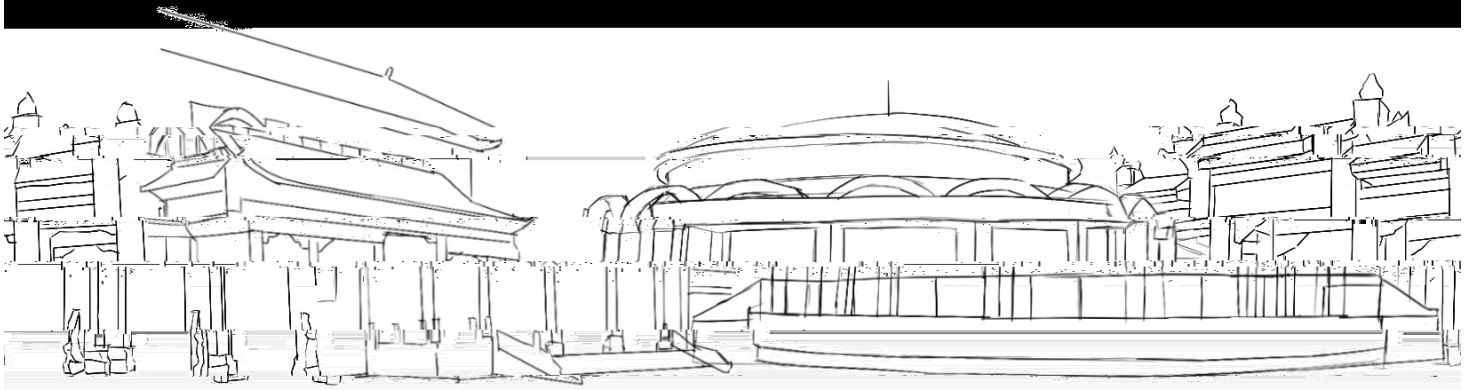
本科课程
人才培养大纲



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Introduction to Marine Science

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Biological statistics and Experimental Design

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[redacted]王勐雯

Marine Microbiology

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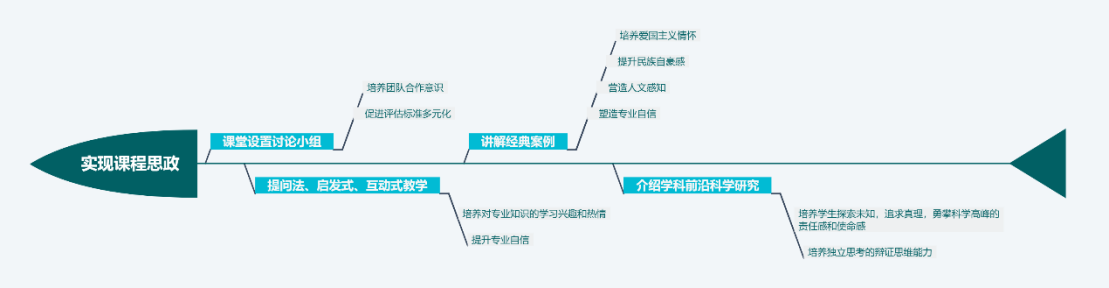
实现课程思政
课堂设置讨论小组
培养团队合作意识
促进评估标准多元化
讲解经典案例
培养爱国主义情怀
提升民族自豪感
营造人文感知
塑造专业自信
提问法、启发式、互动式教学
培养对专业知识的学习兴趣和热情
提升专业自信
介绍学科前沿科学研究
培养学生探索未知，追求真理，勇攀科学高峰的责任感和使命感
培养独立思考的辩证思维能力

PBL

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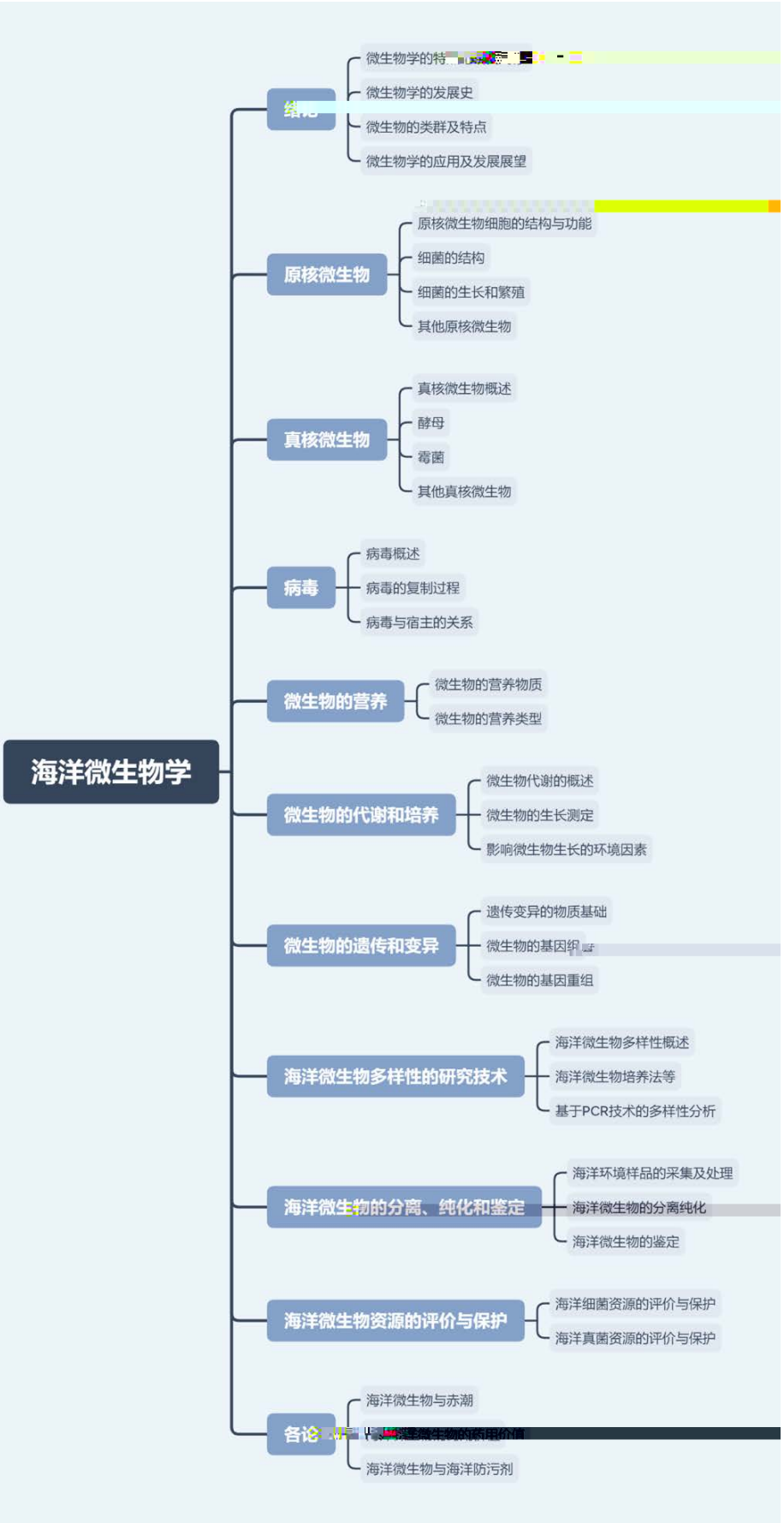
海洋微生物学
绪论
微生物学的特
微生物学的发展史
微生物的类群及特点
微生物学的应用及发展展望
原核微生物
原核微生物细胞的结构与功能
细菌的结构
细菌的生长和繁殖
其他原核微生物
真核微生物
真核微生物概述
酵母
霉菌
其他真核微生物
病毒
病毒概述
病毒的复制过程
病毒与宿主的关系
微生物的营养
微生物的营养物质
微生物的营养类型
微生物的代谢和培养
微生物代谢的概述
微生物的生长测定
影响微生物生长的环境因素
微生物的遗传和变异
遗传变异的物质基础
微生物的基因组
微生物的基因重组
海洋微生物多样性的研究技术
海洋微生物多样性概述
海洋微生物培养法等
基于PCR技术的多样性分析
海洋微生物的分离、纯化和鉴定
海洋环境样品的采集及处理
海洋微生物的分离纯化
海洋微生物的鉴定
海洋微生物资源的评价与保护
海洋细菌资源的评价与保护
海洋真菌资源的评价与保护
各论
海洋微生物与赤潮
海洋微生物与海洋防污剂

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1. 50%

1		3	10%
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3		5	10%

2. 60% **50%**

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Marine Planktology

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1. **50 %**

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2. **50 %**

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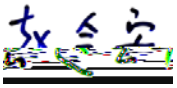

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Marine Environmental Chemistry

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1. **40%**

1		5~6	20%
2		1~2	10%
3		1~2	10%

2. **60%**

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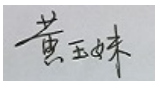

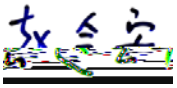

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1. **40%**

1			5%
2		3-4	20%
3		3-4	15%

2. **60 %**

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Evaluation of Marine Biological Resources

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3		 5	15%

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Marine Ecology

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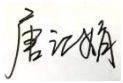

Marine Environmental Monitoring and Assessment

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1. **50 %**

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2		30	20

2. **50 %**

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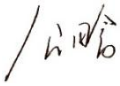

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(Omics) (Genomics) (Proteomics)
(Metabolomics) (transcriptomics) (lipidomics) (Immunomics)
(glycomics) RNA (RNomics) (Radiomics) (Ultrasomics)
Omics '-ome'
Genome( ) (Genomics)

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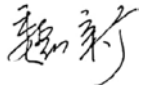

Marine Biotechnology

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1. **40 %**

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2			25%
3			5%

2. **60%**

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Theory and Technology of Marine Specics Germplasm Preservation

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1. **50%**

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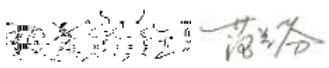

Diving Theory and Underwater Observation Technology

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1. **60 %**

1			10%
2		3	10%
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2. **40 %**

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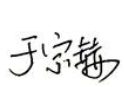

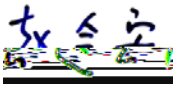

Ocean Ranching

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1		5 100 20%	10%
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2. **50 %**

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Marine Geology

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1. **50 %**

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2. **50 %**

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Physical Oceanology

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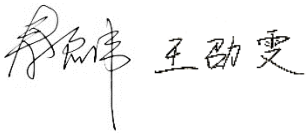
1. **50%**

1			20%
2			15%

2 Regional Oceanography: An Introduction. by Matthias Tomczak and Stuart Godfrey.



Cultivation and Utilization of Marine Fish Resources

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1. **40 %**

1		5	10%
2		1	30%

2. **60 %**

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5 5.1 5.2 5.3 5.4	2		
6 6.1 6.2 6.3 6.4 6.5 6.6	4		

1. **50 %**

1		3	50%

2. **50 %**

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1. **60 %**

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Marine Bioenergy

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Marine phycology

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1. **50%**

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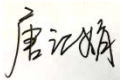

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2. **50 %**

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1 Richard B.Primack 2014

2 2012

3 2011

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Conservation Biology Consvation Letters Biological Conservation Oryx Bird Conservation International Nature Science

2 IUCN (www.iucn.org) World Conservation Monitoring Center(www.wcmc.org.uk) World Wide Fund for Nature (www.wwfchina.org) www.brim.ac.cn

Genetics

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Genetics

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DNA

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2		4	10%
3			15%

2. 60 %

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5 P.C.Winter, G.I.Hickey, H.L.Fletcher.Genetics, BIOS Scientific Publishers Limited 1998

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Marine pharmacology

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Molecular Biology

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3			30%
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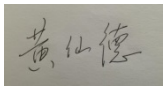

Marine Virology

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1. **50 %**

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2		2	20%
3		1	20%

2. **50 %**

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1 2008

2 Marine Viruses 2016 Mathias Middelboe and Corina P.D. Brussaard (Eds.)

Marine aquarium science

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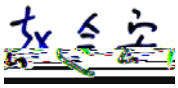 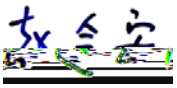

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6.1 Fish fungal diseases 6.2 Fish oomycete diseases 6.3 Prevention and control of fungal and oomycete diseases in fish			
7 The nutritional pathology of teleosts	2		
8 Fish disease prevention and control	6		
9 Presentations by students	2		

1. **60%**

1		16	50%
2		2	10%

2. **40%**

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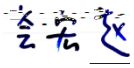

Marine Medicinal Biology

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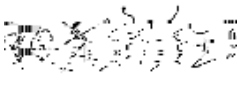

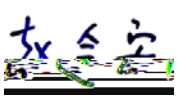

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1. **50 %**

1		4 100 25%	10%
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General Zoology

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1. **50%**

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Aquatic Animal Physiology

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1. **40 %**

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Cell Biology

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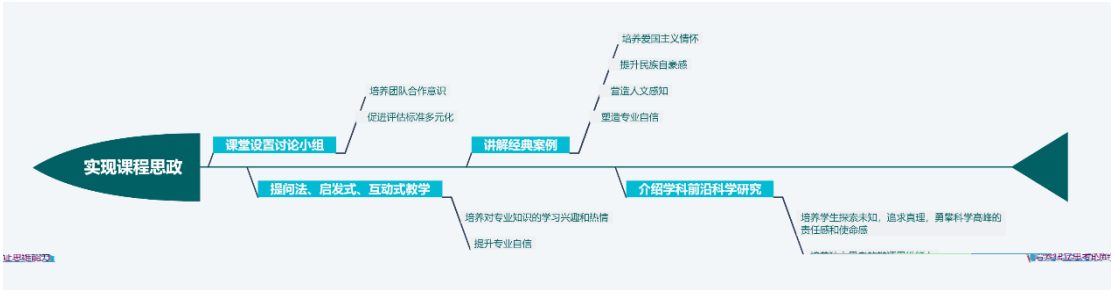

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1. **60%**

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3		5	10%
4			10%

2. **40%**

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Aquatic Animal Histoembryology

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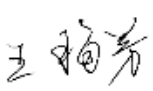

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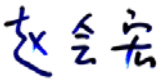
胡伟慧 

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2. 60% **50 %**

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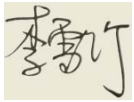

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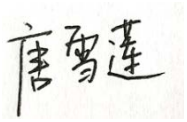

Marine Ecological Experiment

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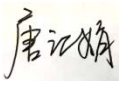

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1. **50%**

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2		1	20%
3		1	20%

2. 60% **50%**

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Marine benthos Experiment

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Marine Planktology Experiment

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1. **50 %**

1		4	50 50%
2		4	50 50%

2. 60% **50 %**

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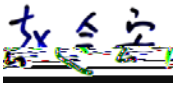

Marine Environmental Chemistry Experiments

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Virtual Simulation Experiment of Marine Bio-resources and Ecology Survey

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