

<b>Subject name</b>	<b>Ecology of Invasive Plants</b>	
<b>Subject code</b>	<b>E.1.EIPX.SC.ECTIE.L</b>	
<b>Department</b>	<b>Forest Biodiversity</b>	
<b>Faculty</b>	<b>Forestry</b>	
<b>Subject supervisor/Lecturer</b>	<b>Dr hab. Anna Gazda</b>	
<b>General information</b>	<b>semester</b>	<b>Winter or summer</b>
	<b>ECTS credits</b>	<b>4</b>
	<b>Lectures total</b>	<b>16</b>
	<b>Field classes</b>	<b>14</b>
<b>Objective and general description</b>	<p>The main objective of the course is to provide the students with knowledge of the population ecology of invasive plant species. To provide insight into:</p> <ul style="list-style-type: none"> <li>• methods for studying the mechanisms responsible for the ecological success of these species,</li> <li>• basic concepts of invasion biology</li> <li>• hypotheses for the occurrence of invasions and their theoretical and empirical support.</li> <li>• ecological consequences for invaded habitats</li> <li>• management strategies to prevent the spread of invasive plants.</li> </ul> <p><b><u>Lectures</u></b></p> <ol style="list-style-type: none"> <li>1. An introduction to invasion ecology (introduction of exotic species).</li> <li>2. What makes species invasive? <ol style="list-style-type: none"> <li>i. Life history characteristics of invasive species</li> <li>ii. Initial colonization characteristics and successful establishment of invasive species</li> <li>iii. Characteristics leading to spread</li> <li>iv. Lag times</li> <li>v. Range expansion</li> </ol> </li> <li>3. Invasion processes/stages</li> <li>4. IV. Plant communities' vulnerability to invasion <ol style="list-style-type: none"> <li>i. Invasibility as an emergent property of communities</li> <li>ii. Species interactions and invasion resistance of communities</li> <li>iii. Habitat fragmentation, population persistence and the invasibility of communities</li> <li>iv. The ecological consequences of invasions on communities</li> </ol> </li> <li>5. How effective is biotic resistance to plant invasion</li> <li>6. Ecological impacts of invasive species.</li> <li>7. Vectors of invasion: past, present and future</li> <li>8. Invasive plant management</li> </ol> <p><b><u>Field training:</u></b></p> <ol style="list-style-type: none"> <li>1. A comparison of biology and ecology of native and invasive tree species (Prunus padus vs Prunus serotina and Quercus robur/petrea vs Quercus rubra).</li> <li>2. A comparison of biology and ecology of native and invasive herbaceous plants (Impatiens noli-tangere and Impatiens parviflora).</li> <li>3. Colonisation dynamics of invasive plants in a natural forest.</li> <li>4. Colonisation dynamics of invasive plants in a managed forest.</li> </ol>	
<b>Assessment method</b>	Oral exam	

**References**

- Kowarik I., Schepker H. 1998. Plant invasions in northern Germany: human perception and response. In: Starfinger, U., Edwards, K., Kowarik, I. & Williamson, M. (eds.), *Plant Invasions: Ecological Mechanisms and Human Responses*: 109-120. Backhuys Publisher, Leiden, The Netherlands.
- Rejmánek M. & Richardson, D.M. 1996. What attributes make some plant species invasive? *Ecology* 77, 1655–1661.
  - Rejmánek M. 1989. Invasibility of plant communities. W: Drake, J.A., Mooney, H.A., di Castri, F., Groves, R.H., Kruger, F.J., Rejmánek, M. & Williamson, M. – *Biological invasions, a global perspective*: 369–388. Wiley, Chichester.
  - Rejmánek M. 1996. Species richness and resistance to invasions. W: Orians, R.D., Dirzo, R. & Cushman, J.H. *Diversity and processes in tropical forest ecosystems*: 153–172. Springer, New York.
  - Sakai A. K., Allendorf F. W., Holt J. S., Lodge D. M., Molofsky J., With K. A., Baughman S., Cabin R. J., Cohen J. E., Ellstrand N. C., McCauley D. E., O'Neil P., Parker I. M., Thompson J. N., Weller S. G. 2001. The population biology of invasive species – *Annu. Rev. Ecol. Syst.* 32: 305–332.
  - Simberloff D. & Stiling P. 1996a. Risks of species introduced for biological control. *Biol. Conserv.* 78: 185–192.
  - Simberloff D. & Stiling P. 1996b. How risky is biological control? *Ecology* 77: 1965–1974.
  - Tokarska-Guzik B. 2005. The establishment and spread of alien plant species (kenophytes) in Poland. Wydawnictwo: UŚI, Katowice