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| Module name | **General and Systematic Botany** |
| Module code | B-B.008 |
| ISCED code | 0511: Biology |
| Study cycle | I° |
| Semester | summer |
| Responsible for this module  | dr Urszula Świderska-Burek (urszula.swiderska-burek@poczta.umcs.lublin.pl)tel. +48 81 537 50 92 |
| Language of instruction | English |
| Website | http://www.zbm.umcs.lublin.pl/ |
| Prerequisites | basic knowledge of English |
| ECTS | 8.5 |
| ECTS points hour equivalents | Contact hours (work with an academic teacher) 105 hrs (lecture 15 hrs + laboratory 60 hrs + field classes 30 hrs)Total number of hours with an academic teacher135Number of ECTS points with an academic teacher 4.5 Non-contact hours (students' own work)120Total number of non-contact hours120Number of ECTS points for non-contact hours4**Total number of ECTS points for the module 8.5** |
| Educational outcomes verification methods | final written examination |
| Description | The module covers the knowledge in the area of the basic morphological and anatomical features of the plant structure, their modifications and classification of plants ; knowledge of the role and importance of plants in the natural environment as the key components of the biosphere; plant protection; adaptation to environmental conditions; the role of plants in human life; plant use.Skills to prepare microscope slides of various plant structures. Ability to identify the most important plant species. Efficient use of appropriate equipment and keys for identification of organisms. |
| Reading list | 1. Bresinsky, A., Körner, C., Kadereit, J.W., Neuhaus, G., Sonnewald, U. 2013. Strasburger’s Plant Sciences Including Prokaryotes and Fungi (vol. 1, 2). Springer, New York.
2. Eames A.J., MacDaniels L.H. 1947. An introduction to plant anatomy. Mc Graw - Hill Book Company, pp. 427.
3. Esau K. 1977. Anatomy of seed plants. John Wiley & Sons, New York, pp. 550.
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| Educational outcomes | **KNOWLEDGE**1. knowledge of the basic morphological and anatomical features of the plant structure, their classification and modifications (specialist botanical terminology);
2. knowledge of the principles of plant taxonomy and acquisition of the key taxonomic concepts – evolution and plants’ place in the natural system (the International Code of Botanical Nomenclature);
3. acquisition of knowledge of the role and importance of plants in the natural environment as the key components of the biosphere; plant protection; adaptation to environmental conditions;
4. understanding of the relationship between plants and other organisms;
5. the role of plants in human life; plant use

**SKILLS**1. logical reasoning; association and comparison of the main structure traits of representatives of different taxonomic groups;
2. analysis of the impact of biotic and abiotic factors on plant development and spread;
3. independent description of relationships between plants and other organisms; ability to present plant adaptive strategies;
4. ability to identify the most important plant species, learn independently, explore the literature and update and extend knowledge;
5. ability to discern visible signs of plant death caused by destructive biotic and abiotic factors.

**ATTITUDES**1. active participation, ability of cooperation, teamwork and joint problem solving;
2. compliance with safety regulations;
3. diligent performance of duties;
4. openness to new knowledge, awareness of the possibilities of its practical application;
5. awareness of the necessity to protect species diversity of plants being one of the major groups of organisms living in the abiotic environment.
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| Practice | preparation of microscopic slides; identification of plant species using specialist keys |

**Information about classes and field classes in the cycle**

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| Website | http://www.zbm.umcs.lublin.pl/ |
| Educational outcomes verification methods | continuous assessment tests and participation in field exercises |
| Comments | written examination tests |
| Reading list | as above |
| Educational outcomes | **KNOWLEDGE**1. knowledge of various structures produced by thallophytes, including those related to specific development cycles;
2. recognition of structures produced by telomic plants (tissues, organs); adequate comparison and classification; differentiation of types of modifications;
3. knowledge of the developmental cycles in lower plants and alternation of generations in telomic plants;
4. knowledge of specialized terminology; characteristics of taxonomic units and their representatives;
5. knowledge of strategies of protection of vegetation and major endangered species;
6. knowledge of the flora in protected areas;
7. knowledge of methods of plant protection and of the key protected species.

**SKILLS**1. ability to prepare microscope slides of various plant structures;
2. efficient use of appropriate equipment and keys for identification of organisms;
3. ability to illustrate the structural features of the preparations observed for iconographic or photographic representation; acquisition of skills of proper collection, preservation and storage of research and teaching materials;
4. appropriate use of knowledge about plants in environmental protection and everyday life;
5. use of professional literature and identification of the major representatives of the national flora;
6. ability to identify the major plant communities and characteristic species;
7. ability to make scientific documentation of collections as well as their identification, conservation and preservation.

**ATTITUDES**1. awareness of the role of plants in the nature as the main producers of organic matter and substrate for development of other organisms (fungi, animals);
2. the need to extend knowledge of botany and its practical application in maintenance of biodiversity and protection against the destructive action of other organisms or environmental factors;
3. acknowledgement of the need to implement comprehensive environmental protection of plants, animals, fungi and other microorganisms;
4. awareness of the mechanisms that promote occurrence of pathological phenomena; care of the living environment;
5. close cooperation and interaction between students and teachers in difficult field conditions;
6. acknowledgement of the necessity to implement comprehensive environmental protection;
7. awareness of the mechanisms that promote occurrence of unfavourable phenomena in the nature and of their effects.
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| A list of topics | **Classes**1. Basic traits of the plant cell structure; examples of different forms of lower plant structure, the concept of the thallus, types of the thallus (examples);
2. Plant tissues and their functional systems;
3. The structure of the major plant organs and their modifications (root, stem, leaves, flowers, fruits) (3 classes);
4. Systematics - prokaryotic and eukaryotic “algae” (2 classes);
5. Systematics – hornworts, liverworts, mosses, ferns – typical structural features (2 classes);
6. Systematics - gymnosperms – structural features of selected organs, identification of representatives of selected taxonomic units (2 classes);
7. Systematics - dicotyledonous angiosperms - structural features of selected organs; identification of representatives of selected taxonomic units (3 classes);
8. Systematics - monocotyledonous angiosperms - structural features of selected organs; identification of representatives of selected taxonomic units.

**Field classes**1. General characteristics of the Roztoczański National Park and the Kazimierz Landscape Park;2. Characteristic forest communities (pine, mixed, Carpathian beech, and hornbeam forests) and xerothermic communities (grasslands, shrublands);3. Knowledge of the flora of the study areas, species composition, major species, protected plants. 4. problems of comprehensive nature conservation. |
| Teaching methods | audiovisual presentation, discussion, observation, practical activities, field trip |
| Assessment methods | continuous assessment tests and participation in field exercises |