University of the Philippines in the Visayas
COLLEGE OF FISHERIES AND OCEAN SCIENCES
5023 Miagao, Iloilo

CURRICULUM
MASTER OF SCIENCE IN OCEAN SCIENCES
MAJOR IN _____

First Year

1st Semester	Units	2nd Semester	Units
Ocean 210 Adv Physical Oceanography	3	Major Ocean Course 1	3
Ocean 220 Adv Chemical Oceanography	3	Major Ocean Course 2	3
Ocean 230 Adv Geological Oceanography	3	Major Ocean Course 3	3
Ocean 240 Adv Biological Oceanography	3	Cognate	3
	12		12

Second Year

Ocean 298 Graduate Seminar	1	Residency	
Ocean 299 Special Topics	1		
Ocean 300 Masters Thesis	6		
	8		

Units Required:

Core Courses	***12 units***
Major Courses	***9 "***
Cognates	***3 "***
Special Topics	***1 "***
Graduate Seminar	***1 "***
Thesis	***6 "***
Total	***32 units***

Core Courses:

Course Title		Units
Ocean 210	Advanced Physical Oceanography	3
Ocean 220	Advanced Chemical Oceanography	3
Ocean 230	Advanced Geological Oceanography	3
Ocean 240	Advanced Biological Oceanography	3

Required Courses:

Ocean 298	Graduate Seminar	1
Ocean 299	Special Topics	1
Ocean 300	Masters Thesis	6

Cognate Courses: (May be taken from the courses listed as part of MS Fisheries major in Fisheries Biology Programs and MS Biology major in Marine Biology)

Major Courses: (At least 9 units in a selected major field (for the first phase, the Biological Oceanography and Ocean Management majors will be offered, other majors will be developed once the program is established)

A) BIOLOGICAL OCEANOGRAPHY

Ocean 241	Applied Marine Microbiology	3
Ocean 243	Marine Benthos and Benthic Communities	3
Ocean 244	Advanced Ichthyology	3
Ocean 245	Biology of Exploited Invertebrates	3
Ocean 246	Applied Marine Botany	3
MS 270	Biochemistry of Marine Organism 1	3
MS 271	Biochemistry of Marine Organism 2	3
MCB 275	Tropical Fish Health	3
Fish 202	Advances in Fish Diseases	3
Fish 258	Marine Biotechnology	3

B) OCEAN MANAGEMENT

Ocean 271	Marine Law and Policy	3
Ocean 272	Approaches in Ocean Resources Management	3
Ocean 273	Coastal Zone Development and Management	3
Ocean 274	Monitoring, Control and Surveillance	3
Ocean 275	Disaster Mitigation and Control	3
Ocean 276	Dynamics & Mgmt of Exploited Populations	3
Ocean 277	Utilization & Use of Non-Living Marine Resources	3
Ocean 279	Information System & Computer Application in Ocean Mgmt	3

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COURSE TITLE DESCRIPTION OF COURSES AND PREREQUISITES

Ocean 210 ADVANCED PHYSICAL OCEANOGRAPHY. Physical properties of seawater, conservation laws, forces and motion, equations of motion, ocean currents, wave motions, tidal motion, introduction to ocean models. Credit: 3 units Prerequisite: COI

Ocean 220 ADVANCED CHEMICAL OCEANOGRAPHY. Properties of water and chemical processes in the marine environment especially biogeochemical cycles. Credit:: 3 units Prerequisite: COI

Ocean 230 ADVANCED GEOLOGICAL OCEANOGRAPHY. The structure, origin, and history of the earth's oceans including geomorphology, geophysics, geochemistry, sedimentology, petrology and paleontology.
Credit: 3 units Prerequisite: COI

Ocean 240 ADVANCED BIOLOGICAL OCEANOGRAPHY. Biological processes and biogeochemical cycles in the oceans and how these relate to the oceanic environment. Credit: 3 units Prerequisite: COI

Ocean 241 APPLIED MARINE MICROBIOLOGY. Marine microorganisms, microbiological processes and nutrient cycles in the ocean. Credit: 3 units (lect/lab) Prerequisite: Ocean 240

Ocean 243 MARINE BENTHOS AND BENTHIC COMMUNITIES. The Taxonomy, distribution and abundance of marine organisms in different benthic communities. It includes community analysis; energy transfer and nutrient recycling; its role in the field of fisheries and biodiversity conservation.
Credit: 3 units (lect/lab) Prerequisite: Ocean 240

Ocean 244 ADVANCED ICHTHYOLOGY. Anatomy, physiology and natural history of fishes. Credit: 3 units (lect/lab) Prerequisite: Ocean 240

Ocean 245 BIOLOGY OF EXPLOITED INVERTEBRATES. The subject deals with the study of the autoecology of the shrimps, crabs, lobsters, squids and mollusks. It includes the taxonomy, distribution, feeding ecology, reproductive characteristics and population biology. It focuses on the biological aspects that are important considerations in the proper management of these renewable biological resources. Credit: 3 units (lect/lab) Prerequisite: Ocean 240

Ocean 246 APPLIED MARINE BOTANY. Morphology and physiology, reproduction and life histories, ecology, and taxonomy of phytoplankton, seaweeds and higher marine plants. Culture techniques and use in biotechnology for microalgae and macroalgae. Credit: 3 units (lect/lab) Prerequisite: Ocean 240

Ocean 271 MARINE LAW AND POLICY. General overview of national and international regulations with emphasis on the Law of the Sea. Marine policy formulation. Case Studies.
Credit: 3 units (lect/lab) Prerequisite: Ocean 210, 220, 230, 240

Ocean 272 APPROACHES IN OCEAN RESOURCE MANAGEMENT. History and current approaches to Ocean Resource Management. Top-down and bottom up management.
Credit: 3 units Prerequisite: Ocean 210, 220, 230, 240

Ocean 273 COASTAL ZONE DEVELOPMENT AND MANAGEMENT. Resources of the coastal zone, their multiple use and development, Integral strategies to coastal zone management, specific management approaches, information requirements and case studies for specific problems.
Credit: 3 units (lect/lab) Prerequisite: Ocean 210, 220, 230, 240

Ocean 274 MONITORING CONTROL AND SURVEILLANCE. Information system, licensing and law enforcement applied to fishing and other extractive activities in the ocean and coastal waters.
Credit: 3 units (lect/lab) Prerequisite: Ocean 210, 220, 230, 240

Ocean 275 DISASTER MITIGATION AND CONTROL. Physical, chemical and biological approaches towards mitigating and controlling various forms of maritime disasters including impacts of pollution. Credit: 3 units Prerequisite: Ocean 210, 220, 230, 240

Ocean 276 DYNAMICS AND MANAGEMENT OF EXPLOITED POPULATIONS. Dynamics of exploited marine populations and application of yield and production models to management. Credit: 3 units (2 lect/1 lab)
Prerequisite: Ocean 210, 220, 230, 240, Undergraduate Calculus and Statistics

Ocean 277 UTILIZATION AND USE OF NON-LIVING MARINE RESOURCES. Ocean and sea-bed mining. Extractions from seawater. Issues and studies of non-living resource management.
Credit: 3 units (2 lect/1 lab) Prerequisite: Ocean 210, 220, 230, 240

Ocean 279 INFORMATION SYSTEMS AND COMPUTER APPLICATIONS IN OCEAN MANAGEMENT. Application of computers in ocean resources management, acoustic, GIS, remote sensing and automated monitoring in information systems interpretation for ocean management and policy studies. Credit: 3 units (1 lect/2 lab) Prerequisite: Ocean 210, 220, 230, 240

Ocean 296 GRADUATE SEMINAR. Credit: 1 unit Prerequisite: Ocean 210, 220, 230, 240

Ocean 299 SPECIAL TOPICS. Study of recent advances in the various fields of ocean science including, but not limited to marine biotechnology, ocean instrumentation, ocean energy, fishing gear technology, applications of remote sensing in ocean sciences, genetics, mariculture technology and quantitative sciences. Credit: 1 unit
Prerequisite: Ocean 210, 220, 230, 240

Ocean 300 MASTER THESIS. Credit: 6 units Prerequisite: Completion of at least 24 units

Marine Science 270 BIOCHEMISTRY OF MARINE ORGANISMS I. Structure-function relationships, general aspects of metabolism and comparative biochemistry of marine organisms. Credit: 3 units Prerequisite: Chem 40 or COI

Marine Science 271 BIOCHEMISTRY OF MARINE ORGANISMS II. Thermodynamic, kinetics, and enzyme reaction mechanics as applied to the study of metabolism in marine organisms. Credit: 3 units Prerequisite: MS 270 or COI

Chemistry 247 MOLECULAR BIOCHEMISTRY. Behavior of biologically active substances and mechanism of enzymic action in terms of electronic theory. Credit: 3 unitsPrerequisite: Chem 240 or COI

MCB 275 TROPICAL FISH HEALTH. Principles of infection and infection processes, therapy and prophylaxis; pathogens common in aquaculture systems in the tropics and possible management; emphasis on shellfish and finfishes. Credit: 3 units (2 lect/3 hrs lab) Prerequisite: COI

Fish 202 ADVANCES IN FISH DISEASES. Advaances in Fish diseases and their diagnosis, prevention and treatment. Credit: 3 units (2 hrs lect/3 hrs lab) Prerequisite: Courses in Parasitology, Microbiology or Fish Diseases.

Fish 258 MARINE BIOTECHNOLOGY. Introduction to the principles and techniques of biotechnology as applied to fishery science with emphasis on aquaculture. Credit: 3 units (2 hrs lect/3 hrs lab)
Prerequisite: Undergraduate courses in Biochemistry and Genetics

Name of Student: _____ SN:_____

CHECKLIST
MASTER OF SCIENCE IN OCEAN SCIENCES
MAJOR IN _____

First Year

Grade	1st Semester	Units	Grade	2nd Semester	Units
_____	Ocean 210 Adv Physical Oceanography	3	_____	Major Ocean Course 1	3
_____	Ocean 220 Adv Chemical Oceanography	3	_____	Major Ocean Course 2	3
_____	Ocean 230 Adv Geological Oceanography	3	_____	Major Ocean Course 3	3
_____	Ocean 240 Adv Biological Oceanography	3	_____	Cognate _____	3
		12			12

Second Year

_____	Ocean 298 Graduate Seminar	1
_____	Ocean 299 Special Topics	1
_____	Ocean 300 Masters Thesis	6
		8

Residency

Units Required:

Core Courses	***12 units***
Major Courses	***9 "***
Cognates	***3 "***
Special Topics	***1 "***
Graduate Seminar	***1 "***
Thesis	***6 "***
TOTAL	***32***

Core Courses:

_____	Ocean 210 Adv Physical Oceanography	3
_____	Ocean 220 Adv Chemical Oceanography	3
_____	Ocean 230 Adv Geological Oceanography	3
_____	Ocean 240 Adv Biological Oceanography	3

Required Courses:

_____	Ocean 298 Graduate Seminar	1
_____	Ocean 299 Special Topics	1
_____	Ocean 300 Masters Thesis	6

Major Courses:

A) Biological Oceanography

_____	Ocean 241 Applied Marine Microbiology	3
_____	Ocean 243 Mar Benthos & Benthic Comm	3
_____	Ocean 244 Advanced Ichthyology	3
_____	Ocean 245 Bio of Exploited Invertebrates	3
_____	Ocean 246 Applied Marine Botany	3
_____	MS 270 Biochemistry of Marine Organism 1	3
_____	MS 271 Biochemistry of Marine Organism 2	3
_____	MCB 275 Tropical Fish Health	3
_____	Fish 202 Advances in Fish Diseases	3
_____	Fish 258 Marine Biotechnology	3

B) Ocean Management

_____	Ocean 271 Marine Law and Policy	3
_____	Ocean 272 Approaches in Ocean Resource Mgt	3
_____	Ocean 273 Coastal Zone Dev't. & Mgt	3
_____	Ocean 274 Monitoring, Control & Surveillance	3
_____	Ocean 275 Disaster Mitigation and Control	3
_____	Ocean 276 Dynamics & Mgt Exploited Pop	3
_____	Ocean 277 Utilization & Use of Non-Living Marine Resources	3
_____	Ocean 279 Information System & Computer Application in Ocean Mgt	3

EXTRA SUBJECTS TAKEN:

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_____

DEFICIENCIES:

_____
_____
_____

EVALUATED BY:

_____

GWA:_____

Date:_____

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