



Helmholtz Graduate School  
for Polar and Marine Research

Course announcement:  
POLMAR General Course

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## Introductory Course in Marine Sciences Part II: Biogeochemical oceanography and climate - A joint POLMAR / GLOMAR course -

*Prof. J. Bijma, Dr. C. Hanfland & AWI colleagues*

<b>Date &amp; Time:</b>	July 14 – 17, 2014 9 am – 5 pm (+ evening events)
<b>Location:</b>	AWI Building E-4025
<b>Language:</b>	English
<b>POLMAR credit points:</b>	5 (incl. student presentation)
<b>Registration:</b>	<a href="mailto:info.polmar@awi.de">info.polmar@awi.de</a>

### Course content:

The aim of the course is to introduce students to the main fields of marine biogeochemistry and climate, notably chemical oceanography, biological oceanography, marine biogeosciences as related to the carbon cycle, and climate research. Participants get to know key research areas of the AWI. The programme is multidisciplinary, i.e. all disciplines will be discussed as components of an integrated system. Evening events complement the programme and students present and discuss their own field of research in relation to global change.

This course is complemented by the “Introductory Course in Marine Sciences Part I” organised at the University of Bremen (MARUM) which is scheduled for autumn 2014.

### Topics covered include:

- Chemical properties of seawater and ocean carbonate chemistry (alkalinity, lysocline dynamics, etc.)
- The marine carbon cycle and the biological pump
- Biology of polar oceans, foodweb ecology, impact of global change
- Climate variability and climate change
- ***Including a visit of AWI Ice laboratory and cinema evening!***

### Target group:

We recommend participation in this course to all PhD students in marine sciences. Ideally, you take this course at the beginning of your PhD. Master students and young postdocs who have a general interest in the topic of marine biogeosciences are equally welcome.

### Students' comments on this course:

- *Thank you for this interesting introduction!*
- *Very informative and entertaining*
- *The course was a good challenge to learn more*
- *It was great to hear all this “cool” stuff*
- *Nearly all the talks were very interesting and informative.*

**More information:** [Claudia.Hanfland@awi.de](mailto:Claudia.Hanfland@awi.de)

<b>Introductory Course in Marine Sciences: Biogeochemical oceanography and climate</b>		
<b>14.07.14</b>	<b>MONDAY</b>	<b>lecturer</b>
<b>Introduction, Overview &amp; Chemical Oceanography</b>		
9 - 9:30	Welcome & Introduction to student homework	POLMAR Team
9:30 - 10:30	Intro Talk AWI & Chemical Oceanography	Dr. Claudia Hanfland
<b>coffee break</b>		
11 - 12:30	The Earth climate system and its components	Dr. Martin Werner
<b>LUNCH</b>		
13:30 - 15:00	The Global Carbon Cycle	Prof. Dr. Boris Koch
<b>coffee break</b>		
15:30 - 17:00	The Marine Carbonate System	Prof. Dr. Dieter-Wolf Gladrow
<b>DINNER</b>		
19:00	AWI Image Trailer & Climate Change video evening	Dr. Klaus Grosfeld
<b>15.07.14 TUESDAY</b>		
<b>Biology</b>		
9 - 10:30	Plankton communities in the polar oceans	Dr. Christine Klaas
<b>coffee break</b>		
11 - 12:30	Icy hollows: Under-ice creatures in the Arctic and Antarctic Oceans	Dr. Hauke Flores
<b>LUNCH</b>		
13:30 - 15:00	Introduction to ecophysiology: the impact of global change	Prof. Dr. Hans-Otto Pörtner
<b>coffee break</b>		
15:30 - 17:00	The Big picture: Linking ecology and biogeochemistry of the oceans	Prof. Dr. Victor Smetacek
<b>16.07.14 WEDNESDAY</b>		
<b>Climate &amp; Ice</b>		
9 - 10:30	Modelling ice dynamics - how ice sheets, streams and glaciers flow	NN
<b>coffee break</b>		
11 - 12:30	Ice in the climate system	Prof. Dr. F. Wilhelms
<b>LUNCH</b>		
13:30 - 15:00	Paleoclimate dynamics-identifying driving mechanisms of climate change	Prof. Dr. Gerrit Lohmann
<b>transfer to building D</b>		
15:30	Visit of AWI Eislabor	Dr. Sepp Kipfstuhl Dr. Johannes Freitag
17 - 18:00	student presentations part I	
19:00	<b>DINNER in town</b>	
<b>17.07.14 THURSDAY</b>		
9 - 10:30	Ocean Acidification: the ugly side of global warming	Prof. Dr. Jelle Bijma
<b>coffee break</b>		
11 - 12:30	Communicating my science to the media	Sina Löschke
<b>LUNCH</b>		
13:30 - 16:00	student presentations part II	POLMAR Team
16:00	farewell	

Participants will be asked to prepare a short presentation on their Master or PhD project and show the connection to global change. Presentations will be discussed at the end of the course.

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*Our courses are generally free of charge for all participants. However, they do have a price and can cost as much as 150 € per day per student. Please take this into account when cancelling your place on the last minute.*

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