TABLE 4 Regression Equations For Academic Area Grade Point Average

Dependent Variable	Constant Term	Variables and Coefficients	R	R^2	Standard Deviation
AEGPA	2.12	+ .350 HSGPA - .125 VA+ .145 M	.70	.49	.40
AECGPA	0.66	+ .459 HSGPA + .033 Arith.	.74	.55	.44
AHGPA	-6.92	+.049 Voc + .233 VA + .558 HSGPA	.75	.56	.69
DRYGPA	-6.66	+ .760 HSGPA + .045 Voc + .173 GPAVA	.60	.36	1.27
CSCGPA	-0.59	+ .034 DAT + .321 HSMGPA + .241 M	.61	.37	.80
SLSGPA	-3.81	+ .413 HSE + .026 Voc + .024 DAT - .111 VA	.67	.44	.68
COMGPA	1.94	+ .467 GPAHSE - .104 VA	.57	.33	1.94
RDGPA	0.30	+ .064 Chem + .817 HSGPA - .041 DAT - .204 VA	.64	.41	1.42

equation as an aid in advising a student of the possibility of doing well in AE, the HSGPA, VA, and M would be most important variables. To estimate the GPA he might expect in AE, he would utilize data from the student's transcript and perform the mathematical computations. This would yield the expected GPA. The advisor could also stress the importance of vocational agriculture and math skills as well as HSGPA in helping students do well in AE courses.

From the equation for agricultural economics (AEC), we can generate an estimated GPA and show that arithmetic ability is very important in AEC. Thus, if a student scores low on the Arith test or has a low HSGPA, he may encounter difficulty in AEC. The advisor would do well to recommend that the student improve his math skills prior to taking AEC courses.

In predicting animal husbandry (AH) GPA, Voc, number of vocational agriculture courses, and HSGPA are the most important variables. HSGPA, Voc, and GPAVA are most important in determining dairy (DRY) GPAs.

The differential aptitude test, HSMGPA, and the number of math courses were the most important when used in combination to predict crop science GPAs.

Soil science GPAs were best predicted when using the number of high school English courses, Voc and DAT scores, and the number of vocational agriculture courses.

For communications skills the GPAHSE is the most important variable with the number of vocational agriculture courses having an inverse relationship.

Chemistry test scores, high school GPAs, DAT test scores, and the number of vocational agriculture courses are the best predictors of resource development GPAs.

When using equations for DRYGPA, COMGPA, and RDGPA, we find that the magnitude of the standard deviation greatly reduces the usefulness of these equations. And the R^2 for all equations is rather low. This may be explained by the heterogeniety of the Agricultural Production Program students.

Conclusions

Our study found correlation coefficients for GPAs with single predictors and used regression analysis for a set of multiple predictors. The study suggests that a student's GPA in the Agricultural Production Program can be predicted using certain predictor variables. However, from 47 to 40 percent of the variation in $GPAs_{1-4}$ was not explained using our variables. Thus, motivation and other factors not measured were responsible for this remaining variation. While not denying that 47 percent unexplained variation is an important consideration when using these equations, the 53 percent that was explained could be used as an aid in student acceptance and in advisement once the student is in the program.

The subjective evaluation of a student's background, the high school counselor recommendation, references, and personal interviews with the student are invaluable tools in the admissions and advisement process. The regression models presented in this paper are another tool the admissions officer or advisor might find beneficial, but it should not be used in a vacuum.

To Meet The Need

Donald E. Ringstmeyer

Abstract

Case study of a unique post-secondary vocational technical institution connected with a major land-grant university. Evidence is cited showing benefits of such association.

In the early 1960's, a Nebraska Unicameral Legislature interim study revealed there was a serious shortage of adequately trained, technically educated, work force to meet the needs of farmers, ranchers, and the agri-business related industries in Nebraska. This need was serious enough to impede the normal economic growth of rural as well as urban Nebraska. To help relieve this situation, serious consideration was given by the Nebraska Unicameral Legislature to the development of an agricultural related technical school on the post-secondary level. The fruit of this consideration was the development of a pilot educational program in technical agriculture.

Unique UNSTA

Thus, the University of Nebraska School of Technical Agriculture at Curtis was established by a unanimous resolution of the members of the unicameral in 1965. In

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the past ten years of operation this twenty month vocational educational program has graduated 752 students with an Associate in Technical Agriculture Degree. UNSTA is a division of the Institute of Agriculture and Natural Resources of the University of Nebraska, Lincoln. The control and admistration of UNSTA is unique in that it is governed by the University of Nebraska whereas all other post-secondary vocational technical institutions are a part of an area technical-community college district and are under local boards of control as well as state jurisdiction.

The Institute of Agriculture and Natural Resources, a division of the University of Nebraska, Lincoln, was established by the Nebraska unicameral in 1973, and it is headed by a vice chancellor. The three basic units which compose the University of Nebraska system are the University of Nebraska-Lincoln, the University of Nebraska-Omaha, and the University of Nebraska Medical School.

Although UNSTA is housed on a separate campus, it is considered an integral unit within the structure of the College of Agriculture which provides academic resident instructional programs for the Institute of Agriculture and Natural Resources. The College of Agriculture faculty in Lincoln does not have direct appointment at UNSTA and vice versa; however, several faculty members of the College of Agriculture do serve on the UNSTA advisory committees. Both faculties are a part of the total Institute of Agriculture and Natural Resources. Each faculty has equivalent academic rank commensurate with its individual education and experience.

Two Main Objectives

The University of Nebraska School of Technical Agriculture at Curtis has two main objectives in its educational philosophy. The primary objective is to graduate students after twenty months of study who have demonstrated their competency in specific technical knowledge and occupational skills. Those graduates will also demonstrate through work experience their preparedness for employment in an agricultural trade or technical occupation. The second objective is the developmental growth of each student's personal capabilities as a useful citizen. The 20 month school curriculum of classroom study and work experience does not lead to a baccalaureate degree, and the hours of credit so accumulated are not transferable, at this time, to a four-year college program. UNSTA graduates receive an Associate in Technical Agriculture Degree.

There are 6 basic programs offered at UNSTA. They are Agricultural Business Technology, Agricultural Land and Water Technology, Agricultural Machinery Mechanics Technology, Commercial Horticulture Technology, Production Agriculture Technology, and Veterinary Technology. The curriculum in each of these programs is reviewed and up-dated annually by individual advisory committees. The advisory committees are composed of agri-industry personnel who are actively engaged in various agri-industries that the school serves. Faculty members, department chairmen, students, and graduates also serve on the advisory committees. It is with the recommendations of the advisory committees on school curriculum, specific course content, basic physical facilities, educational equipment, and general school policies that the school is able to respond to agricultural needs and changes in agri-technology.

The student population at UNSTA, with its varied and diversified educational background and experience, provides a cross-section of young people not only from across the state of Nebraska but eleven other states as well. With its present facilities, UNSTA can provide instruction for 264 students. With the completion of a new educational complex which will house the Production Agriculture and Veterinary Technology departments, the maximum school enrollment will be approximately 300 students. The new building is scheduled for completion in early 1976.

Instructional Staff

The current faculty members all have experience as well as diverse degrees in a variety of agricultural fields. An analysis of the faculty reveals one Ph.D, two DVM, four M.Ed., six M.S., ten B.A. or B.S., and five A.A. degrees. The average years of occupational experience is eight.

Wage earning experience is considered of primary concern in the preparation of instructors for vocational-technical education. Part time and full-time experience are considered when they relate directly to the teaching position being filled. Positions only remotely related to the instructor's teaching field are not considered as "experience."

Formal educational requirements may vary according to the position being filled. Some require a specific degree whereas others need occupational experience. Formal education includes any instruction received in short courses offered by industry, seminars, college courses, and technical school training. The instructor's grades, evaluations, and courses taken are factors that are given the most consideration in evaluating formal preparation for teaching.

Social adjustment and personal values are considered when evaluating the potential of an individual for teaching. Positive attitudes toward youth and the ability to get along with others are considered attributes of a good instructor.

20 Months of Study

Each of the 6 basic programs of study at UNSTA covers a 20 month educational period, which is divided into 7 quarters of 11 weeks each. The 7 quarters are representative of a 3 phase educational approach. The 35 hours of weekly classroom instruction and laboratory experiences provide a sound background for the student's initial entry into vocational agricultural occupations. The second phase takes place during the third or fourth quarter. During this period the student goes on actual work experience in an off-campus situation. The edu-

cational lessons so gained help to set the tone and quality of education during the remaining 4 quarters. During that time the student acquires the specific occupational manipulative skills and basic knowledge which are highly applicable when he enters his chosen agribusiness occupation.

The **AGRICULTURAL BUSINESS TECHNOLOGY PROGRAM** provides education designed for the young man or woman who wishes to develop or improve skills in business management techniques and technical agriculture. The goal of the department is to maintain a balance between theory and practical application which will lead to employment in areas which include the following:

(a) Bookkeeper, salesman, assistant manager or manager in feed, seed, chemical, and fertilizer stores, grain elevators, cooperatives, farm equipment dealerships, etc.
(b) Partsman for equipment dealers
(c) Farm loan assistants
(d) Mid-management positions in agricultural retail, wholesale, or distribution firms

Some of the various supportive course areas needed to achieve the above listed potential employment opportunities are the following:

Economic Principles
Bookkeeping and Accounting
Oral and Written Communications
Ag Chemicals and Equipment
Business Mathematics
Advertising and Retail Sales Techniques
Farm Equipment and Implements
Credit and Farm Finance
Livestock Nutrition and Management
Taxes and Insurance
Parts Management
Human Relations

The **AGRICULTURAL LAND AND WATER TECHNOLOGY PROGRAM** trains those individuals desiring to enter the technological field of soil and water conservation, irrigation, pollution control, natural resource development, and land improvement construction. The level of instruction prepares the technician to supplement the professional and perform tasks that require special skill, technological knowledge, and responsibility. Occupations and areas of employment include the following:

(a) Conservation engineering aid for the Soil Conservation Service, Bureau of Reclamation, the Department of Roads, and various environmental agencies
(b) Soil and materials testing technician for the Department of Roads or private testing laboratories
(c) Draftsman or surveyor for conservation contractors, and consulting engineering or irrigation firms
(d) Farm operators versed in the latest soil and water conservation practices

A list of the course work where a minimum of 55 hours of class work is required are the following:

Surveying and Measurement
Oral and Written Communications
Technical Drawing and Drafting
Principles of Irrigation
Practical Mathematics, Chemistry, and Physics
Construction Methods and Equipment
Soil Mechanics
Pollution Control and Natural Resources
Stream Flow and Water Measurement
Human Relations

The **AGRICULTURAL MACHINERY MECHANICS TECHNOLOGY PROGRAM** provides training for those students desiring to develop their mechanical skills to a level which will qualify them to take their place in the industry as:

(a) Mechanic or mechanic's helper for farm equipment dealers
(b) Salesman or partsman for farm equipment dealers
(c) Farmer or rancher who can maintain his own equipment
D) Owner of farm equipment repair shop

Some of the courses studied during the 20 month period of time are the following:

Welding
Electricity
Carburetion
Small Engine Overhaul
Tractor Engine Overhaul
Related Mathematics and Physics
Planting, Tillage, and Harvesting Equipment
Hydraulics
Diesel Fuel Injection Systems
Petroleum and Lubricants
Shops and Parts Management
Written and Oral Communications
Human Relations

The **COMMERCIAL HORTICULTURE PROGRAM** trains students to enter nursery, greenhouse, garden center, or flower shop businesses. Given a few years of experience, a graduate of this program should be capable of becoming an owner-operator or a manager of the above firms. Employment for graduates is available in the following areas:

(a) Nursery Operations
(b) Landscaping Firms
(c) Greenhouse Operations
(d) Lawn and Turf Firms
(e) Grounds Maintenance
(f) Combinations of the above

Some of the more important subjects studied are as follows:

General Nursery and Greenhouse Management
Identification of Plant Materials
Lawn and Turf Practices
Landscape Design
Vegetable and Garden Plant Propagation
Plant Insect Control
Salesmanship and Retailing
Written and Oral Communications
Human Relations

The **PRODUCTION AGRICULTURE TECHNOLOGY PROGRAM** provides training in modern agricultural techniques for students interested in, and planning on, careers in crop and/or livestock production. This includes animal nutrition, herd management, farm management, and resource utilization. Areas of employment include the following:

(a) Manager and operator of own farm or ranch
(b) Herdsman for livestock producer
(c) Manager or assistant manager of commercial feedlot
(d) Farm or ranch foreman
(e) Employment with ag-related industry

Specific courses covered by each student include the following:

Livestock Nutrition and Management
Money Management Techniques
Soil Science
Water Supply and Control
Land Evaluation
Livestock Genetics
Plant Selection
Farm and Ranch Law
Bookkeeping and Accounting
Written and Oral Communications
Human Relations

The **VETERINARY TECHNOLOGY DEPARTMENT** trains capable young people to assist graduate veterinarians. These technicians enter the field at a level lower than the professional doctor but above the animal attendant. They have the knowledge and skills necessary to perform routine, technical tasks under the direct supervision of a veterinarian. Opportunities for employment include assisting the veterinarian in the following:

(a) Meat Animal Practice
(b) Companion Animal Practice
(c) Mixed Animal Practice
(d) Drug Company Research and Product Testing
(e) Teaching and/or Research

Course work includes the following subject areas:

Animal Restraint
Sterilization and Disinfecting Surgical Materials
Kennel and Cage Management
Pharmacology
Weights and Measures
Veterinary Hospital Practices
Anesthesiology
General Office Management
Radiology
Microbiology
Written and Oral Communications
Human Relations

The curriculum of each of the instructional programs consists of courses scheduled to be taught in an established sequence. Thus, they are offered only once in each class's schedule. Students are not allowed a choice of courses to take within a program's curriculum. All courses must be taken and successfully completed to be awarded a degree.

Any student passing all requirements, including a successful work experience quarter, of a specific course of study will be awarded an Associate in Technical Agriculture Degree. Students who fail any portion of the program but remain in school and continue to do satisfactory work in the remainder of their courses will be awarded a Certificate of Attendance.

Results

A current survey of matriculating students and eventual graduates of UNSTA's program shows that an average of 79% do graduate. A year by year analysis of originally matriculated students and eventual graduates is as follows:

Year	Starting Enrollment	No. of Graduates	Percent of Graduates
1967	28	19	72%
1968	50	39	78%
1969	83	60	72%
1970	124	94	76%
1971	145	111	77%
1972	126	97	77%
1973	128	100	78%
1974	123	109	89%
1975	141	123	87%
	948	752	79%

Several and varied reasons were given by students who withdrew from the program. Among the most frequent withdrawal reasons were financial, other job opportunities, marriage, opportunity to farm with their parents, or change in goals.

The graduates of UNSTA have excellent job opportunities. In Nebraska and the immediate surrounding states, there were three job opportunities for each of 123 graduates of the 1975 class. Thirty-three percent of the school's graduates return to self-employment in farming, ranching, or other kinds of agricultural business in the specific field in which they received their education at UNSTA.

Women have very good potential career opportunities in most fields, and presently two departments have women students enrolled. Out of the commercial horticulture class of 33 students, 14 are women, which amounts to 43% of the class. In the Veterinary Technology department 90% of the class of 71 students are women.

Survey of Graduates

In a follow-up analysis of 200 graduates from 1967 through 1972 concerning their present employment, tenure, beginning salary, and an evaluation of the educational program of UNSTA, the following information was revealed:

Forty-five percent or 90 graduates are still employed in the same job they accepted upon graduation. This is similar to national figures on beginning job employment. Fifty-five percent have advanced in or changed their employment. Twenty-eight percent of the graduates accepted their present employment because of its potential advancement opportunities.

The average beginning salary for those graduated surveyed was $625 monthly or $7,500 annually. A monthly salary analysis is as follows:

Salary	Number Reporting	Percentage
$300 to $499 per month	60	30%
$500 to $699 per month	76	38%
$700 to $899 per month	40	20%
$900 plus per month	24	12%

Seventy-seven percent of the 200 graduates felt that UNSTA's program of technical agricultural education had adequately prepared them for their positions.

Many Benefits

UNSTA derives several distinct advantages because it is directly associated with the University of Nebraska-Lincoln. It has a broader economic base on which to obtain financial resources; the expertise of the several colleges and departments within UN-L structure are available for its utilization; and purchasing through UN-L provides an additional economic benefit. The construction of new facilities and/or the remodeling of existing facilities progresses with a greater degree of efficiency due to the long range planning techniques utilized by the UN-L Physical Plant department. The UNSTA faculty is on a salary schedule and has equivalent academic rank with the UN-L faculty. All fringe benefits are equally applied to each faculty.

The students gain considerably as they attend a "state" agricultural technical school. Students feel status is an additional benefit of being part of the total university system. The interchange of ideas, habits, and goals of students from the four corners of Nebraska aids in the students' total education as it definitely assists them in appreciating other personal points of view and thus developing their skills in basic human relations.

UNSTA was accredited as a branch of the University of Nebraska-Lincoln during its embryonic stage of development. The Veterinary Technology Department was accredited by the American Veterinary Medical Association in 1973. UNSTA received full accreditation from the North Central Association of Secondary Schools and Colleges in 1975.

The accomplishments of the basic goals of UNSTA and the meeting of the needs of the agri-industry in Nebraska are illustrated in the near full employment of its graduates and the continual request for more graduates. Perhaps the most important by-product of UNSTA's program of technical agricultural education is a better versed farmer or rancher and the higher caliber of individuals in our ag-related industries. These individuals will be earning, investing, and spending more money as well as time and effort in improving Nebraska's total economic picture. Thus the total economy of the state will be enhanced as well as providing better agriculturally orientated services for all Nebraskans.

"Plants for Man," An Economic Plants Course

Donald J. Stucky

Abstract

A course offered at Southern Illinois University exposes students to the importance and influence which plants impose upon their lives. An abundance of information is available for presentation in a course on Plants for Man. Several areas which could be emphasized are suggested. The topics in the course, discussed in detail, examine the relationship of plants to man's health and well-being. Several potential textbooks are listed. The advantages of short televised modules specifically developed for the course are presented.

The Plant and Soil Science Department at SIU-C offers a course which presents an opportunity for students to discover and appreciate the impact that plants have on their lives. Information presented in this course is designed to appeal to a broad spectrum of students, particularly those from urban areas. As more and more of our population is concentrated into metropolitan centers, fewer people will be aware of the influence and importance exerted by plants on their lives. The course, Plants for Man, may be structured in several ways emphasizing different aspects of the influence of economically important plants on man. A botanical theme may stress the varied and interesting morphological features of plants. Or emphasis could be placed on plant growth and production. A third possibility would be a thorough examination of the processing and utilization of economically important plants. A fourth alternative might probe the relationship between plants and man's health and physical well-being.

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