Module name	**Biological basics of herbal medicine**
Module code	B-BM.075. Eng.
ISCED code	0511: Biology
Study cycle	*I°*
Semester	winter
Responsible for this module	Anna Rysiak*, Agnieszka Hanaka Department of Botany, Mycology and Ecology* email*: anrysiak@poczta.umcs.lublin.pl Department of Plant Physiology and Biophysics email: agnieszka.hanaka@poczta.umcs.lublin.pl
Language of instruction	English
Website	
Prerequisites	-
ECTS	6
ECTS points hour equivalents	Contact hours (work with an academic teacher) – 70 - lectures: 30 - labs: 40 Non-contact hours (students' own work) – 80 - preparation for the exam: 40 - preparation for labs: 20 - preparation of reports from laboratory exercises: 10 - literature study: 10 **Total number of ECTS points for the module - 6**
Learning outcomes verification methods	…….
Course full description	Lectures: Research scope and history of herbal medicine. Plant drug forms: plant raw materials and their classification, description, and application in medicine. Factors influencing the content of bioactive compounds in plants raw materials. Obtaining herbal material from natural habitats: legal basis, harvesting methods, conservation. Growing herbal plants on an industrial scale. Review of plant communities rich in herbal resources: the concept and classification of plant communities. The abundance in herbal plants of non-forest communities and forest communities. Framework program of laboratory exercise I. Plant taxonomy: nomenclature rules of taxonomic units in botany. Learning to use a key to the determination of vascular plants. Comparison of morphological and anatomical features of gymnosperms, monocotyledonous and dicotyledonous plants on selected examples. II. Plant morphology and herbal raw materials. Vegetative organs: underground (root, tubers, bulbs, rhizomes), aerial organs (shoots and leaves). Generative organs: flowers, fruits, seeds. Properties and application of selected plant species in herbal medicine. Working with the selected herbarium material. III. Basics of pharmacy recipe and pharmacognosy: converting units of mass and volume. Home measures of medication recounting. Dosage of drugs in adults and children. Methods of preparing of aqueous and alcoholic solution, converting concentrations.

	IV. European and Polish Pharmacopoeia.
Bibliography	Csupor D. Phytotherapy a textbook for pharmacy students. University of Szeged, Department of Pharmacognosy Szeged, 2015 Duke J. A. Handbook of medicinal herbs. CRS Press, 2002. Ansel H. C., Stockton S. J. Pharmaceutical calculations. Wolters Kluwer, 2017. Ben-Erik van Wyk, Michael Wink. Medicinal Plants of the World. PAPERBACKSHOP UK IMPORT, 2017. Hinter. H., Nagle B. Pharmacology. An introduction. Published by McGraw-Hill, 2012. Bone K., Mills S. Principles and Practice of Phytotherapy. Modern Herbal Medicine. Churchil Livingstone, Elsevier, 2013.
Learning outcomes	**KNOWLEDGE** **W1:** Understands the basic processes taking place in medicinal plants and the relationship between plants and the environment. **W2:** Knows the basic concepts and terminology in the field of herbal medicine and phytochemistry. **W3:** Knows the properties and classification of biologically active substances present in plants **W4:** Knows the basic research and laboratory tools and techniques used in the study of medicinal plant raw materials. **W5:** Notices and understands the possibilities of practical applications of biological knowledge, especially in the field of herbal medicine, in social and economic life. **SKILLS** **U1:** Applies basic tools, research techniques and laboratory techniques used in the research of medicinal plants. **U2:** Performs simple analyzes of plant raw materials to assess their identity or the content of biologically active substances and performs basic biochemical experiments related to the analysis of medicinal plant raw materials. **U3:** Applies mathematical and statistical methods to elaborate the obtained research results. **U4:** Draws conclusions from the conducted chemical experiments of medicinal plants. **U5:** Uses the understanding of the indicated academic textbooks in the field of phytochemistry, pharmacognosy, pharmaceutical botany. **U6:** Using scientific terminology, is able to report the obtained results of plant experiments and analyzes, interpret the results. **U7:** Prepares written reports on experiments performed. **U8:** The graduate is able to cooperate with other people as part of teamwork, performing assigned experiments, research or analyzes. COMPETENCES **K1:** Can assess the knowledge and skills in the field of phytochemistry and medicinal plants, understanding the need for continuous language improvement, broadening the knowledge of the subject, and expanding knowledge.

	K2: Shows an active attitude in acquiring, supplementing, and updating knowledge in the field of medicinal plant raw materials, botany, phytochemistry, pharmacy. **K3:** Can work in a group to jointly carry out appropriate experiments and analyzes of plant medicinal raw materials.
Practice	-
Teaching methods	Lecture: information lecture, multimedia presentation, film, discussion, case study Labs: direct observation, description, measurement, calculation, discussion