Subject Area: Advanced Methods in Biotechnology and Biodiversity
Subject: Practical bioinformatics
Speciality: N/A Status: Facultative ECTS: 2
Department(s): Genetics
Cooperating Department:
Form of teaching (Number of hours; Form of assessment: Exam or Credit)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars/Conversatoria</th>
<th>Practicals</th>
<th>Total</th>
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<td>4</td>
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Staff:
S U B J E C T C O O R D I N A T O R : Mirosław Kwaśniewski PhD
L E C T U R E / C O N V E R S A T O R I A : Mirosław Kwaśniewski PhD
P R A C T I C A L S : Mirosław Kwaśniewski PhD, Damian Gruszka PhD

Contents:
Organization and content of biological databases, local and Internet accessible tools for bioinformatics.

LECTURES:

PRACTICALS:
Database search for flower formation-related genes in Arabidopsis, preparation of a local database of flower formation-related genes using the Jellyfish software, analysis of expression pattern of flower formation-related genes with use of publicly available databases of Arabidopsis microarray data, analysis of co-expression with flower formation-related marker genes, identification of presumably functional cis-acting elements in promoters of co-expressed genes by using the Gibbs method and promoter conservation analysis in orthologous systems, design of promoter-deletion experiment for functional characterization of identified cis elements, design of primers for validation of flower-related expression of candidate genes using qPCR method.

Methods and forms of teaching:
Lectures with the use of computer presentations.
Practicals carried out by individual students using computers aided data analysis.

Requirements: Basic knowledge of genetics, biochemistry and cell biology.

Literature (maximum 5, preferably recent sources, all in English):