

56S1-OWZAP

INSECT POLLINATORS

ECTS: 3.0

HOURS PER SEMESTER/WEEK: LECTURES: 15/1; CLASSES: 30/2

FIELD OF THE STUDY: Environmental protection

Level of study: First-cycle (Engineer's degree) program

Course status: optional *

Year of the study: IV

COURSE CONTENTS

LECTURES: Intermediary factors in the pollination of plants. Zooidiomy with particular emphasis on entomogamy. Mutual adaptations of flowers and insects. Pollination of cultivated plants by bees, assessment of mutual dependencies. The state of Polish beekeeping and its prospects, existing threats to the species. Principles of the functioning of insect societies regarding bees. Stages of social development in bees. Natural resources of wild bees, and threats. Plant protection and protection of bee resources. Pollinating insects in the landscape, population structure, and landscape structure, examples of the "food belt". The evaluation of permanence of localized flora in the context of suitability for pollinating insects, and selection of species.

CLASSES: Predisposed species and accidental pollinators of flowering plants. The bee colony as a biological whole, the morphology, and biology of *Apis mellifera*, and the advantages of the honey bee as a pollinator. Bumblebee: diagnosis, and characteristics of common species. Bumblebee biology concerning *Bombus terrestris*. Solitary bee: characteristics of colonies - dominant species in landscapes, diagnostics, and biology. Evaluation criteria and comparison of the usefulness of individual groups of bees. Parasitic bees. Breeding of selected species, and practical use. Principles of bee monitoring in the field.

EDUCATIONAL PURPOSE: Making students aware of the importance of pollinating insects in ecosystems. Becoming familiar with important and dominant species, the condition of their populations in the environment, threats, and protection methods.

LEARNING OUTCOMES

Knowledge. The student knows existing threats to the population of pollinating insects and the ways to minimize them. He has knowledge about the role, importance, and use of biodiversity in ecosystems and existing threats.

Skills. The graduate has the skills of practical diagnosis, assessment of threats, and protection of pollinating species. To be able to supplement the "food belt" and properly control the populations of pollinating insects.

Social competences. The graduate understands the need to protect endangered species and the importance of biodiversity, as well as the need to comply with the principles of Good Plant Protection Practice.

TEACHING FORMS AND METHODS

Lectures. Informative lecture with multimedia presentation

Classes. Team lab work, individual lab work, experimentation.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. Written test covering the content of the lecture, positive pass from 60% of correct answers.

Classes. Written test covering the content of the lecture, positive pass from 60% of correct answers.

BASIC LITERATURE

1) Prabucki J. Pszczelnictwo, Wyd. Albatros - Szczecin, 1998. 2) Banaszak J. Ekologia pszczół, Wyd. PWN W-wa, 1993.

ADDITIONAL LITERATURE

1) Dylewska M, Nasze trzmielce, Wyd. APW Karniowice, 1996.

THE TEACHER/TEACHERS CONDUCTING THE CLASSES:

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