

海洋科学（菁英班）专业培养方案

专业名称与代码：海洋科学（菁英班） 070701

专业培养目标：

1. 培养学生具有社会责任感、创新精神和实践能力，德智体全面发展；
2. 培养学生具有海洋科学基础理论、基本知识、基本技能及其相关学科的基本知识，具有较好的科学思维、素养和创新意识；
3. 培养学生具有一定的国际视野和正确的海洋观，能进行海洋科学研究、教学和管理初步能力；
4. 培养学生能进入硕士研究生阶段学习，或成为在海洋科学及相关领域企事业部门从事基础研究、技术开发和技术管理工作方面的专业人才。

专业毕业要求：

1. 具有较好的人文科学素养、高尚的品德修养，以及本学科专业应具备的职业道德和规范；
2. 具有厚实的数、理、化等自然科学基础知识，熟练掌握外语、计算机应用技能；
3. 掌握现代海洋科学，特别是海洋地质与资源方面的基础理论、基本知识；
4. 掌握海洋调查、数据采集处理、成果解释和综合分析的基本方法和技能；
5. 掌握岩矿鉴定、地层与古生物分析和地质构造研究等方面的基本技术和方法；
6. 掌握海洋地质与资源相关工作的基本方法；
7. 初步掌握海洋化学、海洋生物、物理海洋、海洋环境评价的基本方法；
8. 初步掌握资料查询、归纳、整理和综合分析的方法，培养团结协作精神，具有专业科技论文撰写和自主学习、适应发展的基本能力。

毕业要求实现及途径：

序号	毕业要求	实现途径（教学过程）
1	具有较好的人文科学素养和高尚的品德修养，以及本学科专业应具备的职业道德和规范	①课堂教学：马克思主义基本原理、毛泽东思想与中国特色社会主义理论体系概论、中国近现代史纲要、思想道德修养与法律基础、体育、军事理论、海洋科学专业导论。 ②课外学习：开展“大学生青年文化艺术节”、“高雅艺术进校园”等主题教育活动；开展运动会等活动；开展新生入学教育、毕业生系列教育主题活动；开展大学生“暑假社会实践”等活动；加强学务指导老师、辅导员队伍建设，加强学生干部队伍建设，提高对学生的教育引导。
2	具有厚实的数、理、化等自然科学基础知识，熟练掌握外语、计算机应用技能	①课堂教学：大学英语、Python 语言程序设计 B、大学化学 C、高等数学 B、线性代数 B、概率论与数理统计 B、大学物理学 B、物理实验 A。 ②课外学习：每年举办大学生挑战杯、英语比赛、

序号	毕业要求	实现途径（教学过程）
		数学竞赛、建模比赛等活动。
3	掌握现代海洋科学，特别是海洋地质与资源方面的基础理论、基本知识	① 课堂教学 ：海洋学基础、大洋底构造地质学、海洋沉积学、化学海洋学、海岸动力学、古海洋学、海洋地质灾害学、物理海洋学、生物海洋学等。 ② 课外学习 ：引导学生参加全国大学生海洋知识竞赛、世界海洋日等活动。
4	掌握海洋调查、数据采集处理、成果解释和综合分析的基本方法和技能	① 课堂教学 ：海洋调查技术与方法、测井地质学、海洋地球物理勘探、海洋地震地质学、海洋遥感等。 ② 课外学习 ：引导学生参加海岸带调查、大洋科学考察等活动。
5	掌握岩矿鉴定、地史分析和地质构造研究等方面的基本技术和方法	① 课堂教学 ：普通地质学、矿物岩石学、地层及古生物学、构造地质学B、大洋底构造地质学等。 ② 课外学习 ：引导学生参加“寻找李四光”地学专业知识竞赛、模拟国际学术会议展板竞赛、岩矿石综合鉴定竞赛、高级野外地质路线竞赛等活动。
6	掌握海洋地质与资源工作的基本方法	① 课堂教学 ：海底矿产资源、海洋油气地质学、沉积盆地分析、层序地层学原理与应用、天然气水合物开采基础等。 ② 课外学习 ：引导大学生参加大学生科研立项、大学生科技论文报告会等活动。
7	初步掌握海洋化学、海洋生物、物理海洋与海洋环境评价的基本方法	① 课堂教学 ：化学海洋学、物理海洋学、生物海洋学、大洋科学钻探概论、海洋环境学、海洋测绘基础、海洋测量学、海岸工程学等。 ② 课外学习 ：引导学生参加大洋科学考察、环境调查、海洋测等活动。
8	初步掌握资料查询、归纳、整理和综合分析的方法，培养团结协作精神，具有专业科技论文撰写和自主学习、适应发展的基本能力	① 实践教学 ：海洋测绘基础教学实习、海洋学基础实习、地质教学实习、专业教学实习、海洋专业课程综合设计、毕业生产实习、毕业论文（设计）等。 ② 课外学习 ：专题讲座、课程作业与读书报告、学术报告、文献检索讲座与报告等。

主干学科：海洋科学

专业核心课程：海洋学基础、大洋底构造地质学、海洋沉积学、化学海洋学、海岸动力学、海底矿产资源、海洋调查技术与方法、海洋地球物理勘探、沉积盆地分析、海洋油气地质学、物理海洋学、生物海洋学等。

主要专业实验：常见矿物、岩石、化石等鉴定实验；层序地层学原理与应用课程设计；海洋地球物理勘探实习；测井资料综合解释课程设计；海洋地质制图与分析；化学海洋学实验；海洋工程设计和海洋环境评价分析。

主要实践性教学环节：为达到培养目标和培养规格的要求，设置了旨在提高学生实践能力、技能和综合素质的实践教学环节。主要设置有：计算机程序课程设计、海洋测绘基础教学实习、海洋学基础实习、地质教学实习、专业教学实习、海洋专业课程综合设计、毕业生产实习、毕业（设计）论文。

毕业学分要求：不少于 170 个学分。

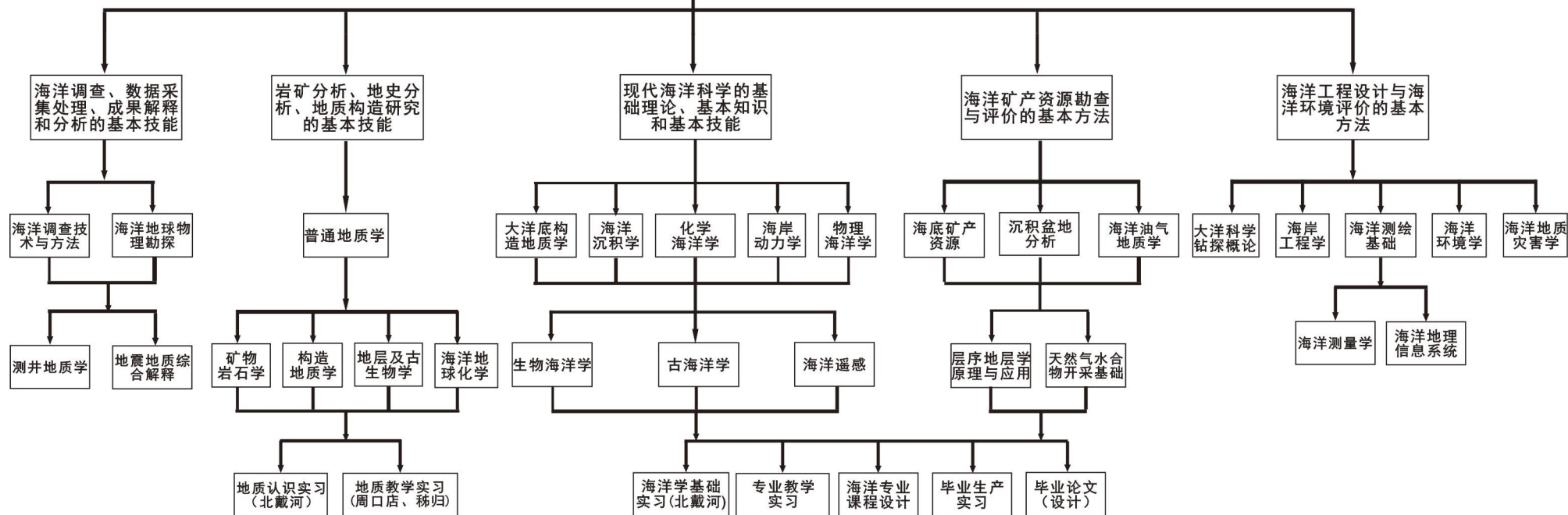
学制与学位：四年，理学学士。

本专业学生可以辅修的其他专业：资源勘查工程、地质学、地球化学、水文与水资源工程。

相近专业：资源勘查工程、地质学、地球化学、水文与水资源工程。

海洋科学(菁英班) 专业培养目标及定位

培养目标分解



Program for Marine Science (Elite class)

Specialty and Code: Marine Science (Elite class) 070701

Education Objective:

1. To cultivate students who should love motherland, abide disciplines and laws and obtain the professional ethics of arduous working and serve for the society.
2. To cultivate students who are required to master the basic theories, elemental knowledge and fundamental skills for marine science and related discipline, better scientific thoughts, accomplishments as well as innovative consciousness.
3. To cultivate students who are required to master international perspective, correct outlook on oceanography and the initial ability for scientific research, education and management on marine science.
4. The students will also be qualified to ready for the possible postgraduate study, or become high-level professionals in marine science and related fields engaged in basic research, technological development and technical management.

Graduation Requirements:

1. Having good humanities accomplishment and noble moral character, as well as professional ethics and standards for this discipline.
2. Having firm grasp on natural science (math, physics, chemistry, etc.) basics and being familiar with foreign language and computer application skills.
3. Mastery of Basic theories, skills and work methods of modern marine science, especially marine geology and marine mineral resources.
4. Mastery of Basic abilities and methods to perform marine survey, data collection and procession, interpretation and synthetically analysis of the information and data.
5. Mastery of Basic technologies and methods to identify rock, minerals and fossils as well as geohistory analysis and structural study.
6. Mastery of Basic methods to explore marine mineral resources and to investigate marine geology.
7. Mastery of Preliminary abilities for marine engineering design and marine environment evaluation.
8. Mastery of Preliminary capabilities of inquiring, gathering, organizing, and comprehensive analyzing data, cultivating teamwork spirit, as well as the abilities for writing profession scientific paper, independent study and adapting development.

Graduation requirements and ways to achieve:

Number	Graduation Requirements	Realization Approach (Teaching Process)
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Number	Graduation Requirements	Realization Approach (Teaching Process)
1	Having good humanities accomplishment and noble moral character, as well as professional ethics and standards for this discipline	①Classroom Teaching: Basic Principles Of Marxism, Introduction To Mao Zedong Thought And Theoretical System Of Socialism With Chinese Characteristics, The Course Of Modern And Contemporary Chinese History, Ideological And Moral Cultivation And Basic Law Education, Physical Culture, Military Theory, Introduction to Marine Science. ② Out-of-class Learning: Promote the educational activities such as “University Student Youth Culture And Art Festival” and “Introducing Classic Art In Campus”, develop sports meeting, carry out enrollment education for freshman and graduate education series, develop activities like university students summer social practice, strengthen team construction of academic affairs instructor and counselor as well as student cadres, improve the education and guidance to students.
2	Having firm grasp on natural science (math, physics, chemistry, etc.) basics and being familiar with foreign language and computer application skills.	①Classroom Teaching: College English, Python Programming Language, College Chemistry C, Advanced Mathematics B, Linear Algebra B, Probability Theory and Mathematical Statistics B, College Physics B, Physics Experiment A. ② Out-of-class Learning: Conduct “Challenge Cup”, English competition, math competition and modeling contest every year.
3	Mastery of Basic theories, skills and work methods of modern marine science, especially marine geology, marine chemistry and Physical Oceanography.	①Classroom Teaching: Basic Oceanography, Ocean Floor Tectonics, Marine Sedimentology, Chemical Oceanography, Coastal Dynamics, Paleoceanography, Submarine Geohazards, Physical Oceanography, Biological Oceanography. ② Out-of-class Learning: Guide students to participate in National Undergraduate Marine Knowledge Competition and World Oceans Day.
4	Mastery of Basic abilities and methods to perform marine survey, data collection and procession, interpretation and synthetically analysis of the information and data.	① Classroom Teaching: Technology and Method of Marine survey, Logging Geology, Marine Geophysical Exploration, Marine Seismic-geology Integrated Interpretation, Ocean Remote Sensing, etc. ② Out-of-class Learning: Guide students to take

Number	Graduation Requirements	Realization Approach (Teaching Process)
		part in activities such as ocean scientific expedition.
5	Mastery of Basic technologies and methods to identify rock, minerals and fossils as well as geohistory analysis and structural study.	①Classroom Teaching: Physical Geology, Mineral Petrology, Stratigraphy and Paleontology, Structural Geology, Ocean Floor Tectonics. ② Out-of-class Learning: Conduct geoscience knowledge contest “Looking For Li Siguang”, analog international academic conference panels contest, rocks and minerals comprehensive identification competition and advanced field geological line competition.
6	Mastery of Basic methods to explore and evaluate marine mineral resources.	①Classroom Teaching: Submarine Mineral Resources, Marine Oil & Gas Geology, Analysis of Sedimentary Basin, Principle and Application of Sequence Stratigraphy, Fundamentals of Natural Gas Hydrate Exploitation. ② Out-of-class Learning: Guide students to take part in undergraduate scientific research projects and scientific papers report.
7	Mastery of Preliminary abilities for Marine chemistry, Biological Oceanography, physical ocean and Marine environment assessment.	①Classroom Teaching: Chemical Oceanography, Physical Oceanography, Biological Oceanography, Oceanic Science Drilling, Marine Environment Science, Basic Marine Surveying, Marine Surveying, Coastal Engineering. ② Out-of-class Learning: Guide students to take part in ocean scientific expedition, environmental survey and marine surveying.
8	Mastery of Preliminary capabilities of inquiring, gathering, organizing, and comprehensive analyzing data, cultivating teamwork spirit, as well as the abilities for writing profession scientific paper, independent study and adapting development.	①Practical Teaching: Basic Marine Surveying Practice, Basic Oceanography Training, Geological Mapping Field Training, Synthetic Field Training, Marine Science Curriculum Design, Graduation Production Practice, Graduation thesis (project), etc. ② Out-of-class Learning: Seminar, Course paper report, Colloquium, Literature searching for paper reports.

Major Disciplines: Marine science

Main Courses: Basic Oceanography; Ocean Floor Tectonics; Marine Sedimentology; Chemical Oceanography; Coastal Dynamics; Submarine Mineral Resources; Technology and

Method of Marine Survey; Marine Geophysical Exploration; Sedimentary Basin Analysis, Marine Oil & Gas Geology; Physical Oceanography; Biological Oceanography.

Lab Experiments: Identification of Mineral, Rock, and Fossil; Course Design for Principle and application of Sequence Stratigraphy; Marine Geophysical Exploration Practice; Course Design for Marine Seismic-geology Integrated Interpretation; Well logging Data Synthesis Interpretation Curriculum Design; Marine Geological Mapping and Synthetic Analysis; Marine Geochemical Experiments; Marine Engineering Design and Marine Environment Evaluation.

Practical Work: To meet the requirements of training objective and standard, we set up the practical teaching link that aims at improving the practical ability, skills and comprehensive quality of students, including Computer Programming; Basic Marine Surveying Practice; Basic Oceanography Training; Geological Mapping Field Training; Marine Science Curriculum Design; Graduate Professional Practice; Thesis Writing or Design.

Requirements for Graduation Credits: No less than 170 credits

Duration & Degree Granted: Four years, Bachelor of Science

Recommended minor: Resource Exploration Techniques and Engineering; Geology; Geochemistry; Hydrological and Water Resources Engineering.

Related Specialties: Resource Exploration Techniques and Engineering; Geology; Geochemistry; Hydrological and Water Resources Engineering.

海洋科学（菁英班）专业课程教学计划表

Course Descriptions of Marine Science (Elite Class)

课程类别 Classification		课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
						课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
						讲课 Lec	课内实验 Lab.	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
通识教育课 Liberal Education Courses	必修 Compulsory	12007800	马克思主义基本原理 Principles of Marxism	3	48	48							3						
		12008100	毛泽东思想与中国特色社会主义理论体系概论 Introduction to Mao Tse-tung Thought and the Theoretical System of Socialism with Chinese Characteristics	2	32	32								2					
		12008000	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3	48	48								3					
		11711800	中国近现代史纲要 The Essentials of Modern Chinese History	2	32	32							2						
		12007900	思想道德与法治 Ideological morality and rule of law	3	48	32	16					3							
		12005300	形势与政策 Situation and Policy	2	32	32					每学期平均分配								
		11307610-40	体育 Physical Education	4	144	144						1	1	1	1				
		10923410-30	大学英语 College English	9	144	144				48		3	3	3					
		14300300	军事理论 Military Theory	2	36	36						2							
	选修 Elective	12008200	劳动教育 Labor Education	1	16	16						1							
		70400600	生态学概论 Introduction to Ecology	1.5	24	24							1.5						
		包括美育课程(不少于2学分)总计10.5学分, 跨学科选修课不低于4学分		10.5	168	168													
		小计 Sum		43	772	756	16			48		10	10.5	9	1				
平台课 Platform Courses	大类平台课	20215600	海洋科学导论 Introduction to Marine Science	1	16	16						1							
		20119600	普通地质学 Physical Geology	2.5	40	40		8				2.5							

课程类别 Classification	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲课 Lec	课内实验 Lab.	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
	21947400	Python 语言程序设计 Python Language Programming	2.5	40	40		16							2.5				
	21212712-22	高等数学 B Advanced Mathematics B	10	160	160						4	6						
	21212802	线性代数 B Linear Algebra B	2.5	40	40								2.5					
	21213502	概率论与数理统计 B Probability and Mathematics Statistics B	2.5	40	40									2.5				
	21213012-22	大学物理学 B2 College Physics B2	7	112	112							3.5	3.5					
	21216921	物理实验 A2 Physics Experiments A2	2	64	4	60						1	1					
	20202800	海洋学基础 Basic Oceanography	3	48	44	4						3						
	22409300	海洋测绘基础 Basic Marine Surveying	2	32	32		8				2							
	小计 Sum		35	592	528	64	32				9.5	13.5	9.5	2.5				
Disciplinary Fundamental Courses 学科基础课	20326903	大学化学 C College Chemistry C	3	48	48									3				
	20327003	大学化学实验 C College Chemistry Experiments C	1	24		24								1				
	20123402	构造地质学 B Structural Geology B	2	32	24	8	8	4	4					2				
	20113100	矿物岩石学 A Mineral petrology A	3	48	10	38								3				
	20125900	地层及古生物学 Stratigraphy and Paleontology	2	32	32		16							2				
	小计 Sum		11	184	114	70	24	4	4					11				
Main Specialty Courses 专业主干课	22406700	海洋调查技术与方法 Technology and Methods of Marine Survey	2	32	32		16								2			
	22403500	海岸动力学 Coastal Dynamics	2	32	32		16								2			
	22403600	海洋地球化学 Marine Geochemistry	2	32	32		16									2		
	22406800	海洋沉积学* Marine Sedimentology	2	32	32		16			矿物岩石学					2			
	22403300	大洋底构造地质学 Ocean Floor Tectonics	2	32	32		16			构造地质学					2			
	22407900	海洋地球物理勘探 Marine Geophysical Exploration	2	32	32											2		
	22403700	海底矿产资源 Submarine Mineral Resources	2	32	32		8	8								2		
	22407200	海洋油气地质学 Marine Oil & Gas Geology	2	32	32		16									2		

课程类别 Classification	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲课 Lec	课内实验 Lab.	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
	20227400	沉积盆地分析 Analysis of Sedimentary Basin	2	32	32		16								2			
	22406900	物理海洋学 Physical Oceanography	2	32	32									2				
	22406600	化学海洋学 Chemical Oceanography	2	32	32								2					
	22406500	生物海洋学 Biological Oceanography	2	32	32							2						
	小计 Sum		24	384	384		120	8					2	2	12	8		
专业选修课 Specialty Elective Courses		具体见专业选修课列表，可开设专业选修课共 13 门，学分合计 20.5 个，要求学生专业选修课学分不少于 8.5 个。	8.5	136														
合计 Sub-total			121.5	2068	1782	150	176	12	52		19.5	24	20.5	16.5	12	8		
实践环节 Practical Work	42008300	劳动教育 Labor practice	1	4 周											1			
	44300400	军事训练 Military Training	2	2 周							2							
	41947500	Python 语言课程设计 Course Design for C Language	1.5	1.5 周									1.5					
	42400600	海洋测绘基础实习 Basic Marine Surveying Practice	1	1 周							1							
	40115200	地质认识实习（北戴河） Primary Field Training (Beidaihe)	2	2 周								2						
	40215800	海洋学基础实习（北戴河） Basic Oceanography Training	1	1 周								1						
	40115602	地质教学实习（周口店） Geological Field Training	4	4 周										4				
	40115702	地质教学实习（秭归） Geological Field Training	2	2 周										2				
	4240700	沉积盆地分析与层序地层学课程设计 Course Design for Sedimentary Basin Analysis and Sequence Stratigraphy	3	3 周											3			
	42404100	专业教学实习 Professional Field Training	2	2 周												2		
	42408000	海洋地球物理勘探实习 Marine Geophysical Exploration Practice	1.5	1.5 周												1.5		
	42408100	地震-测井资料地质综合解释课程设计 Course Design for Integrated Interpretation of Seismic, Logging and Geological Data	2	2 周												2		

课程类别 Classification	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲课 Lec	课内实验 Lab.	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
	40219600	海洋分析测试课程设计 Marine Analysis and Testing Curriculum Design	2.5	2.5周														2.5
	42404200	毕业生产实习 Graduate Profession Practice	8	8周													8	
	42404300	毕业论文（设计） Graduate thesis (project)	10	10周														10
	小计 Sum		43.5	43.5周							3	3	1.5	6	3	6.5	8	12.5
创新创业自主学习 Freedom study	ZZ35000S	社会调查 Social Investigation	2															
		其他(含创新创业课程、学科竞赛、发明创造、科研报告) Others (Start-up, Contest, Invention, Innovation and Research Presentation)	3															
	小计 Sum		5															
总计 Total			170	2068+43.5周	1782	150	176	12	52		22.5	27	23	22.5	15	13.5	8	12.5
可开出专业选修课列表 Specialty Elective Courses	22407100	层序地层学原理与应用 Principle and Application of Sequence Stratigraphy	2	32	32		16							2				
	22404400	测井地质学 Well Logging Geology	1.5	24	24		8									1.5		
	22408200	海洋地震地质学 Marine seismic geology	1.5	24	24		8									1.5		
	22404500	海洋环境学 Science of Marine Environment	1.5	24	24		8									1.5		
	22407300	大洋科学钻探概论 Oceanic Science Drilling	1.5	24	24		8									1.5		
	21105100	海洋遥感 Ocean Remote Sensing	2.0	32	32											1.5		
	22404800	古海洋学 Paleoceanography	1.5	24	24		8									1.5		
	22407400	海洋测量学 Marine Surveying	2	32	32		8									2		
	22401500	海岸工程学 Coastal Engineering	2	32	32											2		
	22407500	天然气水合物开采基础* Fundamentals of Natural Gas Hydrate Exploitation	1	16	16		4	4								1		
	22407600	海洋地质灾害学 Submarine geohazards	1.5	24	24											1.5		

课程 类别 Classi- fication	课程 编号 Code	课程名称 Course Name	学 分 Crs	课 内 总 学 时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲 课 Lec	课 内 实 验 Lab.	实 验/ 科 研 实 践 Lab/Res.	研 讨 Dis	素 质 拓 展 Exp									
	22407700	海洋专业文献检索 Oceanography Information Retrieval	1	16	12	4											1	
	22407800	海洋科学专业英语* Marine Science Professional English	1.5	24	16	8											1.5	
创新创业 类课程																		

注：课程名称后打*标出的为全英课程课程，通识教育选修课学分未列入具体学期。

海洋科学（菁英班）专业课程分类统计

Course Classifications and Statistics of Marine Science (Elite class)

课程类别 统计	通识教育课程 Liberal Education Courses		大类平台课+学科基础课 Platform & Disciplinary Fundamental Courses	专业主干课 Main Specialty Courses	专业选修课 Specialty Elective Courses	实践环节 Practical Work	创新创业 自主学习 Freedom Study	学时总计 Total Hour	学分总计 Total Credits
	必修	选修							
学时/学分	580 / 31	192 / 12	776 / 46	384 / 24	136 / 8.5	43.5 周 / 43.5	5	2068+ 43.5 周	170
学分所占比 例	25.29%		27.05%	14.11%	5%	25.58%	2.94%		100%

海洋科学（菁英班）专业辅修课程教学计划表

Course Descriptions of Marine Science (Elite Class) (Minor)

课程类别 Classification	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲课 Lec.	课内实验 Lab	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
学科基础课 Fundamental Courses	20202800	海洋学基础 Basic Oceanography	3	48	44	4										3		
	小计 Sum		3	48	44	4										3		
专业主干课 Main Specialty Courses	22406700	海洋调查技术与方法 Technology and Methods of Marine Survey	2	32	32		16										2	
	22403500	海岸动力学 Coastal Dynamics	2	32	32		16										2	
	22403600	海洋地球化学 Marine Geochemistry	2	32	32		16									2		
	22403200	海洋沉积学* Marine Sedimentology	2	32	32		16							2				
	22403300	大洋底构造地质学 Ocean Floor Tectonics	2	32	32		16							2				
	22407900	海洋地球物理勘探 Marine Geophysical Exploration	2	32	32		32										2	
	22403700	海底矿产资源 Submarine Mineral Resources	2	32	32		8	8								2		
	22406500	生物海洋学 Biological Oceanography	2	32	32										2			
	20227400	沉积盆地分析 Analysis of Sedimentary Basin	2	32	32		16											2
	22406900	物理海洋学 Physical Oceanography	2	32	32													2
	小计 Sum		20	320	320		136	8							6	4	8	2
实践环节 Practical Work																		
	小计 Sum																	
总计 Total			23	368	364	4	136	8							6	7	8	2

海洋科学（菁英班）专业辅修课程分类统计

课程类别 统计	学科基础课 Disciplinary Fundamental Courses	专业主干课 Main Specialty Courses	实践环节 Practical Work	学时总计 Total Hour	学分总计 Total Credits
学时/学分	48 / 3	320/ 20		368	23
学分所占比例	13.04%	86.96%			100%