

Numer modułu zgodnie z planem studiów	MOR S2_28/3
Field or fields of study	Plant Protection and Phytosanitary Control
Name of the training module	Communities of insects
Language of instruction	English
Type of the training module (obligatory/optional)	optional
Level of the training module	2nd degree, full-time study
Year of study	II
Semester	3
Number of ECTS credits with a division into contact/noncontact	3 (1,7/1,3)
Title/degree, name and surname of the person in charge	dr hab. Izabela Kot, associate prof.
Unit offering the subject	Department of Plant Protection
Aim of the module	A student must be familiar with classification of social insects, their morphology, biology and principals of behavior
Contents of the training module- a compact description of approx. 100 words	Lectures will contain the classification of social insects, evolution of eusocial systems, the division of labor and the self-organization of insect societies, adaptation to social lifes, the co-existence of social insects with other insects and plants, communication in communities of insects (identifying, sharing food and cleaning, recruitment, alarm and aggregation), the symbiosis of social insects, coexistence of social insects with other arthropods and plants. Classes will contain: morphology and development of eusocial insects - wasps (Vespidae), bumblebees (<i>Bombus</i> spp.), ants (Formicidae), termites (Isoptera), bees (Apidae), types and methods of nests construction, practical knowledge of the colonies functioning on the example of <i>Apis mellifera</i> (L.).
Recommended and obligatory reading list	<p>Recommended reading list</p> <p>Bellman H., 2011. Błonkówki: pszczoły, osy i mrówki środkowej Europy [Hymenoptera: bees, wasps and ants of central Europe]. Multico Oficyna Wydawnicza, Warszawa.</p> <p>Dorigo M., Stützle T. 2004. Ant colony optimization. MIT Press, Cambridge.</p> <p>Tautz J. 2008. The buzz about bees: biology of superorganism. Heidelberg: Springer-Verlag, Berlin.</p> <p>Wilson E. O. 1979. Społeczeństwa owadów [Communities of insects]. PWN, Warszawa</p> <p>Wilson E. O. 2001. Owady społeczne. W: Socjobiologia [Communities of insects, in: Sociobiology]. Poznań: Zysk i S-ka Wydawnictwo s.c.</p> <p>Wilson E. O. 2021. Opowieści ze świata mrówek [Stories from the world of ants]. Copernicus Center Press.</p> <p>Supplementary reading list</p> <p>Goulson D., 2017. Żądła rządzą: moje przygody z trzmielami [Stings rule: my adventures with bumblebees]. Wyd. Marginesy, Warszawa.</p> <p>Lisowski P., 2010. Tajemnice pszczelego ula [Secrets of the beehive]. Oficyna Wydawnicz "Alma-Press", Warszawa.</p>

	Pabis K., 2020. Prywatne życie mrówek [1Private life of ants]. Wyd. Ringier Axel Springer, Warszawa.
The intended forms/activities/teaching methods	Teaching methods: theory in the form of lectures prepared as multimedia presentations; discussion; the student's own work; execution of the project; educational films