**Hidrobiológia I. angol (BBI1302)**

**TEMATIKÁJA és KÖVETELMÉNYEI**

**Nappali képzés**

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| **hét** | **Előadás témája** | **megjegyzés** |
| **1** | Determination of the object and function of Hydrobiology. Physical properties of the water. **Abiotic environment** in the water: Developement of lake stratification, types of stratification. |  |
| **2** | Impact of global climate change on surface waters. Water movements: forces, periodicity, turbulences. Lake swing (seiche). |  |
| **3** | Light under the water, light attenuation with depth, Secci- depth, the causes of turbidity. |  |
| **4** | Spectral composition of underwater light, the color and transparency of water. Diurnal migration of living creatures. The effect of organisms on the light conditions of the waters. |  |
| **5** | Sedimentation and resuspension, the balance of sedimentation and resuspension, the role of betic fauna in resuspension. Effect of vegetation on sedimentation and resuspension |  |
| **6** | Nutrient dinamics: the availability of phosphorus (P), sediment as a P buffer, release of P from the sediment. Fractions of the phosphorus in surface waters. |  |
| **7** | The role of phosphorus compounds in the eutrophication of waters. The role of aquatic organisms in phosphorus circulation. Possibilities of Lake restoration from hypertrophic phytoplankton dominated state. |  |
| **8** | Nitrogen dinamics, nitrogen forms and their transformation in waters: ammonification, nitrification, denitrification, nitrogen fixation. |  |
| **9** | The effect of algae and macrophytes on nutrient dinamics. |  |
| **10** | The effect of animals on nutrient dinamics: pelagic animals, bentic invertebrates, bethivorous fish. |  |
| **11** | The turnover of dissolved oxigen, carbondioxide in the water. Carbon circulation of waters. Inorganic carbon forms. Biogenic lime precipitation. Interpretation of the CO2  –HCO3– – CO32- buffer system. |  |
| **12** | Microelements in waters and their physiological effects. |  |
| **13** | Regulation of algal biomass. The impact of nutrients, losses due to sinking, lake depth and light limitation, phytoplankton control by grazers, allelopathic regulation, multispecies competition. |  |
| **14** | Termination of the semester |  |

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| **hét** | **A gyakorlat témája** | **megjegyzés** |
| **1** | Usage of field sampling devices for hydrobiological studies: column sampling device, plankton nets, macro zoobentos net. |  |
| **2** | Measuring underwater light conditions with a quantum meter. Measuring the effect of aquatic plant density on the light conditions below the water surface. Measuring of the Secci depth in a small lake. |  |
| **4** | Data analyses and discussion of the results from week 2. |  |
| **5** | The effect of light intensity on nutrient uptake by aquatic plants (ortho-phosphate). Determination of concentration with a photometer. |  |
| **6** | Data analyses and discussion of the results from week 5. |  |
| **7** | The effect of light intensity on nutrient uptake by submerged aquatic plants (nitrate and amonium). Determination of concentration with a photometer. |  |
| **8** | Data analyses and discussion of the results from week 7. |  |
| **9** | Effect of submerged aquatic plants on pH and electrical conductivity of the water in field mesocosms. |  |
| **10** | Data analyses and discussion of the results from week 9. |  |
| **11** | Measurement of thermal stratification, pH and nutrient concentration in field mesocosms. |  |
| **12** | Measuring the dissolved oxygen (DO) concentration with oxygen electrode. Depth profile measurement. quantum meter. |  |
| **13** | Data analyses and discussion of the results from week 11-12. |  |
| **14** | Termination of the semester |  |

**Követelmények:**

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| A foglalkozásokon való részvétel előírásai: | Attendance at practical classes is mandatory. |
| A félévi ellenőrzések követelményei: | The students report orally on the topics of the lecture (grade A) and perform group tasks in the practical classes. They make assays from the results of the measurements (grade B). |
| A tantárgyhoz rendelt kredit: | 3 |
|  | The grade will be formed from the mathematical average of the A and B grades. |
| Ajánlott irodalom: | Scheffer M 1998. Ecology of the shallow lakes. Chapman and Hall. |
| Ajánlott weboldalak: |  |