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## Program Name : Coastal and Marine Resources Management (PS-SPL)

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Coordinator : Prof. Dr. Ir. Menofatria Boer, DEA  
Vice Coordinator : Dr. Ir. Luky Adrianto, M. Sc

### Master Degree Program

#### Competency

Able to develop sciences through application of approach, methods, and analysis in the context of ecosystem based integrated coastal and marine resources management with emphasize on eco-spatial planning, conservations, and sustainable development principle in the coastal and marine areas.

#### Curriculum

##### Semester 1

Name of Subject		Credits
<b>Graduate School</b>		
STK511	Statistics Analysis	3
SPS500	English for Scientific Writing and Speaking	3
<b>Mandatory Subjects</b>		
MSP502	Research Method for Coastal and Marine Resources Management	2
MSP513	Coastal and Marine Environmental Analysis	2
MSP523	Coastal and Marine Ecosystem Analysis	2
MSP532	Coastal and Marine Resources Dynamics	2
<b>Total</b>		<b>14</b>

##### Semester 2

Name of Subject		Credits
<b>Mandatory Subject</b>		
MSP514	Pollution Analysis of Coastal and Marine Waters	2
MSP515	Spatial Analysis for Coastal and Marine Areas	3
SPS501	Colloquium	1
<b>Elective Subject (Major)</b>		
MSP613	Environmental Risk Analysis for Coastal and Marine Areas	2
MSP634	Small Islands Resources Management	3
MSP635	Coastal and Marine Living Aquatic Resources Management	2
MSP614	Integrating Fisheries into Coastal and Marine Resources Management	2
MSP615	Vulnerability Analysis for Coastal and Marine Resources Management	3
MSP624	Coastal and Marine Ecotourism Management	2

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<b>Elective Subject (Minor)</b>	
Subject taken from other program within Bogor Agricultural University	7
<b>Total</b>	<b>13</b>

### Semester 3

<b>Name of Subject</b>		<b>Credit</b>
<b>Mandatory Subject</b>		
MSP524	Coastal and Marine Resources Conservation	2
MSP638	Integrated Coastal and Marine Resources Management	2
MSP636	System Analysis and Modeling for Coastal and Marine Resources Management	3
<b>Elective Subject (Major)</b>		
MSP637	Optimization Techniques for Coastal and Marine Resources Management	2
MSP639	Sustainable Development in the Context of Coastal and Marine Resources Management	2
<b>Elective Subject (Minor)</b>		
	Subjects taken from other program within Bogor Agricultural University	2
	<b>Total</b>	<b>9</b>

### Semester 4

<b>Name of Subject</b>		<b>Credit</b>
<b>Mandatory Subject</b>		
SPS690	Seminar	1
SPS699	Research and Thesis Writing	6
	<b>Total</b>	<b>7</b>
	<b>Total Credit for Master Program</b>	<b>43</b>

### Course Syllabi

#### STK511 Statistical Analysis

3(2-3)

Varian analysis based on survey and experimental data; principles of experiments, factor-based experiment, regression analysis, correlation factors and analysis, non-linear regression, and common application of statistical method for coastal and marine resources management.

Menofatria Boer  
Kiagus Abdul Aziz  
Rahmat Kurnia

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**MSP502 Research Method for Coastal and Marine Resources Management 2(1-3)**

Research plan and procedures, sampling method for coastal and marine resources (biophysical and social samples), problem statement, objectives development, method of research, research report development and scientific publication

Mennofatria Boer  
Kadarwan Soewardi

**MSP513 Environmental Analysis for Coastal and Marine Resources 2(2-0)**

Physical and dynamics of waters environment of the coastal and marine areas; sediment transports, ocean waves analysis, pollution dispersion analysis. Oceanography for coastal and marine resources management.

Yusli Wardiatno  
Enan Mulyana Adiwilaga  
John Pariwono  
Mulia Purba

**MSP514 Pollution Analysis in the Context of Coastal and Marine Resources 2(1-3)**

Waters quality dynamics of rivers and ocean (physic, biological and chemical); pollution sources; pollution mitigation and management; pollution reduction.

Hefni Effendi  
Zainal Arifin  
Sigid Hariyadi

**MSP515 Spatial Planning and Analysis for Coastal and Marine Areas 3(2-3)**

Principles of spatial planning; spatial use analysis for coastal and marine resources utilization; suitability analysis, application of GIS in spatial planning and analysis for coastal and marine areas development.

Bambang Widigdo  
Vincentius P. Siregar  
Dewayani Sutrisno  
Ferijanto Jais

**MSP523 Ecosystem Analysis for Coastal and Marine Resources 2(2-0)**

Morphodynamics characteristics of coastal and marine ecosystem; structure and organization of coastal and marine biota; biological process and linkages within coastal and marine ecosystem; principles of ecosystem based management.

Ario Damar  
Yusli Wardiatno  
M. Mukhlis Kamal

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**MSP524 Coastal and Marine Conservation**

**2(2-0)**

Concept and definition of coastal and marine conservation. Orthodox conservationism versus modern conservationism; biodiversity conservation. Principles of international compliances in the context of coastal and marine conservation. Conservation management and regime analysis.

Fredinan Yulianda  
M. F. Rahardjo  
Neviaty P. Zamani

**MSP532 Coastal and Marine Resources Dynamics**

**2(2-0)**

Resources components of the coastal and marine areas (living and non-living resources); resources behaviour, adaptation and population pattern, ecosystem services; principle of resources management.

Isdradjad Setyobudiandi  
Fredinan Yulianda  
Ismudi Muchsin  
Kiagus Abdul Aziz

**MSP613 Environmental Risk Analysis for Coastal and Marine Resources**

**2(2-0)**

Concept and understanding on environmental risk (terminology, typology and identification method); Risk and Hazard analysis and formulation in the form of hypothesis, characterization, and survey methods. Risk analysis and techniques application for coastal and marine resources management

Hefni Effendi  
Achmad Fahrudin  
Ario Damar

**MSP614 Integrating Fisheries into Coastal and Marine Resources Management**

**2(2-0)**

Systematic analysis of coastal and marine resources potentials for fisheries; optimal solution for coastal and marine areas especially in the context of coastal and marine aquaculture; sustainable coastal and marine aquaculture; carrying capacity analysis for coastal and marine aquaculture development; some ecological and economic impact of coastal and marine aquaculture.

Bambang Widigdo  
Kadarwan Soewardi

**MSP615 Coastal and Marine Vulnerability Analysis**

**3(2-3)**

Concept and definition of coastal and marine vulnerability; typology of vulnerability; modeling and analysis of vulnerability; mitigation and adaptation management for coastal and marine vulnerability.

Ario Damar  
Fredinan Yulianda  
Achmad Fahrudin

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**MSP638 Integrated Coastal and Marine Resources Management 2(2-0)**

Drivers of integrated coastal and marine resources management; concept and definition of Integrated coastal and marine resources management (ICM); ICM principles and approach; element of ICM and case studies.

Achmad Fahrudin  
Luky Adrianto  
Neviati P Zamani

**MSP624 Coastal and Marine Ecotourism 2(2-0)**

Concept and definition of coastal and marine ecotourism; appeals of coastal and marine ecotourism; ecotourism management application for coastal and marine ecosystem services; Recreational Opportunity Spectrum application for coastal and marine ecotourism; ecotourism in the context of coastal and marine resources conservation; carrying capacity analysis for coastal and marine ecotourism.

Fredinan Yulianda  
Agustinus M. Samosir  
Luky Adrianto

**MSP639 Sustainable Development in the Context of Coastal and Marine Resources Management 2(2-0)**

Concept and definition of sustainable development; sustainable development principle and strategy for coastal and marine areas development; coastal and marine development principle and factors; governance issues in the context of sustainable development; sustainability analysis

Luky Adrianto  
Gatot Yulianto  
Taryono Kodiran

**MSP634 Small Islands Resources Management 3(2-3)**

Concept and definition of small islands; typology of small islands; ecological and economic characteristics of small islands; ecological and economics disadvantages of small islands; elementer model for sustainable small island economy; application of ICM in the small islands management; sustainability assessment of small islands development; small islands management regime (international, national).

Luky Adrianto  
Dietrich G. Bengen  
Setyo Budi Susilo  
Rokhmin Dahuri

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**MSP635 Coastal and Marine Living Resources Management 2(2-0)**

Principles and aspects of resources management; conservation principles of the living coastal and marine resources management; integrated bio-ecological, technology and social-economics factors in the planning and development of sustainable coastal and marine living resources management. Methods of research needed for developing the management plan.

Zairion  
FredinanYulianda  
Ismudi Mukhsin  
Kiagus Abdul Aziz

**MSP636 System Analysis and Modeling for Coastal and Marine Resource 3(2-3)**

System approach and thinking for coastal and marine resources management; algorithm of system dynamics; causal loops and modeling; case studies of application of system dynamics on problems of coastal and marine resources management.

Luky Adrianto  
Setyo Budi Susilo  
Rokhmin Dahuri

**MSP637 Optimum Utilization of Coastal and Marine Resources 2(2-0)**

Optimal model for coastal and marine resources utilization; identification of objectives of the model, constraints variables and optimal solution for the problems of coastal and marine resources management.

Achmad Fahrudin  
Mennofatria Boer  
Taryono Kodiran

**SPS501 Colloqium 1**

Mennofatria Boer

**SPS690 Seminar 1**

SPs-IPB

**SPS699 Research and Thesis 6**

Study Program

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## Doctoral Degree Program

### Competency

Able to develop novelty in sciences through application of approach, methods, and analysis in the context of ecosystem based integrated coastal and marine resources management with emphasize on eco-spatial planning, conservations, and sustainable development principle in the coastal and marine areas.

### Semester 1

Name of subject		Credits
<b>Graduate School</b>		
SPS702	Science of Philosophy	2
<b>Mandatory Subject</b>		
MSP714	Aquatic Ecosystem Protection	3
MSP725	Coastal and Marine Resources Evaluation	3
<b>Elective Subject (major)</b>		
MSP726	Aquatic Biodiversity Preservation	3
MSP736	Advanced Coastal and Marine Living Resources Management	3
MSP713	Coastal and Marine Areas Development	3
MSP735	Coastal and Marine Resources Modeling	3
<b>Elective Subject (minor)</b>		
	Subject taken from other program within Bogor Agricultural University	6
	<b>Total</b>	<b>14</b>

### Semester 2

Name of Subject		Credits
<b>Mandatory Subject</b>		
MSP728	Coastal and Marine Resources Conservation and Rehabilitation	3
MSP734	Multi-Factorial Analysis for Coastal and Marine Resources Management	3
SPS701	Colloquium	1
<b>Elective Major</b>		
MSP634	Small Islands Resources Management	3
MSP614	Integrating Fisheries into Coastal and Marine Resources Management	3
<b>Elective Minor</b>		
	Subject taken from other program within Bogor Agricultural University	3
	<b>Total</b>	<b>10</b>

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**Semester 3**

<b>Name of Subject</b>		<b>Credits</b>
<b>Mandatory Subject</b>		
MSP739	Advanced Integrated Coastal and Marine Resources Management	2
<b>Elective Major</b>		
MSP737	Advanced Optimal Modeling for Coastal and Marine Resources Management	2
MSP738	Hierarchy Analysis of Coastal and Marine Resources Management	3
<b>Elective Minor</b>		
	Subject taken from other program within Bogor Agricultural University	2-3
	<b>Total</b>	<b>4-5</b>

**Semester 4**

<b>Name of Subject</b>		<b>Credit</b>
<b>Mandatory Subject</b>		
SPS790	Seminar	1
SPS799	Research and Dissertation	12
	<b>Total</b>	<b>13</b>
	<b>Total Credits of Doctoral Program</b>	<b>41-42</b>

**Course Syllabi****MSP713 Coastal and Marine Area Development 3(2-3)**

Concept and definition of coastal areas; Direction of coastal and marine areas development; regional economics approach to coastal and marine areas; integrated coastal regional planning; coastal livelihood system analysis for coastal and marine areas development; coastal and marine development policy.

Bambang Widigdo  
Ernan Rustiadi  
Luky Adrianto

**MSP714 Aquatic Ecosystem Protection 3(3-0)**

Approach, methods and analysis for ecosystem protection (mangrove, seagrass, and coral reefs) from pollution sources and flows. Pollution drivers and mitigation analysis; pollution reduction and management. Pollution loads (persisten and non-persisten organic pollutants).

Hefni Effendi  
Ario Damar

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**MSP739 Advance Integrated Coastal and Marine Resources Management 2(2-0)**

Coastal and marine resources management dynamics; dynamics of ICM; social-ecological approach to ICM; coastal and marine resources governance; Objective evolution of ICM; case studies (international and national).

Luky Adrianto  
Dietriech G. Bengen  
Rokhmin Dahuri  
Jacob Rais  
Budy Wiryawan

**MSP725 Coastal and Marine Ecosystem Evaluation 3(2-3)**

Typology, characteristics and regime of coastal ecosystem morphodynamics; structure and organization of coastal ecosystem; issues and problems in the coastal and marine ecosystem management.

Ario Damar  
Yusli Wardiatno  
Mukhlis Kamal

**MSP726 Aquatic Biodiversity Preservation 3(3-0)**

Ecological aspects of aquatic biodiversity; evolution and conservation of aquatic biodiversity preservation.

Mukhlis Kamal  
Kadarwan Soewardi  
Yusli Wardiatno  
Sulistiono

**MSP727 Hierarchy Analysis for Coastal and Marine Resources Management 3(2-3)**

Ecosystem functional hierarchy in the context of coastal and marine resources management; ecosystem social-metabolism in the context of coastal and marine resources uses; energy and exergy; application of social-metabolism analysis in the coastal and marine resources policy; national coastal and marine resources policy; local and central government interaction in the coastal and marine resources policy.

Achmad Fahrudin  
Luky Adrianto  
Sri Yanti

**MSP728 Coastal and Marine Resources Conservation and Rehabilitation 3(3-0)**

Coastal and marine resources conservation policy; conservation regime for coastal and marine resources; international compliance for MPA; techniques and strategies of coastal and marine resources rehabilitation.

Fredinan Yulianda  
M. F. Rahardjo  
Ario Damar  
Neviaty P. Zamani

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**MSP734 Interactive Multi-Factorial Analysis for Coastal and Marine Resources 3(2-3)**

Component determination and strategy for coastal and marine resource inventory and monitoring; application of techniques for qualitative and quantitative resources inventory; spatial and temporal analysis; application of multiple variable in the interactin analysis of resources components.

Menofatria Boer  
Dietriech G. Bengen

**MSP735 Coastal and Marine Resources Modeling 3(2-3)**

Verification, validation and model evaluation of coastal and marine resources; principles of resources validation and evaluation; ecological modeling for coastal and marine resources management.

Achmad Fahrudin  
Menofatria Boer  
Mukhlis Kamal  
Rokhmin Dahuri

**MSP736 Advanced Living Coastal and Marine Resources Management 3(2-3)**

Concept and strategy for coastal and marine resources management (living aquatic resources); carrying capacity analysis; sustainable fisheries development; fisheries management plan; principles of fisheries management; institutional and management regime of coastal and marine resources. Problems and issues in coastal and marine resources management.

Menofatria Boer  
Fredinan Yulianda  
Ismudi Muchsin

**MSP737 Advanced Optimal Utilization of Coastal and Marine Resources 2(2-0)**

Model for coastal and marine resources optimalization; capital theroy in fisheries; optimal control theory in fisheries; discrete time model; ecological-economic modeling for mangrove-fisheries linkages; ecological-economics of pollution management; spatial ecological-economic fisheries model.

Achmad Fahrudin  
Luky Adrianto

**SPS701 Colloqium 1**

Menofatria Boer

**SPS790 Seminar 1**

SPs-IPB

**SPS799 Research and Dissertation 12**

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