

University: Zhetusy University named after I. Zhansugurov	
Faculty: Natural Sciences and Technical	
Course code: BCPA 2.3	Course title: Comparative anatomy of higher plants
<p>Type, range and method of training activities: The format is a mixture of about 45 hrs lectures/seminars/discussions on methodological topics. -15hrs lectures + 30hrs exercises per semester</p> <p>The teaching is divided into modules in three separate weeks with intensive all-day coursework in the autumn semester. A day starts with a lecture over one main topic. The lectures will whenever possible seek to be concrete and problem oriented using relevant examples. The follow-up exercises are based on problem-solving of real examples. It is a must that the students are active during lectures and work with exercises, and also in presenting their own graduate work.</p>	
Number of credits: 5	
Recommended semester of study: 1 st year 2 nd semester	
Level of study: Master	
Prerequisites: Biology teaching methodology	
<p>Conditions for completing the course: Grades will be given for two part-exams: submitted exercises count collectively for 40% and a written 3-hour final examination will count for 60% of the final grade. Both elements must receive a passing grade.</p>	
<p>Learning outcomes: Formation of students ideas about the structure of studying the structure of plants at the level of tissues and cells, patterns of development and placement of tissues in individual organs. Summary of the main sections: the Course covers a wide range of problems: regularities of external and internal structure (morphology and anatomy) of plants, their taxonomy, development during geological time (evolution) and related relations (phylogenesis). Objects of study in isolated phycologia botany (phycology) —the science of algae, Mycology — mushrooms, lichenology —the lichens, the bryology — mosses, etc.; the study of microscopic organisms mainly of the world of plants (bacteria, actinomycetes, and some fungi and algae), emit a special science — Microbiology.</p>	
<p>Detailed description of lectures: Possess knowledge in the field of structure (morphology) and fine structure (anatomy) of plants. to possess theoretical knowledge in the field of botany. to Know the minimum required theoretical knowledge of anatomy and morphology of plants. Have the necessary practical skills to work with a microscope, natural Botanical and histological preparations.</p>	
<p>Recommended literature:</p> <p>Plant life. Volume 3. Algae. Lichens. M., 1977</p> <p>Plant life. Volume 4. Mosses. Plauna. Horsetails. Ferns. Gymnosperms. M., 1978</p> <p>Plant life. Volume 5, part 1. Flowering plants. Dicotyledons: magnoliids, ranunculids, hamamelidids, karyophyllids. M., 1980</p> <p>Plant life. Volume 5, part 2. Flowering plants. Dicotyledons: dillenides, rosids, asteroids. M., 1981</p> <p>Plant life. Volume 6. Flowering plants. Monocotyledons. M., 1982</p> <p>Chub V. V. Botany. Part 1. The structure of the plant organism. Moscow: MAK Press, 2005</p> <p>P. Zitte., Weiler E. V., Kaderait J. V., Brezinsky A., Kerner K.; based on the textbook by E. Strasburger et al.]; trans. see N.V.Khmelevsky, K.L.Tarasov, K.P. Glazunova, A.P.Sukhorukova. Botany. Textbook for universities : in 4 volumes. — M.: Publishing center "Academy", 2007.</p>	

<p>Vasiliev A. E. et al. Botany: Anatomy and morphology of plants: a textbook. - Enlightenment, 1988.</p> <p>Takhtajyan A. L. The world of plants //M.: Enlightenment. – 1980.Fedorov A. A. M. Kirpichnikov. E., Artyushenko Z. T. Atlas of descriptive morphology of higher plants. List //M.-L.: Publishing House of the USSR Academy of Sciences. - 1956. – Vol. 304.</p>					
<p>Language of instructions: English</p>					
<p>Comments: The course will be teach at Zhetusy University named after I. Zhansugurov – Kazakhstan</p>					
<p>Course assessment: Grades will be given for two part-exams: submitted exercises count collectively for 40% and a written 3-hour final examination will count for 60% of the final grade. Both elements must receive a passing grade.</p>					
A	B	C	D	E	FX
<p>Lecturers: PhD., Mukasheva Danagul</p>					
<p>Date of the last revision:</p>					
<p>Approved by:</p>					