

## Ecological Genomics - Course Syllabus

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**Course Number:** MarS 330

**Course Title:** Ecological Genomics

**Academic Semester:** Spring                      **Academic Year:** 2015/ 2016  
**Semester Start Date:** Jan 24, 2016              **Semester End Date:** May 19, 2016

**Class Schedule:** Sunday-Thursday, 8am-5pm

**Classroom Number:** TBD

**Instructor(s) Name(s):** Manuel Aranda; Christian Voolstra  
**Email:** Manuel.aranda@kaust.edu.sa

**Office Location:** Building 2, Office 2216  
**Office Hours:** by appointment  
**Teaching Assistant name:** Maha Olschowsky  
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### COURSE DESCRIPTION FROM PROGRAM GUIDE

Ecological Genomics: Ecological genomics describes the application of genomic tools (high throughput sequencing, microarrays, quantitative PCR, etc.) to solve questions of ecology. Its purpose is to increase understanding of the responses and interactions of organisms to the environment and to one another by analyzing genomic sequences, gene expressions and genome evolution. This course will give an overview over the methods utilized and the questions asked by ecological genomics with a particular emphasis on marine ecological genomics.

### COMPREHENSIVE COURSE DESCRIPTION

This block course aims to provide students with a holistic introduction to the field of Ecological Genomics. During the course we will focus on a specific ecological question and how to interrogate it using molecular biology and genomics techniques. Students will then plan, design and perform an experiment, and collect the relevant data. As part of the course students will gain practical experience in various molecular biology techniques, data analysis, and interpretation of research results.

## **GOALS AND OBJECTIVES**

The goal of the course is to teach students how to design and perform adequate experiments to address specific ecological questions using molecular biology and genomics tools. Students learn appropriate molecular biology and genomics techniques to analyze these experiments in regard to the scientific question at hand and how to interpret and communicate their results.

## **REQUIRED KNOWLEDGE**

No specific courses are required but students are expected to a good understanding of Molecular Biology, Ecology, and/or Genomics.

## **REFERENCE TEXTS**

Ecological Genomics 3rd Edition (Gibson&Muse)

Relevant publications will be assigned by the instructors

## **METHOD OF EVALUATION**

<b>Graded content</b>
<p>50% Class Participation: This is a graded component of the course, and includes participation in the planning of the experiment and in-class discussions.</p> <p>50% Lab participation: This is a graded component of the course, and includes the participation and performance during the lab activities.</p>

## **COURSE REQUIREMENTS**

### **Assignments**

The large practical component of this course makes attendance absolutely mandatory. Students are expected to be present at any time during the block period. Any anticipated absence should be cleared with the instructor by written (email) notification as early as possible and before the actual day of absence. Students with approved absences are responsible for coordinating their absence with their group members in advance.

### **Course Policies**

The course may require fieldwork for the collection of samples and/or experiments. Communication should be via email whenever possible but a phone number will be provided for urgent issues.

### **NOTE**

The instructor reserves the right to make changes to this syllabus as necessary.