

Metabolism of prokaryotes

1. Lecturer: Dzhameyev Vadym, a senior lecturer of the department of plant and microorganism physiology and biochemistry.
2. Status: optional for bachelors.
3. Course, semester: 4th academic year, 8th semester.
4. Number of credits – 1,5, general academic hours – 76, lectures – 24; self-study – 36.
5. Preliminary requirements: basics of Plant Physiology and Biochemistry, Microbiology, Biochemistry
6. Description of the course: the course deals with the basics of energy and constructive metabolism of prokaryotes. The different ways of nutrition and obtain of energy are highlighted. The central mechanisms of conversion of energy and substrates in Bacteria and Achaea are study. Specialist genuinely mastered this course is to use theoretical knowledge to explain the processes occurring in prokaryotes.

Sections: 1) Fundamentals of nutrition prokaryotes. 2) Energy metabolism. 3) Constructive metabolism.

Knowledge and skills:

- knowledge of the nutrition types of prokaryotes;
- knowledge of the basic mechanisms of hemoorganotrophic, hemolythotrophic and phototrophic ways for producing energy;
- knowledge of the mechanisms of carbon and nitrogen autotrophies;
- knowledge of the mechanisms of synthesis of the main groups of primary and secondary metabolites;
- the ability to interpret new information in the context of acquired knowledge about the metabolism of prokaryotes, ways of assimilation of external energy and transformation of bioorganic substances throughout catabolism and anabolism.
- the ability to simulate the physiological and biochemical experiments in light of the knowledge of the metabolism of prokaryotes.

7. Course organization: lectures, seminars. Forms of control: tests, exam.
8. Language: Ukrainian.
9. Educational and methodological support: program, schedule of classes, educational and multimedia presentations, methodical complex, guidelines for practice.

Studentbooks:

1. *Пиневич А. В.* Микробиология. Биология прокариотов: Учебник. В 3-х т. Том 2. — С.-Пб.: Изд-во С.-Петербур. ун-та, 2007. — 331 с.
2. *Медведев С. С.* Физиология растений: учебник. — СПб. : БХВ-Петербург, 2012. — 512 с.: ил. — (Учебная литература для вузов)
3. *Готтшалк Г.* Метаболизм бактерий. — М: Мир, 1982. — 310 с.
4. *Ленинджер А.* Основы биохимии. Т. 1–3. — М.: Мир, 1985.
5. *Красільнікова Л. О.* Біохімія рослин: навч. посіб. для студ. вищ. навч. закл. / Л. О. Красільнікова, О. О. Авксентьева, В. В. Жмурко. — Х.: Колорит, 2007.— 191 с. — (серія «Університетська книга»)
6. *Гудвин Т., Мерсер Э.* Введение в биохимию растений.— М.: Мир, 1986. — Т.1. — 393с.
7. *Гудвин Т., Мерсер Э.* Введение в биохимию растений.— М.: Мир, 1986. —Т.2. — 342с.