MEPS 601 Physiology of Plants
Credits 3. 3 Lecture Hours. Advanced physiology of higher plants, includes water relations, mineral metabolism, biochemistry, growth, development, hormones, environmental signals and stress physiology. Emphasis on current literature and research trends; cellular and sub-cellular mechanisms related to whole plant behavior. Prerequisites: BICH 410 and MEPS 313 or approval of instructor.

MEPS 605/HORT 607 Plant Biochemistry
Credits 3. 3 Lecture Hours. Major metabolic pathways in plant metabolism; emphasis on biochemistry unique to plants. Prerequisites: BICH 410; MEPS 313 or equivalent. Cross Listing: HORT 607/MEPS 605.

MEPS 610/HORT 610 Physiological and Molecular Basis for Plant Stress Response
Credits 3. 3 Lecture Hours. Provide the tools to understand the molecular and physiological consequences caused by environmental factors (abiotic and biotic) on plant growth and development and the mechanisms of stress adaptation to stress. Prerequisite: MEPS 313 or equivalent. Cross Listing: HORT 610/MEPS 610.

MEPS 618/HORT 618 Root Biology
Credits 3. 3 Lecture Hours. Basic concepts and current topics in root-soil ecology; managed and natural ecosystems including grasslands, cropping systems and forests; role of roots in the rhizosphere, the effects of soil, nutrient and water stress and climate change in C and N cycling and carbon sequestration; participate in discussions and critique recent literature. Prerequisite: Approval of instructor. Cross Listing: HORT 618/MEPS 618.

MEPS 619 Plant-Associated Microorganisms
Credits 3. 3 Lecture Hours. Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness; uses of microorganisms for improved plant health and sustainable agriculture; microbial roles in food safety and future challenges; discussion of current literature. Prerequisites: Basic plant biology or plant ecology is recommended; microbiology is helpful, but not required. Cross Listing: HORT 619 and PLPA 619.

MEPS 620 Plant Cell Structure and Function
Credits 3. 3 Lecture Hours. Overview of plant cell organization, function and physiology to incorporate whole-plant processes with sub-cellular, molecular and genetic mechanisms: origin of eukaryotic cells, nuclear organization and processes, cell cycle, organelle biogenesis and inheritance, photosynthesis, endomembrane system, cell trafficking, symplast, cytoskeleton, extracellular matrix, cell wall, disease, plant microbe interaction, development and differentiation. Prerequisites: MEPS 313 or equivalent, graduate classification, or permission of the instructor.