HORT - HORTICULTURAL SCIENCES

HORT 604 Applied Physiology of Horticultural Crops

Credits 3. 3 Lecture Hours. Chemical, biological and environmental factors in growth and differentiation and their application to ornamental, fruit and vegetable crops; growth kinetics; source-sink relations; fruit development; seed development and germination; juvenility; apical dominance; growth retardants; pruning; photoperiodism; flowering; sex expression; and senescence. **Prerequisites:** MEPS 313 or approval of instructor.

HORT 607/MEPS 605 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:** MEPS 605/HORT 607.

HORT 608 Plants for Landscape Design

Credits 4. 3 Lecture Hours. 2 Lab Hours. Identification and use of indigenous and introduced plants in landscape designs; plants for special uses in commercial and residential developments; emphasis on ornamental attributes, identification, cultural requirements, limitations and adaptability in urban and suburban environments for important taxa; discussion of current issues, research, and trends in selection, marketing, and utilization of plants for landscape design. Only one of the following will satisfy the requirements for a degree: HORT 306 or HORT 608. **Prerequisite:** Graduate classification.

HORT 609 Plants for Landscape Design II

Credits 4. 3 Lecture Hours. 2 Lab Hours. Identification and use of indigenous and introduced landscape plants; plants for special uses in urban environments; emphasis on plants' ornamental attributes, cultural requirements, and adaptability in urban and suburban environments. Only one of the following will satisfy the requirements for a degree: HORT 308 or HORT 609. **Prerequisites:** Graduate classification.

HORT 610/MEPS 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 (abotic and biotic) on plant growth and development and the mechanisms of stress adaptation to stress. **Prerequisite:** MEPS 313 or equivalent. **Cross Listing:** MEPS 610/HORT 610.

HORT 618/MEPS 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:** MEPS 618/HORT 618.

HORT 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:** PLPA 619 and MEPS 619.

HORT 620 Competitive Proposal Writing for Agriculture

Credits 3. 3 Lecture Hours. Identification of public and private funding sources to successfully compete for research grants and contracts; prepare responsive, well-crafted proposals through understanding the review process and the importance of addressing criticism in revision.

HORT 625 Environmental Instrumentation for Plant Research

Credits 3. 2 Lecture Hours. 2 Lab Hours. Application of measurement principles and utilization of environmental sensors and data loggers to evaluate how environmental factors affect plant growth and physiology; lab emphasis on wiring sensors to dataloggers, writing datalogger programs to take sensor measurements, collecting and processing data, and interfacing with control systems to manipulate environmental factors. **Prerequisites:** Graduate classification.

HORT 626 International Floriculture Marketing

Credits 3. 2 Lecture Hours. 2 Lab Hours. Importance, cost and opportunities in marketing floral products, fresh cut flowers, flowering potted plants, foliage plants, and bedding/garden plants; topics include world production areas, economic value, species grown, marketing channels, retail environments, current/future consumers, postharvest handling, promotion/advertising, perceived/added value, marketing trends and employment opportunities. **Prerequisite:** Graduate classification.

HORT 630 Post-Harvest Biology, Physiology and Genetics of Plants

Credits 3. 3 Lecture Hours. Overview of biological, physiological and genetic mechanisms which impart phenotypes associated with quality and value of plant products; current emphasis in areas of ripening, senescence, fruit and flower development, and relevant applications of biotechnology will be focus of course. **Prerequisite:** Approval of instructor.

HORT 640 Phytochemicals in Fruits and Vegetables to Improve Human Health

Credits 3. 3 Lecture Hours. Current scientific knowledge about the role of phytochemicals in their diet; increase the knowledge and awareness of successful, cost effective, public and private integrated approaches to reduce the health and economic burden of chronic diseases; provide instructional curricular resources media for dissemination through conventional and distance education technology. **Prerequisite:** Approval of instructor.

HORT 641 Science of Foods for Health

Credits 3. 3 Lecture Hours. Recent scientific advances on knowledge of foods for health using evidence based research justification; includes interdisciplinary topics emphasizing horticultural science, nutrition and biochemistry. **Prerequisite:** Approval of instructor.

HORT 681 Seminar

Credit 1. 1 Lecture Hour. Student and staff participation in review of literature and reporting on current developments in research on production and processing of horticultural crops. Required of all graduate students in horticulture and floriculture. May be taken more than once but not exceed 3 hours of credit. **Prerequisite:** Graduate classification.

HORT 684 Professional Internship

Credits 1 to 4. 1 to 4 Other Hours. Program planned to provide professional training in student's particular field of interest. Faculty and employer will supervise the activity. Work-study planned as a part of the Master of Agriculture degree program in fruit, ornamentals or vegetable production, processing and handling or landscape or garden design and maintenance. **Prerequisite:** Approval of instructor.

HORT 685 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Individual problems of research or scholarly activity not pertaining to thesis or dissertation, or selected instruction not covered by other courses. Final documentation of directed study is required. **Prerequisite:** Approval of instructor.

HORT 689 Special Topics in...

Credits 0 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of horticulture. May be repeated for credit. **Prerequisite:** Approval of department head.

HORT 690 Theory of Research

Credit 1. 1 Lecture Hour. Design of research experiments in various fields of horticulture and floriculture and evaluation of results with the aid of examples taken from the current scientific literature. May be repeated for credit.

HORT 691 Research

Credits 1 to 23. 1 to 23 Other Hours. Research in horticultural problems for thesis or dissertation.

HORT 693 Professional Study

Credits 1 to 9. 1 to 9 Other Hours. Approved professional paper undertaken as the requirement for the Master of Agriculture. May be taken more than once, but not to exceed 3 hours of credit towards a degree. **Prerequisite:** Graduate classification.