

# The Merit of Service Courses

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### Abstract

*Large numbers of undergraduates may be exposed to a discipline outside of their major via the service course. Without the restrictions of prerequisites, a service course like Indoor Plants welcomes students of all academic backgrounds and introduces them to the horticultural basics necessary for successful houseplant cultivation. Plant growth requirements of major species groups are discussed and over 75 individual species are learned by sight. Laboratories are designed to illustrate lecture concepts in a practical manner, and are tightly scheduled to the related lecture. Graduate teaching assistants have instructional and administrative responsibilities for their own class section but work closely with the course administrator in test construction, grading, and course refinement. Service courses like Indoor Plants have proven recruitment potential and serve an important marketing function for the discipline.*

### Introduction

The undergraduate "service" course is generally what academicians label a course offering meant to attract students from throughout the university. Such courses are sometimes closed to in-house departmental majors or can be taken only for "free" or "unrestricted" elective credit towards a degree. If you're currently a student, or at least not too far removed, then the name "gut", "crib", or "cume-builder" course may be more familiar. While such campus colloquialisms do not portray all service courses accurately, these names did not arise without some basis. Documenting individual examples would, obviously, be difficult, debatable, and probably of little value in the long run. Therefore, is it valuable for a horticulture department to embrace the service course concept?

### Background

The service course commonly presents a broad survey of an entire discipline to an undeclared major or it may cater to

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(Continued from previous page.)

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students with a peripheral interest in the subject. For example, the following are listed in the 1991-1992 General Catalog of Undergraduate Courses at Virginia Tech: Statistics and Society, Telecommunications and Technology, and Survey of Textiles. It is no secret that bolstering departmental enrollments via these courses benefits a department's financial position; does the phrase "weighted student credit hours" ring a bell? It's an effective tactic during periods of declining enrollments in one's own department. It can be exemplary when the material is substantive and benefits the department and students alike. A service course can attract uncommitted majors to a department, give graduate assistants a meaningful exposure to undergraduate education administration, and have the flexibility to adjust to timely, intriguing subject matter trends. It can just as easily become shallow, dull, and simplistic through neglect, indifference, frequent instructor changes, or when solely driven by the need to increase enrollment.

### Course Mechanics

Indoor Plants (Horticulture 2144), originally developed in the 1970's, is an example of a service course at Virginia Tech which has withstood the test of time. It survived the switch from quarters to semesters, involves graduate teaching assistants in more than just a janitorial capacity, and typically enrolls nearly 450 students on a year-round basis. Greenhouse facilities are required but the operational budget is derived entirely from student laboratory fees. A description of the course is presented herein so that others may compare, adapt, and/or adopt features for their own curricula.

The philosophy is simple. Teach a variety of basic horticultural principles with a slant towards tropical ornamentals. Furthermore, provide a wide variety of "hands-on" activities so that lecture principles are quickly and successfully illustrated. Indoor Plants is a 3 credit course consisting of 30-35 students (maximum) per section and meets for 75 minutes twice per week; there are 4 sections in the fall, 5 in spring, and 2 in each of the summer semesters (13 sections total/year). Instead of scheduling a separate laboratory, a class session may be a lecture alone or unevenly split between lecture and laboratory. This arrangement works because the classroom is inside the greenhouse complex and permits a high degree of time flexibility for either the lecture or laboratory. Several examples of lecture/laboratory pairings include sexual propagation/seeding three species, asexual propagation/taking various cuttings, ferns/terrarium construction, and special horticultural techniques/

braiding weeping figs. All laboratory materials must be purchased within a budget generated entirely from student laboratory fees. For almost ten years, the \$25 fee did not hinder student interest; the fee has just been raised (Fall '91) to \$30 and it is too early to tell what effect, if any, there may be. End of the semester course evaluations by students and informal feedback routinely cite great satisfaction for the amount of "take-home" materials in return for the fee. Most laboratory projects are completed and taken home immediately, except for the sexual and asexual propagation exercises which require time in the mist bed for the plants. Each student is assigned an approximate 1625 cm<sup>2</sup> area within the mist bed where the germination pack and all cuttings are placed.

The main greenhouse structure itself is a 10 x 20 meter fiberglass quonset house which also stores class related supplies until needed. Another similar structure holds stock plants, rooted cuttings for future laboratories, duplicate species on the required plant list, and young plants needed for later projects (e.g. ferns, cacti, and bromeliads).

### Course Administration

We always seem to be in a state of flux as lectures and laboratories are constantly fine-tuned. However, a basic backbone has persisted throughout even the most drastic periods of change, like the quarter to semester conversion. Students currently must learn to identify 78 common houseplants by sight as well as know their cultural requirements. To assist and supplement lectures, Taylor's Guide to Houseplants is required reading. The abbreviated horticultural information serves the intended audience well and the photographs are excellent to prepare for identification exams. Live specimens can be viewed in the greenhouse from 8 AM - 5 PM, five days per week. In addition, a manual of reprints from popular horticulture magazines has been compiled to fill in any miscellaneous voids, especially for individual species, plant groups, and techniques needing special emphasis (e.g. Venus fly-trap, dish garden construction).

Not surprisingly, grading occupies the incoming student's mind and is discussed on the first day of class. Final performance evaluation is based on the number of points received out of a total of 300, broken down as follows:

Identification Quiz #1	(10 points)
Midterm Examination	(100 points)
Identification Quiz #2	(30 points)
Final Identification Exam	(60 points)
Final Written Examination	(100 points)

Identification (I.D.) quizzes and examinations are simply that. Five plants from the initial 20 on the list are tested on the first quiz, 15 out of 61 on quiz #2, and 30 plants selected from the entire list of 78 for the Final I.D. Quizzes are always comprehensive. Even the midterm examination has 10 plants (20 points) dedicated to plant identification. Written examinations are tailored for computer grading and are most frequently multiple choice; 40 questions on the midterm and 50 on the written final. All class sections receive the same written examinations and the similarity of year to

year exam performance would please any statistician. In fact, examination averages among sections during the same semester are almost always statistically alike. This indicates that students in the earliest sections are unlikely to discuss examination contents with individuals in later sections.

A controversial decision concerning course requirements was recently made. For years, students were responsible for learning both the common and scientific names of listed plants. But the realistic value of learning botanical nomenclature was repeatedly questioned on semester-end course evaluations. We finally decided to delete the scientific names because their retention by students appeared to be so poor. Unlike horticulture majors who saw these species repeatedly, non-majors were unlikely to experience the same exposure and relied on short term memory to pass tests. The problem didn't lie with mastery, quite the contrary. The college experience is full of memorization opportunities and undergraduates get very good at it. In fact, the final I.D. score usually enhanced a student's overall grade. There just seemed to be little point in demanding another rote memory exercise. As a result, the required plant list was enlarged and students now learn the specific common name given in class, even though several may exist in popular literature.

### Role of the Graduate Teaching Assistant

The course coordinator has very specific responsibilities but, make no mistake, the participation of graduate teaching assistants (GTA) is vital to the success of Indoor Plants. The coordinator primarily oversees budget administration and course content. Locating vendors, maintaining inventory, developing and updating lectures and laboratories, orienting and evaluating GTA's, and occasionally teaching a section are common annual activities. Each GTA is assigned a class of up to 35 students in which to administer exams, demonstrate laboratories, deal with individual student problems, and, most importantly, teach from prepared notes. GTA's from baccalaureate backgrounds in horticulture and some disciplines of biology have successfully fulfilled the GTA responsibility in Indoor Plants; there is no training period for newly assigned GTA's. Inexperienced graduate students express concern at the outset but the vast majority perform exceptionally well. In fact, most GTA's receive above average ratings from their classes for overall effectiveness. First time GTA's often look toward those who have taught the course before for impromptu advice in addition to coming to the course coordinator. The benefits of the Indoor Plants assignment for graduate students extend beyond the classroom. Veteran GTA's exhibit poise, composure and fine speaking skills in seminar situations, which they themselves often attribute to the copious "practice" they've had in front of a class. Once employed, these same individuals report an ease with teaching and extension functions, having already participated in many related activities in the Indoor Plants setting.

Test construction and final student evaluation are collaborative activities between the coordinator and GTA's. Exams are partially constructed from questions solicited

from each GTA. Wording, clarity, and subject emphasis are checked by the course coordinator and all participating GTA's so the final copy is fair to all sections. The remainder of the written midterm and final exams is derived from a computer bank of questions developed and continually augmented from the best questions of the past. In this regard, the Virginia Tech Testing and Measurement Center provides valuable response statistics for each exam item so that question culling is possible and valid. While exams are never identical from one semester to the next, this process does necessitate repeated use of many questions. Lest you think this would permit memorization of old tests, consider the following: the size of the question bank grows appreciably each year, we collect exams after class review to discourage campus circulation, and years of data indicate that student performance is remarkably similar from year to year.

The semester culminates in a meeting of the course coordinator and the GTA's shortly after the written final exam. A generous dose of university paperwork is experienced when grades are tabulated, especially in spring semester when this university mandates early tentative grades for graduating seniors. While the mechanics of the paperwork is hardly educational, it is a part of any instructor's responsibilities. Discussions become interesting when the relative merits of using subjective or non-quantitative criteria in grade determination come up. Should a curve be used and how should grade boundaries be determined? Should borderline students be elevated to the next higher grade and how should that decision be made? Is it valid to use class attendance for performance evaluation? Should extenuating circumstances influence final grading? Is there any room for emotion in this process at all? Finally, GTA's are asked to critique the recent semester. The coordinator receives useful feedback. It is coming directly from those on the line. It is not unusual for lectures and/or laboratories to look great on paper but fail miserably in practice. Students may fall asleep when certain topics are covered and, despite what computer grading analysis indicates, some test questions may just be inappropriate. GTA's are more than willing to contribute to the evolution of a course as long as they know their suggestions are being taken seriously.

### Recruitment Potential

The service course concept works when it is valued within the department. Indoor Plants has proved to be an asset in many respects at Virginia Tech. Transfers into horticulture have occurred as a result of Indoor Plants. Department enrollment has stabilized. The potential for service course development is excellent, given the diverse nature of horticulture and other agricultural disciplines. The time is also opportune. Concerns about ecology and the environment are on the rebound.

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# Recruitment Strategies For an Agricultural Mechanization Program

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Maintaining quality, viable student numbers in Agricultural Mechanization departments has become a serious concern over the past several years. This issue is not only a concern for this particular curriculum, but for many programs in Colleges of Agriculture nationwide. Slocombe (1986) noted that enrollments in agricultural curriculums at land grant universities had declined nearly 25% in the past five years. It appears that several factors have attributed to this concern. One of the key factors involves the decreasing number of farms and traditional age rural youth who have been the primary focus for student numbers in agricultural curriculums. Furthermore, poor economic climates for agriculture have caused rural students to seek non-agricultural degrees. In response to the declining numbers of rural students, many states have responded with decreased numbers of secondary vocational agricultural programs. Cole and Bok (1989) found that the type of high school curriculum chosen by a student has little impact of the actual decision to go to college, but has a significant influence on their choice of major. In response to these factors, recruiting efforts have been increased as well as altered with more emphasis on urban populations and non-traditional students.

Based upon the importance of this issue, several studies have been conducted to identify more appropriate recruitment techniques. Slocombe (1986) conducted a study to identify factors associated with students' decisions to attend the University of Idaho and enroll in the College of Agriculture. His study noted that parents and/or guardians were the primary factor in both the decision to attend the University of Idaho and enroll in the College of Agriculture. Other primary factors included university literature, friends, campus visits and university students. Bekkum and Mangold (1988) conducted one of the few national enrollment studies of Agricultural Mechanization programs. Forty-one percent of the mechanization programs responding noted a decrease in student numbers and 82% indicated that some type of recruiting program had been initiated. Furthermore, the respondents identified specific recruiting activities that were presently being utilized. Personal letters, on-site visits to prospective students, open house activities, parties, career days, videotapes and slides, student organizations and alumni use in recruitment, scholarships and displays were noted as the common types of activities being utilized by the respondents. Magette, Smith, Stewart and Wheaton (1988) highlighted the revival of their recruiting efforts by means of recruiting undecided first and second year students at the University of Maryland. Similarly, Boone, Newcomb, Reisch and Warmbrod (1989) discussed the

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