

Annex I (1) :

Educational Plan (Marine Biology)

1. Training Objective

Developing advanced internationalized and applied professionals with high scientific quality; with insight into the current and future development trends in Marine Biology Specialty; with comprehensive and sound knowledge and mastery of practical skills in, familiarity with and abilities in developing, application research in Marine Biology Specialty both at home and abroad; as well as with a high level of English language.

2. Enrollment, Graduation Requirements, Certificates and Diplomas

(1) Enrollment criteria

The specialty is incorporated into the national Master's students enrollment plan of Chinese institutions of higher education, after the National Master's Students Entrance Examination, and in accordance with the National Graduate Admissions Policy. The enrolment of any Italian student who wants to study at the ZJOU-UNIPi Marine Graduate School shall comply with the relevant regulations on international students studying in China and shall be included in the total enrolment scale.

Chinese students shall have an English level of CET IV 450 or higher; Italian students shall have a B2 level or higher (European English Proficiency Test).

(2) Graduation Requirements

Zhejiang Ocean University: the same as those for students who do not participate in this program.

University of Pisa: In addition to the requirements of Zhejiang Ocean University, the dissertation must be written in English, and students must defend it with experts from both universities.

(3) Degrees (certificates) and Conferring Requirements

Students who successfully complete their study on this program and pass all the examinations as stipulated in the Educational Plan shall be granted by Zhejiang Ocean University(ZJOU) the ZJOU Master Student Graduation Certificate of Higher Education (Marine Biology Specialty); students who meet the degree awarding requirements of ZJOU and UNIPi, respectively, shall be awarded Master Degrees of Science (Marine Biology Specialty) and Master Degrees (Marine Biology Specialty) by ZJOU and UNIPi, respectively. UNIPi students who meet the degree awarding requirements of UNIPi, spend at least one semester (the second semester of the second year since the enrolment at UNIPi) of studying and doing thesis research at ZJOU, shall be granted by Zhejiang Ocean University (ZJOU) the ZJOU Master Student Graduation Certificate of Higher Education (Marine Biology Specialty). The research activity during the semester will be supervised by both ZJOU and UNIPi. UNIPi students are also required to publish one research paper before the degree defense at ZJOU. Alternatively, the research paper must be at least submitted, accepted for review and positively assessed by two supervisors, one from ZJOU and one from UNIPi, before the defense. In this latter case UNIPi students will be conferred the master's degree after the paper publication.

3. Teaching Management

(1) A Teaching Committee will be composed in accordance with the Bylaws of the Zhejiang Ocean University-University of Pisa Marine Graduate School.

(2) The teaching committee is composed of 5 people: the school dean, the school deputy dean, the school dean's assistant, and two specialty heads, one from ZJOU and the other from UNIPi.

(3) Assessing criteria

It takes a three-year schooling system on the ZJOU campus, i.e., the "3+0" educational mode.

and the number of credits for graduation is at least 29.

4. Teaching Progress Table

(1) Discipline name: Marine Biology

(2) Discipline code: 070703

(3) Study period: 3 years

(4) Total academic hours of all the courses (with 1 credit of Compulsory Sci-tech Activities being accounted as 16 academic hours): 422 hours

(5) Credits needed for graduation: at least 29; among which:

- Degree Courses: 20 credits;

- Non Degree Courses credits plus Natural Dialectics course: 6 credits (4+2)

- Compulsory Sci-tech Activities: 3 credits;

(6) Master's graduation dissertation: Mandatory; carries no credits under the Chinese side's system, but is credit-bearing under the Italian side's system. Apart from the requirement that the thesis be written in English, all other requirements are identical to those for regular postgraduate students at Zhejiang Ocean University.

Course Category		Course Name	Total Academic Hours	Credits	ECT Credits	Semester	Academic Hours/week	Teaching Party
Degree Courses (selecting all)	General Courses	Study on the Theory and Practice of Socialism with Chinese Characteristics for a New Era	36	2	4	II	2	ZJOU
		Graduate English	64	4	8	I	4	ZJOU
	Basic Courses	Marine Biochemistry	24	1.5	3	I	2	UNIPi
		Physiology of Marine Animals	24	1.5	3	I	2	UNIPi
		Advanced Marine Biology Topics	32	2	4	I	2	ZJOU
	Professional Courses	Sampling Design in Marine Biology	24	1.5	3	I	2	UNIPi
		Global Changes in Marine Biodiversity	32	2	4	I	2	UNIPi
		Marine Phylogeography and Fishery Genetics	32	2	4	I	2	UNIPi
		Ecotoxicology	32	2	4	II	2	UNIPi
		Risk Evaluation of Marine Animal Contamination	24	1.5	3	II	2	UNIPi
Subtotal		324 academic hours, 20 credits						
Non-Degree	Specialized Optional	Developmental Biology	32	2	4	I	2	ZJOU

Courses	Courses (Selecting 2 courses)	Biological Nutrition and Feed	32	2	4	<i>I</i>	2	ZJOU
		Modern Aquaculture Technology and Engineering	32	2	4	<i>I</i>	2	ZJOU
		Advanced Micro- biology	32	2	4	<i>I</i>	2	ZJOU
		Special Topic on Genetic Breeding of Marine Organism	32	2	4	<i>I</i>	2	ZJOU
		Environmental Ecology	32	2	4	<i>I</i>	2	ZJOU
		AI Oceanography (required courses)	32	2	4	<i>I</i>	1	ZJOU
	General Optional Course	Natural Dialectics	18	1	3	<i>I</i>	1	ZJOU
		Paper Writing Guidance	16	1	3	<i>I</i>	1	ZJOU
Subtotal		98 academic hours, 6 credits (4+2)						
Compulsor y Sci-tech Activities	1	Academic Activities		1	4	<i>I~V</i>	2	ZJOU
	2	Practical Activities (four weeks in University of Pisa)		1	4	<i>I~V</i>	2	ZJOU UNIPI
	3	Scientific Researches and Research Articles		1	4	<i>I~V</i>	2	ZJOU
	4	Master Thesis		pass	45			
Subtotal		48 academic hours, 3 credits						

N.B.:

(1) The Teaching Party marked with UNIPI indicates that the corresponding courses are imported from and to be instructed by the teachers from the University of Pisa, Italy; while the Teaching Party marked with ZJOU indicates that the corresponding courses are to be instructed by the teachers of Zhejiang Ocean University;

(2) The ratio of the imported core courses from the University of Pisa, Italy, versus all the core courses in the Educational Plan is 7/10(=70.00%);

(3) The ratio of the credits of the core courses undertaken by the teachers from the University of Pisa versus the total credits in the Educational Plan is 12/29(=41.38%);

(4) The ratio of the imported courses from the University of Pisa, Italy, versus all the courses in the Educational Plan is 7/19(=36.84%);

(5) The ratio of the undertaken core courses by the teachers from the University of Pisa, Italy, versus all the courses in the Educational Plan is 7/19(=36.84%);

(6) The ratio of the academic hours of the core courses undertaken by the teachers from the University of Pisa versus the total academic hours in the Educational Plan is 192/422(=45.50%);

(7) The teachers from the University of Pisa shall attend the dissertation proposal, its mid-term

evaluation, and its oral defense, and will supervise dissertation writing through e-mail and/or conference calls.

5. Teaching Materials

All courses offered by the University of Pisa, Italy, will include corresponding teaching materials provided by the University of Pisa, Italy, and will be in English; while the remaining courses will be in Chinese or English.

Here is a list of courses and teaching materials, where the course code column "C-" refers to Zhejiang Ocean University and "I-" indicates the University of Pisa, Italy.

No.	Course Type	Course Code	Course Name	Textbooks to be selected
1	General Courses	C-001	Study on the Theory and Practice of Socialism with Chinese Characteristics for a New Era	Textbook compiled by Zhejiang Ocean University.
2	General Courses	C-002	Graduate English	Xiong Haihong. University Graduate Student English Series. Beijing: Foreign Language Teaching and Research Press, 2009.
3	Basic Courses	I-003	Marine Biochemistry	Provided and compiled by University of Pisa, Italy
4	Basic Courses	I-004	Physiology of Marine Animals	Provided and compiled by University of Pisa, Italy
5	Basic Courses	C-005	Advanced Marine Biology Topics	[1] Xiang Jianhai. Marine Biology. Beijing: Science Press, 2003.1. [2] Zhang Peijun. Marine Biology. Shangdong: Shangdong Education Press, 2004. [3] Zhang Shicui. Principle and Application of Marine Biotechnology. Beijing: Ocean Press, 1997. [4] J.W., Bacon. Marine Biology and Ecology, 1991.
6	Professional Courses	I-006	Sampling Design in Marine Biology	Provided and compiled by University of Pisa, Italy
7	Professional Courses	I-007	Global Changes in Marine Biodiversity	Provided and compiled by University of Pisa, Italy
8	Professional Courses	I-008	Marine Phylogeography and Fishery Genetics	Provided and compiled by University of Pisa, Italy
9	Professional Courses	I-009	Ecotoxicology	Provided and compiled by University of Pisa, Italy
10	Professional Courses	I-010	Risk Evaluation of Marine Animal Contamination	Provided and compiled by University of Pisa, Italy
11	Specialized Optional Courses	C-011	Developmental Biology	[1] Gui Jianfang et al. Developmental Biology. Beijing: Science Press, 2002. [2] Zhang Hongwei. Developmental Biology. Beijing: Higher Education Press, 2001. [3] Muller W A (DE). The Developmental Biology. Beijing: Higher education Press; Germany: Springer Verlag, 1998.

12	Specialized Optional Courses	C—012	Biological Nutrition and Feed	[1] Li Aijie. Aquatic Animal Nutrition and Feed Science. Beijing:Chinese Agricultural Press, 1998. [2] Chinese Academy of Agricultural Sciences. Institute of Animal Husbandry. Chinese Tables of Feed Composition and Nutritive Value. Beijing: Agriculture Press. [3] Oslo Markov. Feed Science. Beijing:Beijing Kasetsart University Press, 1991. [4] Wu Zunlin. Nutrition and Fish Feed. Beijing:Agricultural Press, 1990. [5] Hou Wenpu, Wang Zhefu. Shrimp Feed. Beijing: Ocean Press, 1990.
13	Specialized Optional Courses	C—013	Modern Aquaculture Technology and Engineering	[1] Modern Breeding Technology and Engineering, compiled by Zhejiang Ocean University. [2] Jia Xiaoping. Deep-Water Bet Cage Technology Research. Beijing: Ocean Press, 2005.8.
14	Specialized Optional Courses	C—014	Advanced Micro-biology	[1] Liu Zhiheng,. Modern Microbiology(second edition). Beijing: Science Press, 2008. [2] Bao Shixiang, Huang Huiqin. Marine Microbiology. Shangdong :Ocean University of China Press, 2008.4. [3] Prescott Willey, et al. Microbiology (reprint edition). Beijing: Higher Education Press, 2009.3. [4] Albert G. Moat et al. Microbial Physiology (fourth edition). New York: Wiley-Liss, Inc., 2002.
15	Specialized Optional Courses	C—015	Special Topic on Genetic Breeding of Marine Organism	Yundong Lou. Fish Breeding. Beijing: China Agriculture Press, 1999.
16	Specialized Optional Courses	C—016	Environmental Ecology	Manuel C.Molles. Ecology:Concepts and Applications (5th edition). USA: McGraw-Hill Companies, Inc.; Reprint edition. Beijing: Higher Education Press,2011.
17	Specialized Optional Courses	C—017	AI Oceanography (required courses)	Dong, Changming. Fundamentals and Applications of Artificial Intelligence Oceanography. Beijing: Science Press, 2022.
18	General Optional Course	C—018	Natural Dialectics	[1] Natural Dialectics (concise version), compiled by Zhejiang Ocean University. [2] The Social Science Research and Ideological and Political Work Department of the Ministry of Education of China. Introduction to Dialectics of Nature. Beijing: Higher Education Press, 2004.
19	General Optional Course	C—019	Paper Writing Guidance	Björn Gustavii. How to Write and Illustrate a Scientific Paper. Cambridge University Press, 2012
20	Compulsory Sci- tech	C—020	Academic Activities	/

	Activities			
21	Compulsory Sci-tech Activities	C-021	Practical Activities	/
22	Compulsory Sci-tech Activities	C-022	Scientific Researches and Research Articles	/

6. Faculty Members

Here is a list of courses and Faculty Members, where the course code column "C-" refers to Zhejiang Ocean University and "I-" to the University of Pisa, Italy.

No.	Course Type	Course Code	Course Name	Teacher	Academic Title
1	General Courses	C-001	Study on the Theory and Practice of Socialism with Chinese Characteristics for a New Era	Gu Xieguo	Associate Professor
2	General Courses	C-002	Graduate English	Zhu Qiaobei	Associate Professor
3	Basic Courses	I-003	Marine Biochemistry	Francesco Balestri	Professor
4	Basic Courses	I-004	Physiology of Marine Animals	Massimo Dal Monte	Professor
5	Basic Courses	C-005	Advanced Marine Biology Topics	Wang Tianming	Professor
6	Professional Courses	I-006	Sampling Design in Marine Biology	Iacopo Bertocci	Professor
7	Professional Courses	I-007	Global Changes in Marine Biodiversity	Fabio Bulleri	Professor
8	Professional Courses	I-008	Marine Phylogeography and Fishery Genetics	Ferruccio Maltagliati	Professor
9	Professional Courses	I-009	Ecotoxicology	Carlo Pretti	Professor
10	Professional Courses	I-010	Risk Evaluation of Marine Animal Contamination	Marco Verani	Professor
11	Specialized Optional Courses	C-011	Developmental Biology	Liao Zhi	Professor
12	Specialized Optional Courses	C-012	Biological Nutrition and Feed	Zhang Yuexing	Professor
13	Specialized Optional Courses	C-013	Modern Aquaculture Technology and Engineering	Gui Fukun	Professor
14	Specialized Optional Courses	C-014	Advanced Micro-biology	Liu Xuezhu	Professor
15	Specialized Optional Courses	C-015	Special Topic on Genetic Breeding of Marine Organism	Wang Tianming	Professor
16	Specialized Optional	C-016	Environmental Ecology	Zhao Sheng	Professor

	Courses				
17	Specialized Optional Courses	C-017	AI Oceanography	Liao Zhi; Ding Wenxiang	Professor; Lecture
18	General Optional Course	C-018	Natural Dialectics	Zhang Zhongfei	Associate Professor
19	General Optional Course	C-019	Paper Writing Guidance	Yin Wenbin	Associate Professor
20	Compulsory Sci-tech Activities	C-020	Academic Activities	Student's supervisors (1 supervisor, 2 assistant supervisors)	/
21	Compulsory Sci-tech Activities	C-021	Practical Activities		
22	Compulsory Sci-tech Activities	C-022	Scientific Researches and Research Articles		

This educational plan is agreed upon by both parties. Faculty members may be changed in accordance with the practical conditions of the respective parties.

Zhejiang Ocean University, PR China
Rector

University of Pisa, The Republic of Italy
Rector

武传宇

(Prof. Wu Chuanyu)

Prof. Riccardo Zucchi

(Prof. Riccardo Zucchi)



(Seal of Party A)

Date:

2016.1.28

(Seal of Party B)

Date:

28/01/2016



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