



GÖTEBORGS UNIVERSITET

## International PhD-student course in

### Scientific Diving and Documentation techniques, 4 credits

Course period: Aug 22 <sup>nd</sup> -Sept 2 <sup>nd</sup> , 2016 (Arrival Aug 21 <sup>st</sup> )	Last day for application:
Main location of the course: The Lovén Centre – Kristineberg, Fiskebäckskil	July 10 <sup>th</sup> , 2016
Course leader/Address for applications: Maria Asplund / <a href="mailto:maria.asplund@gu.se">maria.asplund@gu.se</a>	
Course description (Advertisement for Ph.D. students): <p>Scientific diving (SD) is an important tool for marine researchers to visit, document and perform empirical studies in the environment that they work with. Many terrestrial sciences have a great advantage compared to marine sciences in that natural phenomena can be observed first hand. This alone can create a greater understanding of the environment that is studied. Referring to the European Scientific dive panel, SD is defined as “diving that is science-led and is needed to support professional research and education and for the protection, conservation and monitoring of the natural and cultural environment”.</p> <p><b>Aim:</b> To give you important tools about using SD documentation techniques when illustrating your research and conducting empirical studies in the marine environment using SD techniques. Several of the skills provided during the course are required for the European Scientific Diver (ESD) certification. Documentation after this course can then be used if you apply for the ESD certificate.</p> <p>The course will be conducted as a 12 day intensive course at the marine field station Kristineberg, Sven Lovén Centre for Marine Infrastructure (for more info: <a href="http://www.loven.gu.se">www.loven.gu.se</a>) in Fiskebäckskil, Sweden. The course will comprise a few introductory lectures but will mainly focus on practical hands-on sessions using scientific diving documentations techniques and learning how to conduct safe practice scientific diving.</p>	



## GÖTEBORGS UNIVERSITET

Responsible department and other participating departments/organisations:

Department of Marine Sciences and The Lovén Centre Kristineberg

Teachers:

Maria Asplund [maria.asplund@gu.se](mailto:maria.asplund@gu.se) (Course leader and main contact)

Lars-Ove Loo

Eduardo Infantes

Anders Salesjö

Helén Nilsson Sköld

Matz Berggren

Martin Gullström

Jon Havenhand

Leon Green Ekelin

Linus Hammar

Examiner: Henrik Pavia

Faculty of Science  
Department of Marine Sciences  
and the Lovén Centre Kristineberg

**International PhD-student course in  
Scientific Diving and Documentation  
techniques, 4 credits**

*Third cycle education*

---

### 1. Confirmation

The syllabus was confirmed by the Head of the Department of Marine Sciences 2016-06-09.  
The course plan is valid from 2016-06-10.

Disciplinary domain: Marine Sciences

Department in charge: Department of Marine Sciences and The Lovén Centre, Kristineberg

Main field of study: Marine Sciences



## GÖTEBORGS UNIVERSITET

### 2. Position in the educational system

Elective course; third-cycle education.

### 3. Entry requirements

*The following should be provided in the application and sent to [maria.asplund@gu.se](mailto:maria.asplund@gu.se) :*

- Admitted to third cycle education, graduate students.
- A short abstract (max 200 words) describing the applicants research and how the applicant can foresee the usage of scientific diving documentation techniques within their research (if applicable), should be sent in with the application to the course.
- A dive certificate; either a recreational (sports-) dive certificate corresponding to CMAS\*\* or PADI rescue diver or a professional European Scientific Diver, Swedish S30 or any other, according to IDSA level 1 standards.
- Documentation (log book) of at least 20 logged dives whereof at least 5 dives with a max depth of at least 18 m.
- Documentation of previous cold-water diving and experience of diving with dry suit.
- A medical health examination for work diving according to Swedish Work Environment Authority's provisions AFS 2006:5 or corresponding foreign health examination less than 5 years ago (if below 40 years of age) and less than 2 years ago at the time for the course.
- Documentation of conducted CPR (cardio pulmonary rescue training) within the last 3 years.

### 4. Course content

- Illustration techniques using scientific diving underwater digital photography; handling of photographic equipment, in water, optimization of lighting, macro- and wide angle photography, composition of picture, imaging in Photoshop
- Underwater digital photography for empirical studies including stereo-photography to quantify changes in the environment, quantification by visual census methods, underwater photography to study distribution and coverage and alternative methods such as sledges, drop-videos and underwater observatories



## GÖTEBORGS UNIVERSITET

- Stereo-video system techniques for quantitative analysis and behavior of mobile organisms
- Rules and regulatory frames of Scientific Diving, dive planning and risk assessment, repetition of dive medicine and rescue techniques

### 5. Outcomes

#### 1. Knowledge and understanding

After completion of the course the Ph.D. student is expected to have received tools needed to use SD methods and scientific diving documentation techniques:

- to illustrate their marine research
- to be able to conduct empirical studies in the marine environment using SD techniques

#### 2. Skills and abilities

Several of the skills provided during the course are required in the European Scientific Diver (ESD) certification, which is a mobility certificate within Europe. Therefore documentation after the course will be provided to the students, which can then be used when they apply for the ESD certificate.

#### 3. Judgement and approach

We need to foster the new generation of researchers so that they can implement scientific diving into their marine research. Further, the candidates will learn how to adapt to the new legislations and practice safe scientific diving. This course aims to be a prototype that further can be used for competence enhancement of researchers within the EMBRC or Assemble+.

### 6. Required reading

The reading list is supplied separate to the syllabus. (Where necessary, also state other types of course material.)

### 7. Assessment

Required steps in order for a student to pass the course:

1. Oral presentations of the documentation produced during the course and how the PhD students aim to apply the scientific documentation techniques in their research
2. Showed proof that they can make a dive plan and a risk assessment for scientific diving
3. Active participation during the course
4. All scheduled module during the course are mandatory obligatory attendance are required for a pass grade.



## GÖTEBORGS UNIVERSITET

### **8. Grading scale**

The grading scale comprises Fail (U), Pass (G)

### **9. Course evaluation**

Course evaluation is carried out together with the Ph.D. students at the end of the course, and is followed by an individual, anonymous survey. The results and possible changes in the course will be shared with the students who participated in the evaluation and to those who are beginning the course.

### **10. Language of instruction**

The language of instruction is English.

### **(11. Course fee)**

There is no course fee but

Accommodation at Kristineberg, exclusive of VAT is 215 SEK and inclusive of VAT is 241 SEK per night per person (double occupancy) = about 23 Euro (excl. VAT) and 25.70 Euro (incl. VAT)

For students from the University of Gothenburg the price for accommodation is about half price.

If you want food included during your stay the price is 183 SEK excluding VAT and 205 SEK including VAT for 3 meals a day (breakfast, lunch and dinner) per person per day = about 19.60 Euro (excluding VAT) and 21.90 (including VAT)



UNIVERSITY OF  
GOTHENBURG

The Lovén Centre  
and  
The Dept of Marine Sciences

# 3rd International PhD-student Course in

## *Scientific Diving and Documentation techniques (4ECT)*

Time Aug 2<sup>nd</sup> – Sept 2<sup>nd</sup>, 2016 (Friday Aug 21)

Place: The Lovén Centre Kristineberg, University of Gothenburg, Fiskebäckskil

Deadline for application: July 10, 2016



Photocredit Marcus Steneg

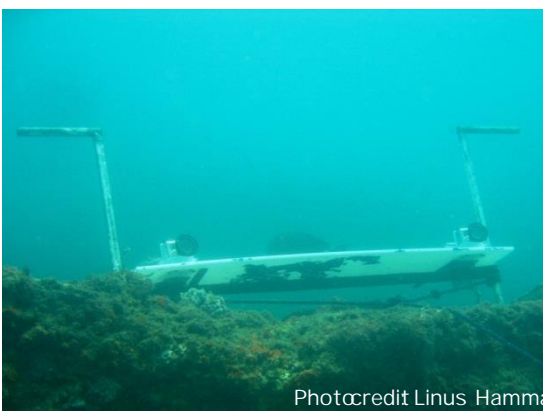
Photocredit Tom Stavely



Photocredit Maria Asplund



Photocredit LarsOve Loe



Photocredit Linus Hammar



Photocredit Linus Hammar

### Syllables:

- Illustration techniques using scientific diving underwater digital photography; handling of photographic equipment, in water, optimization of lighting, macro and wide angle photography, composition of picture, image editing in Photoshop
- Underwater digital photography for empirical studies including stereophotography to quantify changes in the environment, quantification by visual census methods, underwater photography to study distribution and coverage and alternative methods such as sledges, drop and underwater observatories
- Stereovideo system techniques for quantitative analysis and behavior of mobile organisms
- Rules and regulatory frames of Scientific Diving dive planning and risk assessment, repetition dive medicine and rescue techniques

For more information about Lovén Centre visit: [www.loven.gu.se](http://www.loven.gu.se)

Report from 2014 years course:

<http://loven.gu.se/aktuellt/nyheter/fulltext//sveitaks-for-vetenskapsdykaler-motsitt-slut.cid1231982>

Contact: [maria.asplund@gu.se](mailto:maria.asplund@gu.se)