



university of  
 groningen

# Program Master Marine Biology

The new **NIOZ-Rug Marine Biology Master** is taught by several research groups in Marine Biology at the University of Groningen in co-operation with the Royal Netherlands Institute for Sea Research (Texel, Yerseke)

The Marine Biology Master deals with the adaptation of marine systems and organisms to a changing world through the lens of ecology, ecophysiology and evolution. Also Marine Resource utilization is included in the curriculum.

## **We focus on Biology!**

- We are good at: conservation of marine mammals, biomimics, polar ecosystems, coastal food webs, the Wadden Sea
- We work with fish, seagrass, algae, whales, seals and schooling fish.

The **NIOZ-Rug Marine Biology Master is open for everybody** with an academic Bachelor's degree in any field of biological sciences

We provide an initial block of exclusive and compulsory master courses dealing with the principles of Marine Biology. This block is followed by a more specialized set of facultative Marine Biology modules.

**Business or Research profile:** You can design your own study program to fit your personal preferences. We offer both a Research profile that offer all the tools you need for research and a Science, Business and Policy profile that focus the second year on an internship and training for the private market (see Biology Master Study guide).



# Structure of the research profile

**The program runs for 2 years and includes 120 credit points (ECTS). About half is spent on research, and the other half on assignments and courses.**

## **Program**

- **9 weeks block of introductory “Principles” courses (15 ECTS)**
- **Master research project 1 (30-40 ECTS) (“in-house”)**
- **Master research project 2 (30 ECTS) (“external”)**
- **Oral presentation about scientific question (5 ECTS)**
- **Review paper on scientific question (5 ECTS)**
- **25 ECTS can be spent freely on optional courses and research assignments.**



# Master Marine Biology: course program

Autumn semester					
<b>The autumn starts with three core courses that are <u>compulsory</u> exclusive for marine biologists</b>			<b>Followed by more specialized set of optional Marine Biology modules</b>		
<i>Week 1-9: (start first Monday in September)</i>			<i>Week 11-19</i>		
1. (3 weeks)	2. (3 weeks)	3. (3 weeks)	4. (3 weeks)	5. (3 weeks)	6. (3 weeks)
5 ECTS	5 ECTS	5 ECTS	5 ECTS	5 ECTS	5 ECTS
<b>1. Principles of Biological Oceanography</b> <i>Anita Buma, Klaas Timmermans, Eize Stamhuis</i>			<b>4. Evolutionary Ecology of Marine Organisms: Concepts and Case Studies</b> <i>P. Luttikhuizen, D. Thieltges, J. van Gils</i>		
<b>2. Principles of Marine Biology</b> <i>Britas Klemens Eriksson, David Thieltges, Chris Smit, JL Olsen</i>			<b>5. Marine Ecosystem Services and Global change</b> <i>Klaas Timmermans, Tjeerd Bouma, Dick van Oevelen</i>		
<b>3. Principles of Marine Conservation</b> <i>PJ Palsbol, Michael Fontaine, JL Olsen</i>			<b>6. Practical Bioinformatics for Biologists</b> <i>Michael Fontaine</i>		



# Master Marine Biology: course program

Spring semester					
<p><b>In spring – there are a number of specialized optional Marine Biology modules dealing both with methods and systems. The methods courses in population genetics and modelling are to strengthen your capacity to do research</b></p>					
Week 21-29:			Week 31-39:		
7. (3 weeks)	8. (3 weeks)	9. (3 weeks)	10. (3 weeks)	11. (6 weeks)	
5 ECTS	5 ECTS	5 ECTS	5 ECTS	5 ECTS	5 ECTS
<p><b>7a. A Primer in Population Genetic Modeling</b> // alternating with  <b>7b. Analyses of Genetic Data in Behaviour, Ecology and Conservation</b>  <i>PJ Palsbol</i>  <b>8a. Numerical Modeling for Marine Biologists</b>  <i>Johan van de Koppel, Michael Fontaine, Charlotte Hemelrijk</i>  <b>8b. Polar Ecosystems</b>  <i>Anita Buma, W.H. van de Poll, M.J.J.E.Loonen, Per Palsboll, A. Huiskes</i></p>			<p><b>10a. Meta analyses in Ecology</b>  <i>Britas Klemens Eriksson, Helmut Hillebrand</i>            Joint course with University of Oldenburg  <b>10b. Mediterranean Rocky Shores (10 ECTS)</b>  <i>E. Stamhuis</i>            Alternating every second year</p>		



# Master Research opportunities

**There are plenty of opportunities no matter if you are choose the Marine Biology Research profile or the Science, Business and Policy profile (P- or M-variant). Possible Marine Biology research opportunities are:**

- **Climate change research on pelagic food webs (Polar and North Sea research)**
- **Conservation of marine vertebrates (global issues for marine mammals and other top predators as well as marine conservation more generally)**
- **The function of coastal food webs (Wadden Sea and Baltic Sea research).**
- **Marine applications (biomimetics, algal applications)**



university of  
 groningen

## Specific Admission Requirements

**An academic Bachelor's degree in any field of biological sciences\*. This includes, but is not restricted to, ecology, evolution, physiology, genetics, molecular biology, microbiology, theoretical biology and behavior.**

**Students entering with no specific marine biological background will have the opportunity to follow a set of core courses.**

**The new MSc program is research focused. Although there are no official requirements with respect to grades, candidates are encouraged to have a strong quantitative background in, e.g., analytical statistics, data processing, programming, or other hard skills.**