

<b>Subject name</b>	<b>Population Ecology of Trees</b>	
<b>Subject code</b>		
<b>Department</b>	<b>Department of Forest Biodiversity</b>	
<b>Faculty</b>	<b>Faculty of Forestry</b>	
<b>Subject supervisor/Lecturer</b>	<b>Professor Jerzy Szwagrzyk, Ph.D.</b>	
<b>General information</b>	<b>Teaching period</b>	<b>preferred summer semester (possible winter semester)</b>
	<b>ECTS credit</b>	<b>2</b>
	<b>Lectures total</b>	<b>15 h</b>
	<b>Classes</b>	<b>8 h</b>
	<b>Field training</b>	<b>7 h</b>
<b>Objective and general description</b>	<p>The aim of this course is to enhance understanding of processes shaping forest dynamics by relating ecological characteristics of tree species to their morphological and physiological traits. The lectures are focused upon the problem how different life histories of various tree species determine their roles in forest communities. Field training consists of conducting a set of simple measurements in permanent sample plots located in forests near Krakow. The results of these measurements are then used in lab classes to analyze the relationships between morphology and crown architecture of chosen tree species and their ecological characteristics.</p>	
<b>Lectures</b>	<ol style="list-style-type: none"> <li>1. Adaptive geometry of trees; crown morphology and light requirements in trees. Growing space of individual tree; self-thinning in tree stands..</li> <li>2. Growth rates and resource pre-emption. Symmetric and asymmetric competition in trees. Trade-offs:</li> <li>3. From the decline in tree vitality to tree death. Plant defences and their costs. Vegetative reproduction in forest trees.</li> <li>4. Seed production and seed dispersal. Patterns of masting in forest trees. Seed dispersal syndromes. Role of zoochory. The Janzen-Connell model</li> <li>5. Seedling demography. Emergence of a new generation of trees in relation to the substrate diversity. Seedling bank.</li> <li>6. Canopy gaps; various reactions of suppressed trees to release. Gap formation and gap closure rates.</li> <li>7 Natural disturbances and their role in tree species coexistence. Types of life-history strategies in forest trees.</li> </ol>	

<b>Field training</b>	One day (7 hours) visit to a network of permanent sample plots in a forest near Krakow. Collecting field data necessary for conducting analysis during the lab classes
<b>Literature</b>	<ul style="list-style-type: none"> <li>• Crawley M. J. (Ed.) 1997. Plant Ecology. Second Edition. Blackwell Science, Oxford.</li> <li>• Harper J. L. 1990. Population biology of plants. Eighth impression. Academic Press, London.</li> <li>• Johnson E. A., Miyanishi K. (Ed.) 2007. Plant disturbance ecology. Academic Press, Boston</li> <li>• Oliver C. D., Larson B. C. 1992. Forest Stand Dynamics. McGraw &amp; Hill, New York</li> <li>• Van der Maarel E. (Ed.). 2005. Vegetation Ecology. Blackwell Publishing, Oxford.</li> </ul>
<b>Assessment method</b>	Written exam (test)