

Environmental Physiology and Ecology of Plants and Microorganisms

1. Lecturer: Popova Yulia Viktorivna, assistant of the department of plant and microorganism physiology and biochemistry.
2. Status: optional for bachelors.
3. Course, semester: 4th academic year, 7th semester.
4. Number of credits – 4, general academic hours – 144, lectures – 36, seminars – 18; self-study – 90.
5. Preliminary requirements: basics of Plant Physiology and Biochemistry, Microbiology, Ecology
6. Description of the course: the course deals with the basic problems of ecology of plants and microorganisms. The place of ecology of plants and microorganisms among other areas of general ecology is discussed during the course. A holistic understanding of the mechanisms of plant adaptation to stress factors and ways to increase the resistance of plants will be formed by students. Microbial ecosystems, influence of abiotic and biotic factors on microbiocenoses and the relationships between microorganisms are considered in the course too.

Sections: Environmental physiology of plants; plant resistance, methods of plant resistance evaluation and ways to improve their; microorganisms as components of different types of ecosystems, ecology of viruses.

Knowledge and skills:

- Knowledge of the microorganism and environmental factors effect on the plant organism and mechanisms of their adaptation to existence;
 - Knowledge of basic ecological groups of plants, physiological groups of microorganisms and skills to a comprehensive approach to their study;
 - Knowledge of the most common of classic and modern research methods and stress resistance of plants to unfavorable environmental factors;
 - Knowledge of methods used to study the activity of microorganisms in nature;
 - Ability to apply theoretical knowledge on plant ecology and ecology of microorganisms in biological and microbiological activities.
7. Course organization: lectures and seminars. Forms of control: tests, reports, exam.
 8. Language: Ukrainian.
 9. Educational and methodological support: program, schedule of classes, educational and multimedia presentations, methodical complex, guidelines for practice.

Studentbooks:

1. *Andreyuk E.I., Valagurova E.I.* Basics of Soil Microorganisms Ecology. – Kyiv: Naukova Dumka, 1992. – 221 p.
2. *Boyko A.L.* Ecology of Plant Viruses. – Kyiv: Naukova Dumka, 1990. – 116 p.
3. *Musiyenko M.M.* Plant Ecology. – Kyiv: Lybid, 2006. – 432 p.
4. *Chirkova T.V.* Physiological Mechanisms of Plant Resistance. – St-Petersburg: Publish Centre of St-Petersburg State University, 2002. – 244 p.
5. *Ecology of Microorganisms*/ Edited by A.I. Netrusov. – Moscow: “Academia”, 2004. – 272 p.
6. *Beresina N.A., Afanasjeva N.B.* Plant Ecology. – Moscow: Academia, 2009. – 400 p.