**Plant Systematics (BBI1228 English)**

**TOPICS and REQUIREMENTS,**

 ***Full-time training***

***Lectures***

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| **week** | **Topic** | **Notes** |
| **1** | Cladistical bases: What are the characteristics of clades. What apomorphy is? DNA, rRNA, mtDNA based cladistical approaches. The role of outgoups for comparisons. Derived and ancestral characteristics. Procaryotic origin of plants.  |  |
| **2** | Primary and secondary endosymbiosis, evidences for endosymbiotic theory. Glaucophyte caracteristics, Red algae characteristics, cellular and biochemical characteristics. Cyanidiales, Florideophycidae characteristics, and their sexual reproduction.  |  |
| **3** | Chlorophyta-green algae characteristics, Chlorophyceae characteristics, Chlamydomodanales, Sphaerepleales, Oedogoniales, Ulvophyceae, Chladophorales. Charophyceae, Zygnematophyceae, Desmidiales. |  |
| **4** | Embryophyta- Characteristics of land plants, the 3 main clades of Bryophytes: liverworts, mosses, hornworts. Reproductive organs of Bryophytes. Characteristics of Liverworts, thalloid and leafy liverworts. Characteristics of Mosses, sporophyte „organs”, Hornwort traits. |  |
| **5** | Tracheophytes- vascular plants apomorphies. Characteristics of Lycophytes and their lifecycle. Lycopodiaceae, Selaginellaceae. Characteristics of Horsetails (Equisetopsida), Psilotopsida (Ophioglossales), and Marattiopsida. Characteristics of Polypodiopsida (Leptosporangiate ferns) |  |
| **6** | Characteristics of Spermatophyta- (seed plants), general characteristics of Gymnosperms. Characteristics of Cycadophyta, Ginkgophyta. Characteristics of Conifers. Pinopsida (Pinaceae).Characteristics of Cupressophytes (Araucariaceae, Cupressaceae, Podocarpaceae, Taxaceae-Yew family. |  |
| **7** | Characteristics of Angiosperms (Flowering plants), Angiosperm apomorphies: flower, perianth, stamens, carpels, male and female gametophyte, double fertilisation, sieve tube members. |  |
| **8** | Angiosperm basal clades: Ambroleales, Nymphaeales (Nymphaeaceae—Water-Lily family), Magnoliales (Magnoliaceae). Characteristics of Monocots, monocots apomorphies. |  |
| **9** | Alismatales, Dioscorales, Pandanales, Pandanaceae Liliales, Asparagales, Alliaceae Amaryllidaceae Iridaceae- Iris family Orchidaceae  |  |
| **10** | Arecales, Arecaceae (palm family), Musacaceae- Banana family, Poales Poaceae grass family, Ceratophyllales Ceratophyllaceae Hornwort family. |  |
| **11** | Eudicot traits, Ranunculales: Papaveraceae- Poppy family; Ranunculaceae — Buttercup family. Saxifragales; Vitales Vitaceae— Grape family, Euphorbiaceae — Spurge family, Salicaceae— Willow family, Violaceae. Fabales, Fabaceae Bean family, Rosales Rosaceae — Rose family. Urticales (Urticalean Rosids), Moraceae Mulberry family; Urticaceae Nettle family; Cucurbitales Cucurbitaceae — Cucumber family. Fagales: Betulaceae—Birch family, Fagaceae — Oak family, Juglandaceae  |  |
| **12** | **The Malvids:** Brassicales, Brassicaceae (Cruciferae) — Mustard family Malvaceae [including Tiliaceae], Sapindales Rutaceae Citrus family Sapindaceae [including Aceraceae] — Soapberry/Maple/ family  |  |
| **13** | Superastrids: Amaranthaceae — Amaranth family Chenopodiaceae — Goosefoot family; Caryophyllaceae — Carnation family Ericales, Primulaceae Primrose family; Boraginales, Boraginaceae — Borage family, Gentianales, Gentianaceae — Gentian family, Lamiales, Lamiaceae (Labiatae) — Mint family Oleaceae — Olive family, Solanales Solanaceae — Nightshade family; Apiales Apiaceae Carrot family; Asterales Asteraceae (Compositae) — Sunflower family, Campanulaceae — Bluebell family |  |
| **14** |  |  |

**Requirements:**

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| Requirements for participation in the sessions: | If possible, participation in lectures. |
| Requirements for the half-yearly inspections: | Tests (4 pieces) during the semester from the material of the presentation |
| Credit assigned to the subject: | BBI1228 7 kr.  |
| How to create a grade: | Referral from the material of the lecture, which counts for 50% of the practical mark. Requirements system: 0-50% insufficient, 51-70% sufficient, 71-80% medium, 81-90% good, 91-100% excellent. |
| Literature: | Students have access to the electronic form of the ppt presentations of the lectures (in pdf format), which they receive at the beginning of the course Michael G. Simpson 2019. Plant Systematics, ISBN: 9780128126288 |
| Recommended websites: | PlantNet mobilephene application |

***Plant Systematics (BBI1228 English)***

***TOPICS and REQUIREMENTS,***

 ***Full-time training***

**Practice**

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| **week** | **Topic** | **Notes** |
| **1** | Characteristics of local tropical and subtropical Tracheophyte species: Lycophytes, Horsetails (Equisetopsida) and Leptosporangiate ferns.  |  |
| **2** | Student presentations of the local (African, South Asian) tropical and subtropical Tracheophyte species |  |
| **3** | Characteristics of European Gymnosperm species. Cycadophyta, Ginkgophyta and Conifers. Location: Tuzson János Botanical Garden) |  |
| **4** | Identification of the common European Gymnosperm species presented on previous week. |  |
| **5** | Characteristics of European tropical and subtropical species from the Angiosperm basal clades: Nymphaeaceae—Water-Lily family; Magnoliaceae.  |  |
| **6** | Student presentations of the local (African, South Asian) tropical and subtropical Angiosperm basal clades: Nymphaeaceae—Water-Lily family. |  |
| **7** | Characteristics of European monocot families: Liliaceae, Alliaceae Amaryllidaceae Iridaceae, Poaceae. Characteristics of Hornwort family. |  |
| **8** | Demonstartion of the characteristics of the common flowering monocots families: Liliaceae, Alliaceae, Amaryllidaceae Iridaceae, Poaceae. |  |
| **9** | Demonstartion of the characteristics of the common flowering eudicot families: Papaveraceae- Ranunculaceae Euphorbiaceae Willow family, Violaceae. Fabaceae Rosaceae Betulaceae, Fagaceae. |  |
| **10** | Demonstartion of the characteristics of the common flowering eudicot families: Brassicaceae Amaranthaceae, Caryophyllaceae. |  |
| **11** | Demonstartion of the characteristics of the common flowering eudicot families: Primulaceae Boraginaceae, Lamiaceae Oleaceae, Apiales Asteraceae |  |
| **12** | Species identification in the Sóstó forest |  |
| **13** | Species identification in the Sóstó forest |  |
| **14** | Ending of the semester |  |

**Requirements:**

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| Requirements for participation in the sessions: | Participation is obligatory |
| Requirements for the half-yearly inspections: | Practical demostratios, presentatios (4 pieces) during the semester. |
| Credit assigned to the subject: | BBI1228 7 kr.  |
| How to create a grade: | Referral from the material of the lecture, which counts for 50% of the practical mark. Requirements system: 0-50% insufficient, 51-70% sufficient, 71-80% medium, 81-90% good, 91-100% excellent. |
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