Introduction to Plant Biology (2009-2010)

Syllabus

Lecture 1 (Oct 22): Introduction to plant sciences. Evolution – from prokaryotic cyanobacteria to land plants. Structure of plant cells (Biology of plants, 4th addition Chapters 20).

Lecture 2 (Oct 29): Photosynthesis I (Kaplan) General introduction, the chloroplast function and genome, basic physics on photons, water splitting, PSII

Lecture 3 (Nov 5): Photosynthesis II (Kaplan) Continue PSII, PSI, regulation of electron transport including alternative pathways.

Lecture 4 (Nov 12): Photosynthesis III (Kaplan) CO_2 fixation, C3 C4 and CAM and cross talk between the chloroplast and the cytoplasm in energy, redox and metabolites.

Lecture 5 (Nov 19): Shoot and root development in monocots and dicots (Biology of plants, 4th addition Chapters 21,22,23). Tissues in the plant body (Biology of plants, 4th addition Chapters: 20).

Lecture 6 (Nov 26): Apical dominance and the development of the plant body (Biology of plants, 4th addition Chapters: 19,21,22).

Lecture 7 (Dec 3): Water balance in plants (Plant Physiology, 3rd addition Chapters: 3, 4).

Lecture 8 (Dec 10): Metabolic pathways: Mineral nutrition and nitrogen cycles (Plant Physiology, 3rd addition Chapters: 5, 6, 12). Starch metabolism (Plant Physiology, 3rd addition Chapters: 8).

Lecture 9 (Dec 17): Metabolic pathways: secondary metabolites (Plant Physiology, 3rd addition Chapters: 13).

Lecture 10 (Dec 24): Evolution of land plants. Breading processes in land plants (Biology of plants, 4th addition Chapters 17,18).

Lecture 11 (Dec 31): Hormones I (Alex).

Lecture 12 (Jan 7): Hormones II (Alex).

Lecture 13 (Jan 14): Plant ecology (Kaplan) Photosynthesis regulation in the real world under stress conditions

Lecture 14 (Jan 21): Plants and biotechnology: from classical breeding to genetic engineering.