

# INAG - INSTITUTE OF APPLIED AGRICULTURE

## INAG100 Introduction to Plant Science (4 Credits)

A general introduction to plant science designed to provide the students with a working knowledge of the fundamental structures and processes of plants. Content includes plant anatomy, physiology, genetics and environmental relationships.

**Restriction:** Must be a student in the Institute of Applied Agriculture; or permission of AGNR-Institute of Applied Agriculture department.

**Credit Only Granted for:** INAG100, PLSC100, PLSC101, PLSC110 or PLSC112.

## INAG102 Agricultural Entrepreneurship (3 Credits)

This course introduces fundamental concepts related to launching a profitable agricultural business. Topics include idea generation, opportunity recognition, conducting feasibility studies, assembling the entrepreneurial team, and financing the new venture, among others. Students will learn knowledge and skills relevant to starting a new agricultural business.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture. May not count toward any BMGT major or minor requirement.

## INAG103 Agricultural Marketing (3 Credits)

Principles of market demand are used to develop a consumer oriented market strategy for agricultural businesses. Topics include market structures, target marketing, market segmentation, niche marketing and direct marketing. Market concepts unique to agriculture products are also covered.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture. Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor.

## INAG105 Soils and Fertilizers (3 Credits)

Soils and Fertilizers is an introductory course for students entering careers related to applied agricultural production. The course is divided into three subject areas: soil properties, soil fertility, and environmental concerns of using soils for agricultural production. Emphasis is placed upon the characteristics of Maryland soils which are similar to the soils in the mid-Atlantic region. The importance of nutrient management and non-point source pollution of the Chesapeake Bay are covered in the course.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

## INAG106 Pesticide Use and Safety (2 Credits)

An overview of pesticide use and safety. Topics include environmental protection, labeling, personal safety, first aid, formulation and chemistry, equipment, disposal, storage, record-keeping and liability. The course prepares students to take the Maryland State test for a private applicator's license.

**Restriction:** Must be in a major in AGNR-Institute of Applied Agriculture department; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority enrollment will be given to students in the IAA program or to students in the College of Agriculture and Natural Resources (AGNR).

## INAG110 Oral Communication (3 Credits)

A study of how perception, self-concept, and verbal and nonverbal communications affect the communication process as it emerges in the workplace. The course provides skill training in speech writing, public speaking, group communication, interpersonal communication, listening, and responding.

**Credit Only Granted for:** COMM107, COMM200, INAG110, JOUR130, THET285.

## INAG123 People, Planet, and Profit: Digging Into Sustainable Agriculture (3 Credits)

Is it possible for agricultural producers to make a living and feed the world nutritious, culturally inclusive food while protecting—or even restoring—the environment? This course investigates the principles and practices of sustainable agriculture and their relationship to the greater food system. We will explore the social (people), environmental (planet), and economic (profit) impacts of agriculture - from challenges to opportunities. INAG123 applies the principles of sustainability to various agricultural production practices and systems - at a range of different scales - to see what lessons these varied models can offer. Along the way, we will consider domestic issues such as food safety and distribution, food justice, cultural relevance, biodiversity, farming communities, and effects on local economies.

## INAG131 Introduction to Agricultural Policy and Communication (3 Credits)

Introduction to Agricultural Policy and Communication equips students with the knowledge and skills needed to engage in real-world communication around timely issues in agriculture. This course covers basics of United States government and the policymaking process, current and historical policy issues in agriculture, advocacy communication strategies and tactics, and careers in policy and advocacy. This course focuses on practical skills application, as well as exposure to government and advocacy work in action, including field trips and guest speakers. Throughout the course, students will learn and practice communication methods both individually and in team-directed agriculture-related projects.

**Restriction:** Must be a student in the Institute of Applied Agriculture; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**INAG132 Agricultural Leadership and Teamwork (3 Credits)**

Introduces fundamental concepts related to leadership and teamwork in agricultural organizations. Topics include leadership practices and skills; relationships between leadership, authority, power, and ethics; team decision-making and management; and organizational culture and change. Students will develop effective leadership skills necessary for leading agricultural organizations.

**Restriction:** Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space.

**INAG201 Agricultural Human Resources Management (3 Credits)**

The course introduces students to the study and application of the basic principles of human relations and personnel management. A variety of approaches to recruiting, training, delegating, motivating, and appraising employees are among the topics discussed.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** May not count toward any BMGT major or minor requirement.

**INAG203 Agricultural Finance (3 Credits)**

This course introduces fundamental concepts related to the financial management of an agricultural business. Topics include financial statement analysis, financial planning, the relationship between risk and return, the time value of money, costs associated with borrowed funds, sources of capital, financial markets and intermediaries in agriculture, and personal finance, among others. Students will gain financial knowledge and skills necessary for managing a profitable agricultural business.

**Restriction:** Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space.

**Additional Information:** Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor.

**INAG204 Agricultural Business Management (3 Credits)**

This course integrates various concepts related to managing a profitable agricultural business. Topics include business management and decision making, preparing a business plan, financial analysis and budgeting, risk and investment management, and small business taxes, among others.

Students will gain relevant knowledge and skills as they complete the comprehensive business plan for successfully managing an agricultural business.

**Recommended:** INAG102.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture. May not count toward any BMGT major or minor requirement.

**INAG205 Analyzing Alternative Enterprises (3 Credits)**

This course identifies and analyzes alternative crops, livestock, and other agricultural business enterprises. Students assess sustainability, geographic adaptability and potential profitability of businesses through lectures, class projects, and presentations from farmers, entrepreneurs, and managers engaged in alternative enterprises. Topics may include value added approaches, organic crop production, and recreational agricultural pursuits.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture.

**INAG206 Agricultural Business Law (3 Credits)**

This course introduces various legal concepts and their relationships to agricultural business and transactions. Topics include torts, criminal law, contracts, promissory notes, property, partnerships, business entities, employment, and bankruptcy, among others. Students will gain a general understanding of the legal system that will help them manage and/or operate profitable agricultural businesses.

**Restriction:** Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space.

**Additional Information:** Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor.

**INAG207 Power and Machinery (4 Credits)**

The basic principles of compact equipment management, including selection, maintenance, operation, adjustment and troubleshooting of agricultural machinery and power units. Covers methods of power development, measurement, and transmission, through power trains both mechanical and hydraulic. Each student will complete a systematic disassembly, analysis, diagnosis and reassembly of a small engine.

**Prerequisite:** INAG250 or PLSC204.

**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority will be given to IAA students and permission will be granted to AGNR students and others on a space available basis.

**INAG208 Understanding Turfgrass: Preparation for Intercollegiate Turfgrass Competitions (1 Credit)**

This course reinforces students' understanding of turf agronomic and integrated pest management principles of turfgrass management. This class is designed to prepare students for intercollegiate turf science competitions: the Golf Course Superintendents Association of America Turf Bowl and the Sports Field Managers Association Student Challenge. While the basic content areas in the course schedule will remain the same, this course will be tailored each year to reflect current trends in the turf industry.

**Restriction:** Must be in the Institute of Applied Agriculture; or must be in a major in the College of Agriculture and Natural Resources; or by permission of the department.

**Repeatable to:** 4 credits.

**INAG213 Crop Production Practices (3 Credits)**

Crop Production Practices covers the applied methods of producing various vegetable and agronomic crops in Maryland. This course focuses on commercial scale production where economics impact production decisions. Topics include crop rotation, cropping systems, nutrient management, and integrated pest control strategies. Throughout the course, economically, socially and ecologically sustainable production practices will be addressed.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture.

**INAG214 Agronomic Principles of Golf Turf Management (3 Credits)**

An in-depth study of golf course management practices such as turfgrass selection, fertilization, mowing, irrigation, and cultivation practices. Weed control programs will be discussed in detail for the different playing surfaces on the golf course. Field plot work, laboratory work, and field trips will reinforce lecture material.

**Recommended:** INAG107; or PLSC305.

**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in one of the following programs (Plant Sciences; Plant Sciences: Horticulture & Crop Production; Plant Sciences: Landscape Management; Plant Sciences: Plant Science; Plant Sciences: Turf & Golf Course Mgmt; Plant Sciences: Urban Forestry) ; or permission of instructor.

**Additional Information:** Enrollment priority is given to students within the Institute of Applied Agriculture (IAA) and the Plant Science and Landscape Architecture Department.

**INAG215 Business Management Principles for Turf Facilities (3 Credits)**

An advanced course in turfgrass management with emphasis on development of maintenance operating budgets for labor, fertilization, pest control, and supplemental cultural practices for golf courses and athletic field facilities. An overview of the current trend in golf course design and construction and in athletic field construction practices will be covered. Students will be responsible for a presentation concerning some phase of turfgrass management relating to golf course or athletic field operations.

**Recommended:** INAG107; or PLSC305.

**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in one of the following programs (Plant Sciences; Plant Sciences: Horticulture & Crop Production; Plant Sciences: Landscape Management; Plant Sciences: Plant Science; Plant Sciences: Turf & Golf Course Mgmt) ; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Enrollment priority is given to students majoring in Turfgrass and Golf Course Management in the Institute of Applied Agriculture and Plant Science and Landscape Architecture.

**INAG224 Greenhouse and Plant Production Management (3 Credits)**

Principles of managing greenhouses—structures, coverings, lighting, irrigation, heating and cooling systems—and their effects on plant production. Plant propagation methods and environments will be analyzed and practiced.

**Restriction:** This course is open to students in AGNR. Priority enrollment will be given to students in the Institute of Applied Agriculture. All other majors will be granted permission based on available space.

**Credit Only Granted for:** INAG 114 or INAG 224.

**INAG226 Diseases of Ornamentals and Turf (3 Credits)**

The course will cover various topics such as plant pathology, disease control practices, and an in depth coverage of the major diseases of ornamentals and turfgrasses in the Mid-Atlantic region. Emphasis will be placed on identification of disease signs and symptoms. Over 50 diseases will be covered during the semester.

**Recommended:** Completion of one of the following is recommended: PLSC 253, PLSC 254, INAG 107, PLSC 305.

**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture.

**INAG231 Insects of Ornamentals and Turf (3 Credits)**

A study of the major insect pests and beneficial insects of ornamental plants and turfgrasses in the Mid-Atlantic region. The student will be responsible for insect identification, life history, and control practices of approximately 100 insects. An insect collection consisting of both insect pests and beneficial insects is required.

**Recommended:** PLSC253, PLSC254, or PLSC305; or INAG107.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Additional Information:** Priority enrollment will be given to students in the IAA program.

**INAG235 Irrigation and Drainage (3 Credits)**

An overview of U.S. and state water doctrines and plant water use rates. Irrigation systems for residential and athletic field use will be discussed covering such topics as hydraulics, sprinkler spacing, pipe selection and sizing, pumps, controllers, valves, and irrigation trouble shooting. Surface and subsurface drainage for turfgrass sites will also be covered.

**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in a major in AGNR-College of Agriculture Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Credit Only Granted for:** INAG235 or PLSC235.

**Additional Information:** Priority enrollment will be given to IAA and PLSC majors. By permission for available seats.

**INAG237 GPS & Drone Applications in Surveying (3 Credits)**

The principles of land measurement using Global Positioning System (GPS) devices and Unmanned Aerial Vehicles (UAVs—i.e. drones) to collect data and generate maps. Students will use Pix4D and Trimble TerraFlex software to post-process collected data and learn how we can use this data to make informed land management decisions. Students will also be prepared to successfully earn their Part 107 Commercial Drone Pilots License as part of the course.

**Restriction:** Must be an Institute of Applied Agriculture student; or permission of the Institute of Applied Agriculture.

**Additional Information:** Course is open to Institute of Applied Agriculture students and permission will be granted to other students based on available seats, with priority given to students from majors in the College of Agriculture and Natural Resources.

**INAG242 Golf Course Design and Construction (3 Credits)**

An appreciation and understanding of the game of golf is obtained through lectures on the history, organizations, and rules of the game. Golf course design theories, great architects and their courses, and construction specifications are discussed. Students will complete two golf course design projects.

**INAG244 Herbaceous Plants (3 Credits)**

Herbaceous plants are integral components of residential and commercial landscapes. Students will become familiar with 250 annual and perennial plants. The emphasis will be on plant management requirements and seasonal variation in the landscape.

**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**Credit Only Granted for:** INAG244 or PLSC244.

**INAG248 Topics in Sustainable Agriculture (2 Credits)**

Through readings, class discussions, and guest speakers, this seminar course exposes students to current trends, concerns and research in sustainable agriculture and food systems. It allows students to explore various interest areas and discuss a variety of topics as they relate to sustainable practices.

**Recommended:** INAG123.

**Repeatable to:** 2 credits if content differs.

**Additional Information:** The topics covered in this course change every year, guided by student interest, current research, and availability of guest speakers.

**INAG250 Fundamentals of Agricultural Mechanics (4 Credits)**

Comprehensive coverage of the fundamentals of agriculture-related mechanics. Lecture and lab exercises will cover a broad range of topics including electricity, plumbing, welding processes, and wood and metal working applications. Emphasis will be given to the design and installation of electrical circuits. It will also include project planning and implementation, including development of safety protocols for each area of study.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources, OR Permission of AGNR-Institute of Applied Agriculture Department.

**Credit Only Granted for:** PLSC204 or INAG250.

**Additional Information:** Priority given to IAA majors and AGNR students whose major requires this course. Permission will be granted to other students on seats available basis.

**INAG251 Landscape Construction (3 Credits)**

An introductory course in the basics of hardscape topics in landscape construction. Covers fundamental construction layout using surveying techniques; GPS; elements of construction dealing with wood, concrete, masonry, pavers, and/or electrical amenities used in hardscape construction. Emphasis will be placed on safety, interpretation of construction drawings or plans, specifications for specific structures, materials selection, cost estimations, site preparation and typical construction techniques.

**Prerequisite:** INAG250 or PLSC204.

**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources.

**Additional Information:** Priority enrollment is given to Landscape Management majors in the Institute of Applied Agriculture.

**INAG252 Agricultural Public Relations (3 Credits)**

Introduces the fundamental concepts and procedures of public relations in agriculture. Topics include understanding external audiences; key practices in agricultural media relations, social media, executive communication, and crisis communication; and managing the research, planning, and evaluation aspects of the public relations process. Students will gain the public relations knowledge and skills necessary for communicating effectively with an organization's external audiences.

**Recommended:** INAG103.

**INAG253 Agricultural Strategic Communication (3 Credits)**

Introduces the fundamental concepts and applications of strategic communication in agricultural organizations. Topics include strategic communication planning; communication and culture; communication and change; managing internal and external communication; and corporate responsibility. Students will learn how to use communication to accomplish organizational goals.

**Recommended:** INAG252.

**INAG272 Principles of Arboriculture (3 Credits)**

The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.

**Cross-listed with:** PLSC272.

**Credit Only Granted for:** INAG272 or PLSC272.

**INAG288 Internship (1 Credit)**

On-site internship training in the student's major area of study. Students must complete a minimum of 320 working hours at an approved work site. Course work also includes weekly written assignments and a site visit assessment.

**Restriction:** Must be enrolled in the Institute of Applied Agriculture; or permission of the Institute of Applied Agriculture.

**Repeatable to:** 2 credits.

**INAG289 Internship Experience & Professional Development (3 Credits)**

Professional development and reflective analysis of the experience from the Practicum (INAG 288). Based on their 320-hours of internship work experience, students will write an internship report and analysis, deliver an oral presentation, and develop professional skills and materials needed to enter their careers.

**Prerequisite:** INAG288.

**Restriction:** Must be enrolled in the Institute of Applied Agriculture students; or permission of the Institute of Applied Agriculture.