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| Module name | **Mycology** |
| Module code | B-B.025 |
| ISCED code | 0511: Biology |
| Study cycle | I° |
| Semester | winter |
| 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 | 3 |
| ECTS points hour equivalents | Contact hours (work with an academic teacher**)** 45 hrs (lecture 15 hrs + laboratory 30 hrs)Total number of hours with an academic teacher60Number of ECTS points with an academic teacher 2Non-contact hours (students' own work)30Total number of non-contact hours30Number of ECTS points for non-contact hours1**Total number of ECTS points for the module 3** |
| Educational outcomes verification methods | final written examination |
| Description | The module covers the knowledge in the area of the fungal taxonomy, basic morphological and anatomical features of the fungal structure, distinguishing them from other groups of organisms, and modes of reproduction and propagation in the environment (specialist terminology). Knowledge of the role and importance of fungi in the natural environment; protection of fungi as the natural components of the biosphere; mutual relationships between fungi and other organisms – parasitism, commensalism, mutualism; mycorrhizal fungi, endophytes. Ability to identify and distinguish the main edible and poisonous species and identification of symptoms of diseases. |
| Reading list | 1. Alexopoulos C.J. 1952. Introductory Mycology. John Wiley & Sons, New York, pp. 482.
2. Deacon J. 2006. Fungal biology. 4th edition, Blackwell Publishing, pp. 371.
3. Ingold C.T. 1961. The Biology of Fungi. Hutchinson Educational, pp. 124.
4. Moore D., Robson G.D., Trinci A.P.J. 2011. 21st Century Guidebook to Fungi. Cambridge University Press, New York, pp. 627.
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| Educational outcomes | **KNOWLEDGE**1. knowledge of the basic morphological and anatomical features of the plant structure, distinguishing them from other groups of organisms, and modes of reproduction and propagation in the environment (specialist terminology);
2. knowledge of the principles of classification of fungi and acquisition of the key taxonomic concepts – evolution and place of fungi in the natural system (the International Code of Nomenclature);
3. acquisition of knowledge of the role and importance of fungi in the natural environment and threat posed by these organisms; protection of fungi as the natural components of the biosphere; protection of other groups of organisms and various substrates against the detrimental activity of these organisms;
4. knowledge of mutual relationships between fungi and other organisms – parasitism, commensalism, mutualism (mycorrhizal fungi), endophytes;
5. possibilities of use of fungi in human life and economy.

**SKILLS**1. logical reasoning; association and comparison of the main structure traits of representatives of different taxonomic groups of fungi and other organisms in the environment (plants, animals, and prokaryotes);
2. analysis of the impact of biotic and abiotic factors on fungal development and spread;
3. independent description of relationships between fungi and other organisms; ability to present fungal succession in organic matter destruction;
4. ability to identify the most important fungal species, learn independently, explore the literature and update and extend knowledge;
5. ability to discern symptoms of diseases caused by destructive fungal species; assessment of the impact of pathogens on host species.

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

**Information about classes in the cycle**

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| Website | http://www.zbm.umcs.lublin.pl/ |
| Educational outcomes verification methods | continuous assessment tests |
| Comments |  |
| Reading list | 1. Deacon J. 2006. Fungal biology. 4th edition, Blackwell Publishing, pp. 371.
2. Mueller G.M., Bills G.F., Foster M.S. 2004. Biodiversity of Fungi: Inventory and Monitoring Methods. Elsevier Academic Press, London, Amsterdam, pp. 770.
3. Carlile M., Watkinson S., Gooday G. 2001. The Fungi. Academic Press, London, pp. 588.
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| Educational outcomes | **KNOWLEDGE**1. characterization of the fungal taxonomic units and their representatives;
2. identification and description of fungal structures, including those produced in the development cycle in the major parasitic species;
3. identification of symptoms of diseases induced in host organisms and ability to distinguish them from physiological changes caused by other biotic and abiotic factors;
4. knowledge of different types of mycorrhizae;
5. knowledge of microscopic preparation and laboratory culture methods.

**SKILLS**1. ability to prepare microscope slides of various types of fungal structures and parts of host organisms;
2. ability and efficiency in using appropriate equipment for identification of fungi (microscopes) and laboratory culture;
3. ability to illustrate adequately the features observed for iconographic or photographic documentation; abilities of proper collection, preservation and storage of research and teaching materials;
4. appropriate use of knowledge about fungi in actions for the benefit of the environment and in everyday life;
5. exploration of professional literature in identification of fungi and the major representatives of the national fungal biota;
6. ability to identify and distinguish the main edible and poisonous species.

**ATTITUDES**1. awareness of the role of fungi in the natural environment as the main organic matter destruents;
2. the need to extend knowledge of mycology and its practical application in maintenance of biodiversity and protection against the destructive action of fungi;
3. acknowledgement of the need to implement comprehensive environmental protection of fungi, host organisms and their habitats;
4. awareness of the mechanisms that promote occurrence of pathological phenomena; care of the living environment.
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| A list of topics | 1. The structure of the cell and thallus of fungi and fungus-like organisms;
2. Characteristics of the key vegetative structures of fungi;
3. Characteristics of the key generative structures of fungi;
4. Characteristic substrate types colonized by fungi; characteristics of eucarpic fungi;
5. Myxomycota – the morphology of the sporangium, capillitium, spores and other vegetative structures;
6. Oomycota - characteristics of selected pathogenic species;
7. Zygomycota - characteristics of selected representatives of saprobic species (2 classes);
8. Ascomycota – structure, development, reproduction and dissemination of selected parasitic, saprotrophic, endophytic and symbiotic species; fungi occurring on plants, on insects and fungi (2 classes);
9. Lichens (lichenised fungi, Lichenes). Morphology, thallus structure and other structures in selected species;
10. Basidiomycota - structure, development, reproduction and dissemination of selected macromycetes species; parasitic fungi (smuts and rusts), saprobic, pathogenic and mycorrhizal species (2 classes);
11. Anamorphic fungi - types of vegetative structures, parasites and hyperparasites, modes of plant infection, anamorphic and teleomorphic stages, the concept of a synanamorph and holomorph (2 classes).
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| Teaching methods | audiovisual presentation, discussion, observation, practical activities |
| Assessment methods | written examination tests |