

# qPCR, 7 credits

Real Time Quantitative PCR

## Course Organizer:

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SLU Graduate School in Organism Biology.

Language: English

Subject: Biology

Marking scale: Pass / Failed

Syllabus approved: XX.08.2014

## Prerequisites

The practical part of the course is intended for PhD students within the SLU Graduate School in Organism Biology, but will be open for all interested PhD students/researchers. The lectures will be open events, no registration is required to attend the theoretical part of the course.

## Objective

After the course students will be able to decide wisely (!) whether qPCR is the best method to address a given problem, design a qPCR experiment following MIQE guidelines for scientific publications of qPCR data, perform the experiment and analyse the obtained data.

## Content

The course includes a strong theoretical background in qPCR in a form of lectures and seminars. Students will have an opportunity to learn about practical application of the qPCR method in other fields from an expert working with criminal police. Students will also meet experts working in SciLifeLab and Functional Genomics Unit of Helsinki University and learn about alternative to qPCR cutting edge technologies, e.g. RNA deep sequencing, microarrays etc. All students will have a hands-on experience with the qPCR method. During the practical part each student will design and perform an individual experiment within a given framework and analyse the results.

## Literature

1. Bustin, S. A., Benes, V., Garson, J. A., Hellemans, J., Huggett, J., Kubista, M., et al. (2009). The MIQE Guidelines: Minimum Information for Publication of Quantitative Real-Time PCR Experiments. *Clinical Chemistry*, 55(4), 611–622.
2. <http://statistics.gene-quantification.info/>
3. [www.google.com](http://www.google.com)

## Examination

A student should attend at least 80% of lectures and seminars and complete the practical part of the course. During the practical part the student should design and perform an individual experiment

within a given framework, analyse the obtained data and present the results as a written report in a form of materials and methods chapter + figure prepared as if for a publication. Each student will also make a powerpoint presentation summarising the results, presentations will be discussed by the whole group at the final seminar.

### **Additional information**

For the practical part students will be asked to use DNA/RNA material of their interest. Please note, that the qPCR experiments performed during this course will be fixed to a given pattern and cannot be used for research purpose. Maximum 16 students per course occasion.

### **Responsible department**

Department of Plant Biology, BioCenter, SLU