) Introduction to Marine biotoxin science  
   [concept, types and its risk and food safety management system]  
3. (2) Biotoxins related to invertebrates and planktons  
   (2.1) Echinoderms sponins/ gastropod tetramine  
   (2.2) Paralytic Shellfish Poison  
   (2.2) Paralytic Shellfish Poison (continue)  
   (2.3) Amnestic Shellfish Poison  
   (2.4) Diarrhetic Shellfish Poison  
   (2.5) Palytoxin  
   (2.6) Neurotoxin  
9. Mid-term examination  
10. (3) Biotoxins related to vertebarte  
   (3.1) Tetrodotoxins  
11. (3.2) Ciguatera toxins  
12. (3.2) Ichyotoxins  
   (3.3) Glycerine and wax ester  
   (4) Marine animals with stings and bites  
   (4.1) Mollusc  
   (4.2) Fish  
13. (5) Public health awareness and guideline: monitoring and licensing  
   (6) Research in Marine biotoxins  
   (6.1) Research technique in marine biotoxins  
   (6.1.1) Sample procurement  
   (6.1.2) Toxicity assay (bioassay)  
   (6.1.3) Other assay technique  
   (6.1.4) Monitoring program  
14. (7) Current and interest research in Marine biotoxins  
15. Final-examination

Important items:  
Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Self-studies and advices  
Condition: Nil  
Assessment method: Examination and continuously assessment on the report and participation into class and discussion.
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<td>1.2) Home work ( 5 works )</td>
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<td>1.3) Examination</td>
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<td>1.3.2) Final examination</td>
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<td>2) Grade evaluation : Score evaluation :-</td>
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Relevant matters: Conducted in English
Subject: 01254541  Food Safety and Quality Management Systems in Fish Processing Plant

Semester: 3  Credit (lecture-laboratory-self study: 2-3-6)

Key words: Hazards and risk assessment, Hazards control measure, food safety management systems

Lecturer: Assistant Professor Dr. Pongtep Wilaipun
Room 710, Boon Indrambarya Building
Contact hours: Tue.-Fri. 11.00-12.00 am. or by appointment

Objective:
1. Summarize the hazards in fish and fishery products
2. To understand and practice in an important food safety and quality management systems

Class outline: Hazards and risk assessment of hazards in fish and fishery products, hazards control measure, quality and food safety management systems, audit method in fish processing plant. Field trip required.

Class schedule:
1. Introduction to fish and fishery product hazards
2. GMP in fish processing industry
3. GMP in fish processing industry (cont.)
4. SOP and SSOP
5. GMP audit
6. Risk assessment of fish and fishery products
7. Hazard analysis and critical control points (HACCP)
8. HACCP (cont.)
9. HACCP Audit
10. ISO 22000
11. ISO 9001
12. ISO 9001 (cont.)
13. ISO 9001 (cont.)
14. ISO/IEC 17025
15. ISO/IEC 17025 (cont.)

Important items: Food safety management systems

Textbook: Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies

Self-studies and advices To be informed in the class

Condition: Nil

Assessment method:

Assessment criteria:
- Attendance and participation 5%
- Self study report 10%
- Mid-term examination 30%
- Final examination 30%
- Practical report 25%

Relevant matters: Conducted in English
Faculty of Fisheries, Kasetsart University

Subject: 01254551
Fishery Product Development
Semester 3
Credit 3
(lecture-laboratory-self study: 3-0-6)

Key words:

Lecturer: Dr. Nantipa Pansawat
FI 707
Mon.-Fri. 8.30-16.30 hrs. Please call or email for appointment.

Objective:
This course will provide basic knowledge and tools in new food product development and its application, focusing on fishery product development.

Class outline:
Principles and process of food product development, idea generation and evaluation, new product assessment and evaluation, product introduction to the market, applied statistics for product development and guidelines for fishery product development.

Class schedule:
1. Introduction: importance and dynamic of new food products
2. Principles and process of food product development
3. Idea generation and screening
4. Idea screening (cont.) and concept development
5. Prototype product development
6. Development of thermal process fishery products
7. Development of surimi based products
8. Development of frozen products and miscellaneous products
9. Experimental design and planning for product development
10. Applied statistics for product development
11. Applied statistics for product development (cont.)
12. Techniques in recipe and process development
13. New product testing and evaluation
14. Product launching and maintenance
15. Term project presentation by students

Important items:

Textbook: Handout is prepared by lecturer.
Recommended textbooks for self-studies:

Self-studies and advices
Practice using statistical program for analyzing data.
Follow trends and updates in new food products, market situation and consumer behavior.

Condition:
Nil

Assessment method:
Examination and continuously assessment on the report and participation in class and discussion.
1. Written examination (Midterm and final examination) 60%
2. Assignment, term project report and presentation 40%

Assessment criteria:
Grade equivalents (A, B+, B, ..., F), consulting class average.

Relevant matters:
Conducted in English.
Faculty of Fisheries, Kasetsart University

Subject: 01254561 Instruments Technique in Fishery Product Research
Semester Credit 3 (lecture-laboratory-self study: 2-3-6)

Key words: spectroscopy, chromatography, mass spectrometry, electrophoresis, electron microscope, texture and rheological analysis

Lecturer: Dr. Juta Mookdasanit
Room 701, Department of Fishery Products
Contact hours: Tue (9-10 AM), Thu (9-10 AM)

Objective:
1. To understand and be able to apply the theory and operational principles of analytical instruments.
2. To practice the analytical instruments typically employed in chemical and biochemical research laboratories.
3. To distinguish between qualitative and quantitative measurements
4. To understand the error in chemical and instrumental analysis and account for errors in data analysis

Class outline: Principle and technique of instruments for fishery product research spectroscopy, chromatography, mass spectrometry, electrophoresis, electron and fluorescent microscope, centrifugation, light scattering, texture and rheological analysis in food industry.

Class schedule:
1. Sample preparation and statistical control for instrumental analysis
2. UV and Visible light spectroscopy
3. Infrared spectroscopy
4. Gas Chromatography
5. Gas Chromatography (Continued)
6. Gas Chromatography - Mass spectrometry
7. High Performance Liquid Chromatography
8. High Performance Liquid Chromatography (Continued)
9. High Performance Liquid Chromatography-Mass spectrometry
10. Electrophoresis
11. Centrifugation
12. Rheological analysis
13. Texture analyzer
14. Electron and fluorescent microscope
15. Particle size analysis

Important items:
Textbook:

Self-studies and advices
Handout is prepared by lecturer. The lecturer will recommend the textbook for self-studies.

Condition: Nil

Assessment method: Examination and continuously assessment on the report and participation into class and discussion.
<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>Overall performances from examination, report and other assignments</th>
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<tr>
<td>Relevant matters</td>
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</table>
**Faculty of Fisheries, Kasetsart University**

**Subject:** 01254581  
**System Analysis and Management in Fish Processing Industry**  
**Credit:** 3  
(lecture-laboratory-self study: 3-0-6)

**Key words:** System analysis, management, fish processing

**Lecturer:**  
1. Dr. Jirawan Maneerote  
   Office room: 715  
   Department of Fishery Products  
   Office hours: To be announced  
2. Associate Professor Wanchai Worawattanmetheekul  
   Office room: 506  
   Department of Fishery Products  
   Office hours: To be announced

**Objective:** This course aims to introduce knowledge on principle of system analysis including mathematic model to improve the plant layout, plant design, PERT/CPM, linear programming, logistic and supply chain in fishery processing industry.

**Class outline:** Principles of system analysis to improve processing, planning, design, control and effective operation in food and fish processing industry.

**Class schedule:**  
1. Introduction  
2. Meaning of system analysis and operation  
3. Plant layout and plant design  
4. Mathematic model for plant layout and design  
5. Tool and instrument for plant layout  
6. PERT/CPM  
7. Linear Program for operation system  
8. Simplex and transportation  
9. Job ordering  
10. Control chart  
11. Quality control and management in fish processing industry  
12. Fish processing industry management  
13. Logistic and supply chain  
14. Term project/Presentation  
15. Presentation

**Important items:**  
- Textbook: Park, C.S. 2001. Contemporary Engineering Economics. 3rd Edition. Addison Wesley. California, USA. In addition to the above, the students will be provided with handouts by the lecturer.

**Self-studies and advices:** Require textbooks can be borrowed in the university library. Other software packages can be download trial version from internet.

**Condition:** Attendance will be checked regularly. The university rule on this shall be applied, in which unexcused absence from class of more than 20% of total time, will be grounds for disallowing student from taking the final exam. Late student be marked as such. Avoiding plagiarism.

**Assessment method:** Assessment will be by means of written exams, presentation and assignment. A grade of 50% warrants a pass.

**Assessment criteria:**  
- Midterm examination: 30%  
- Assignments: 10%  
- Final examination: 30%  
- Term projects (defend): 10%  
- Report: 15%  
- Attend class: 5%

**Relevant matters:** -
**Faculty of Fisheries, Kasetsart University**

<table>
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<tr>
<th>Subject:</th>
<th>01256598 Selected Topics in Fishery Science and Technology</th>
<th>Semester Credit</th>
<th>3 (lecture-laboratory-self study: 3-0-6)</th>
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**Key words:**

**Lecturer:** Assistant Professor Dr. Methee Kaewnern, Assistant Professor Dr. Wanwimol Klaypradit
Department of Fishery Management
Mon-Fri 8.30-16.30

**Objective:**
1. To offer the ability to seek knowledge and apply it to fishery research field

**Class outline:**
Study and research in aquaculture at the master’s degree level and compile into a written report.

**Class schedule:**
1. Creative problem solving and decision making
2. Propose the research plan
3. Conduct research at selected Kasetsart Fishery Station
4. Conduct research at selected Kasetsart Fishery Station
5. Conduct research at selected Kasetsart Fishery Station
6. Conduct research at selected Kasetsart Fishery Station
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11. Conduct research at selected Kasetsart Fishery Station
12. Conduct research at selected Kasetsart Fishery Station
13. Conduct research at selected Kasetsart Fishery Station
14. Presentation and discussion
15. Presentation and discussion

**Important items:**

**Textbook:**

**Self-studies and advices:**

**Condition:**

**Assessment method:** Assess from participated activities; literature review, report, discussion and presentation.

**Assessment criteria:**

**Relevant matters:**