



GÖTEBORGS UNIVERSITET
Tropical marine ecosystems of East Africa, 8 hp

Course period: 2017-01-09– 2017-01-31	Last day for application: 2016-08-26
Course leader / Address for applications: Matz Berggren / matz.berggren@marine.gu.se Susanne Eriksson/ susanne.eriksson@bioenv.gu.se	
Course description (Advertisement for Ph.D. students): This course gives an overview of tropical marine ecology through lectures, group work and practical field experience at Ilha da Inhaca, Moçambique. During the field course the participants will investigate several aquatic systems such as mangal, coral reefs, seagrass beds, mud- and sandflats and beaches. Through field investigations, group projects and discussions knowledge about taxonomy and ecology of vertebrates, invertebrates and plants, as well as human interactions and conservation issues specific to these systems in East Africa will be taught. The aim of the course is to give Swedish postgraduate students an opportunity to broaden their ecological understanding and experience as scientist by studying a tropical system in a developing country. The course will provide students with basic understanding of the dominant shallow marine ecosystems in tropical environments, and with practical experience using different research tools and methods to study these systems. It hopes to increase the interest and possibilities for young Swedish scientist to work with marine research, conservation or management in East African countries. The course is also open for relevant students from the East-African countries and thereby will the Swedish students also interact and building networks to those countries.	
Responsible department and other participation departments/organisations: Biological and environmental Sciences and Marine Sciences	
Teachers: <i>Dep. Marine Sciences, GU:</i> Dr Matz Berggren <i>Dep. Biological and Environmental Sciences, GU:</i> Assoc prof Susanne Eriksson, <i>Dep. Ecology, Environment and Plant Sciences, Stockholm University:</i> Dr Martin Gullström, <i>Mondlande University, Maputo, Moçambique:</i> Dr Adriano Macia, Dr Salomão Bandeira <i>Natural History Museum, Maputo, Moçambique:</i> Dr Almeida Guissamulo	
Examiner: Professor Malin Celander Faculty of Science; Department of Biological and Environmental Sciences	



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Third cycle education

1. Confirmation

The syllabus was confirmed by the Head of the Department of Marine Sciences, Per Hall, 2016-04-01.

Disciplinary domain: Science

Department in charge: Department of Marine Sciences

2. Position in the educational system

Elective course; third-cycle education.

3. Entry requirements

Admitted to third cycle education.

4. Course content

- Literature overview and lectures of the biodiversity, ecology and conservation issues of tropical marine ecosystem.
- Basic taxonomic/systematic overview of the common marine invertebrates, fish, mammals and plant species in the area. Knowledge of how to use species keys to determine families, genera and species.
- Field survey (walking or snorkelling) of the dominant marine habitats of Inhaca Island (mangal, coral reefs, seagrass, rock outcrop, mud- and sandflats, and beaches).
- Understanding of cryptic life strategies, narrow niches.
Relating differences in various environments regarding physical stress, structural complexity, predation and grazing and its effects on species abundance and diversity. Human influence on marine biodiversity in the tropical environment and conservation issues will be discussed during the course.
- Field study assessing bioturbation in different environments (sand, seagrass, mudflats and the mangal).
Interaction between the organisms and the habitat illustrated by oxygen measurements in field in combination with sampling to determine abundance of organisms, diversity and depth of the bioturbation.
- Field study of changes in community structure and abundance of mangrove species and mobile macroinvertebrates along a transect from dry to constant wet environment in a sheltered and exposed mangal system.
- Independent group projects investigating different ecological questions in the field.

5. Outcomes



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1. Knowledge and understanding

- to outline the dominant shallow marine ecosystems in tropical environments.
- to give examples of challenges when doing research in a developing country-
- to identify the normal dominating species in the different ecosystems

2. Skills and abilities

- to apply common tools and methods to study tropical marine shallow water systems.
- to demonstrate how to work in tropical ecosystems

3. Judgement and approach

- critically evaluate methods and human impacts of tropical marine ecosystems

6. Required reading

Sent out selected pdf-files of different ecosystems and methods.

Selected chapters in the course book:

Richmond. 2011. A Guide to the Seashores of Eastern Africa and the Western Indian Ocean Islands. 464 pp.

As in Bandeira, S. and Paula, J. (eds.). 2014. The Maputo Bay Ecosystem. WIOMSA, Zanzibar Town, 427 pp

7. Assessment

Three separate items of the course will be assessed during the course, all graded with Fail (U) or Pass (G).

- 1) Written summary of the ecosystems found in shallow tropical marine areas
- 2) Group or individual oral presentations of group project.
- 3) Group or individually written reports of group project.

8. Grading scale

To be awarded a final grade of G for the course, all three assessments have to individually be passed with a G.



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9. Course Evaluation

The 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.

Extra

Practical information:

The suggested student cost for participating in the course:

Student from the University of Gothenburg **12000 SEK**

Student from another university in Sweden **19.000 SEK**

Student from another university in Europe **2.000 EUR**

Student from an East African university **1.100 USD** (+ own travel to Maputo)

Student from Moçambique **700 USD** (+ own travel to Maputo)

The cost includes airfare between Gothenburg (or other relevant airport) and Maputo, transport to and on Inhaca as food and lodging at the marine station on Ilha da Inhaca, Moçambique. If needed also lodging in Maputo before traveling to Inhaca. However, no lodging in Maputo after the ending of the course at Inhaca, for those wanted to stay longer there are different hotels and backpackers options in Maputo. Also the course-fee does not include visa and vaccination. Students are encouraged to apply for stipends to cover their costs.

Applicants must show proof of their vaccination records (Yellow fever) before receiving approval to participate in the field part of course in Moçambique. Students will be lodged in very basic housing on Inhaca with electricity and shared bathrooms with only cold water. Students will be expected to work diligently on their projects, which will include hiking and may include working in the rain. Participants will receive a list of things to bring incl. gear for snorkelling. There is, however, no SCUBA diving allowed during the course.

PhD course within the Faculty of Science postgraduate education programme

Tropical marine ecosystems of East Africa

Three weeks in January 2017

This postgraduate course is jointly hosted by the Department of *Biological and Environmental Sciences* and *Department of Marine Sciences*, both University of Gothenburg, and gives an overview of tropical marine ecology through lectures, group work and practical field experience at Ilha da Inhaca, Moçambique. During the field course the participants will investigate several aquatic systems such as mangal, coral reefs, seagrass beds, mud- and sandflats and beaches. Through field investigations, group projects and discussions knowledge about taxonomy and ecology of vertebrates, invertebrates and plants, as well as human interactions and conservation issues specific to these systems in East Africa will be taught.

Location and dates Preparation by reading referred literature during Sep-Nov 2016. The course takes place at the marine station on Ilha da Inhaca outside the capital city of Maputo in southern Moçambique. It starts with a mix of introductory seminars of tropical marine habitats followed by intense field work in the various marine habitats on the island (*the course runs for three weeks during January 2017, between 9th and 31st but the exact dates will be set in the end of June 2016 since it will be dependent on different flight options for the travel to Maputo*).

Credit points The course is recommended to give 8 credit points.

The aim of the course is to give Swedish and other postgraduate students an opportunity to broaden their ecological understanding and experience in science by studying a tropical system in a developing country. The course will provide students with basic understanding of the dominant shallow marine ecosystems in tropical environments, and with practical experience using different research tools and methods applicable for these systems. The intention is to increase the interest and possibilities for young highly motivated students to work with marine research, conservation or management in East African countries. The course is also open for relevant students from the East-African countries. Interaction among students within this international group build unique networks that may lead to future collaborations and a closer link between research in Sweden and East Africa.

Target group. The course is for postgraduate students from different disciplines in *i.e.* Biology, Environmental Sciences and Social Sciences. The teaching language will be English. Participants: maximum 18.

Course organisers. Dr Matz Berggren Dep of Marine Sciences, GU and Assoc professor Susanne Eriksson, Dep Biological and Environmental Sciences, GU.

Teaching staff

Dept. Marine Sciences, GU: Dr Matz Berggren

Dept. Biological and Environmental Sciences, GU: Assoc prof Susanne Eriksson

Dept. Ecology, Environment and Plant Sciences (DEEP), Stockholm University: Assc prof Martin Gullström

Mondlande University, Maputo, Moçambique: Dr Adriano Macia, Dr Salomão Bandeira

Natural History Museum, Maputo, Moçambique: Dr Almeida Guissamulo

Course programme

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Application (a declaration of interest to participate in the course described above) should be received no later than **August 26th 2016** at:

Dr Matz Berggren,

Department of Marine Sciences, University of Gothenburg,

Kristineberg 566

451 78 Fiskebäckskil

Sweden

or by email to matz.berggren@gu.se

Application should include:

- CV (maximum 1 page)
- A letter of recommendation from the supervisor
- A short description of the students motive for taking the course

NB! If there are not enough applicants the course will be cancelled – due to the high costs and low participation. If the course can be held each of the applicants will be asked again, at 1 September 2016, if they still want/can participate!