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Agricultural Business Management Curricula

Ronald B. Larson

***Abstract:** The required courses for agribusiness degrees at forty-three schools were divided into six categories. Large ranges in the percentage of required credits by category were found. Comparisons with other curricula surveys showed that some changes occurred during the last ten to twelve years. Emphasis on business skills has increased while course work in technical agriculture has decreased. By considering customer needs and competitor innovations, departments can attempt to add more value to their educational products.*

***Key Words and Phrases:** Agricultural business management curricula, Degree requirements, Communication skills.*

During 1984, heads of agricultural economics departments were asked to rank which program areas were likely to grow the most during the next five to ten years. Agribusiness was expected to have the most growth by 54 percent of respondents. About 20 percent ranked it as the program option with the second greatest anticipated growth (Blank, 1985). The expected increase in demand for this educational product stimulated considerable discussion about how agribusiness degrees should differ from traditional curricula. Agribusiness employers were asked what student traits and skills they rated as most important (e.g., Broder and Houston; Litzenberg and Schneider; Howard; Harbstreit, Stewart, and Birkenholz). Alumni were surveyed to learn what subjects should receive greater emphasis (e.g., Blank, 1987; Riesenber; Preston and Broder; Eggenberger and Cepica). More emphasis on communication skills and business often was suggested. If the results from these studies and others were used as schools designed and enhanced their agricultural business management curricula, one might expect to find increases in the communications and business course requirements.

This paper examines how agricultural business management degree requirements vary by school and how they changed during the last ten to twelve years. Although the objective is not to compare quality, the results may help colleges learn how subject emphasis differs among schools whose graduates compete for the same jobs. The first section summarizes the programs at forty-three schools and notes variations in emphasis. Next, degree requirements are contrasted with those reported in three curricula surveys from the early 1980s. Given all the employer

and alumni feedback, significant changes are expected. The paper concludes by discussing some implications from the analysis.

Agribusiness Management Degree Requirements

Firms often examine competing products to compare quality and identify innovations. Academic departments also rate themselves against programs at other schools. To improve their competitive position for attracting students and marketing their graduates, colleges conducting undergraduate curricula reviews may compare their degree requirements and course offerings with those at other colleges. It is unclear how frequently large-scale surveys have been conducted since only two major comparisons of agribusiness management degree requirements have been published since 1980: Carman and Pick; Franklin. This section compares the current course requirements for agricultural business management degrees at forty-three schools.

Degree requirements and course offerings were reviewed using a collection of college bulletins on microfiche (Career Guidance Foundation, 1994, 1995). In nearly all cases, the requirements applied to students who entered the programs during 1995 or 1996. Efforts were made to include colleges that were in previous surveys and to increase the sample's geographic and school-size diversity. At some schools, all degrees were labeled "agribusiness" or "agricultural business management." If a school had a specific program or option with requirements similar to most agribusiness curricula, it was included in the analysis.

Relying on college bulletins for curricula information presented challenges. A few programs were excluded because their bulletins did not list their requirements. Some college bulletins may not explain all the options completely. For example, course substitutions by petition may be very common at some schools and unknown at others. Because bulletins contained the information that schools chose to provide product customers, e.g., prospective students and employers, they were relied on for this analysis. A few departments were contacted and asked to provide additional information.

To simplify school comparisons, course requirements were divided into six groups: Math, Statistics and Computer; Written and Oral Communication; Humanities, Social Sciences and International Understanding; Agricultural Economics, Economics and Business; Technical Agriculture and Natural Resources; and Science. These groups are similar to those favored by Vandever and Guedry. Agricultural Economics, Economics and Business were combined because various departments offered the required courses. Trying to separate economic theory from applications courses, commodity marketing from branded product marketing courses, or farm records from business management courses based on course

descriptions proved to be a difficult task. Required courses taught by some agricultural economics departments included: economic theory, accounting, finance, marketing, management, law, ethics, operations, logistics, labor, quantitative analysis, computer and calculus. All quantitative analysis, computer and calculus courses were included in the Math, Statistics and Computer group. Other agricultural economics courses were counted in the professional skills category.

Some programs allowed students to choose between course groups. For example, North Carolina State University (NCSU) students can substitute Technical Agriculture courses for some Agricultural and Resource Economics courses. When only one course could be moved between groups, an assumption about the typical choice was made. When more than one course could be moved, e.g., four courses at NCSU, the categories involved were not included in the analysis.

Comparing schools with different credit requirements presented a problem. Although it is possible to convert semester hours into quarter hours, there was also considerable variation in degree flexibility. Some schools locked students into a four-year schedule of requirements while others offered more than 20 percent of the credits as free electives. Since specific course requirements define the minimum competencies employers can assume each student possesses, only the total required credits in the six groups were used in the analysis, i.e., free electives were not counted in the denominator. Physical fitness and health courses were treated as free electives because many schools did not require them. The percentage of required credits allocated to each group was used to compare programs.

Table 1 shows how the required course credits were allocated by category at each of the forty-three schools. For example, Arizona State had 8 percent of its required credits in the Math, Statistics and Computer group. The range was from 24.2 percent to 4.1 percent. The average for this category was 11.9 percent. Cornell's program gave students some flexibility between this group and Science and was not counted in the average. The wide range in emphasis for this category may reflect differences in the educational needs of the customers, in the competitive advantages of the departments and schools, and in the educational philosophies of the programs.

The average allocation by category was 9.1 percent in Communication; 14.9 percent in Humanities, Social Sciences and International Understanding; 46.5 percent in Agricultural Economics, Economics and Business; 9 percent in Technical Agriculture; and 8.6 percent in Science. Slight changes in the mix of schools that are included in the average by category and rounding explain why the rows may not sum to 100.

The most variation was found in the Agricultural Economics and Technical Agriculture groups. The percentage of required credits in Agricultural Economics, Economics and Business ranged from 60.5 percent to 35.3 percent. Emphasis on Technical Agriculture ranged as high as 26.9 percent of the required credits. Two

Table 1.

Percentage of Required Credits by Category

Universities with Agribusiness Degrees or Options	Math, Statistics & Computer	Written & Oral Communication	Humanities, Social Science & International	Ag. Econ., Economics, & Business	Technical Agriculture	Science
Arizona State	8.0	5.3	15.9	57.5	2.7	10.6
Arkansas State	5.0	7.5	18.3	40.0	19.2	10.0
Calif. St, San Luis Obispo	9.1	7.5	21.9	38.0	17.1	6.4
Calif. St, Pomona	4.1	6.2	16.5	a	a	4.1
Calif. St, Chico	9.5	4.8	21.4	41.3	17.5	5.6
Calif. St, Fresno	12.5	10.0	27.5	37.5	7.5	5.0
Colorado State	16.0	5.0	10.1	48.7	12.6	7.6
Cornell	a	12.5	6.3	55.2	3.1	a
Iowa State	13.7	11.4	13.7	42.9	8.2	10.0
Kansas State	9.8	10.7	13.4	49.1	9.8	7.1
Louisiana State	12.3	10.5	10.5	47.4	8.8	10.5
Michigan State	9.8	6.5	13.0	50.0	13.0	7.6
Mississippi State	12.1	12.1	4.8	60.5	5.6	4.8
North Carolina A&T	17.7	8.0	15.9	43.4	8.0	7.1
North Carolina State	14.2	10.6	13.3	a	a	13.3
Ohio State	7.5	8.1	23.1	35.3	12.1	13.9
Oklahoma State	9.8	14.8	9.8	47.5	10.7	7.4
Oregon State	15.0	8.2	14.3	36.1	18.4	8.2
Pennsylvania State	14.2	8.0	15.9	45.1	8.0	8.8
Purdue	12.3	13.2	15.8	43.0	0.9	14.9
Rutgers	11.4	8.6	22.9	45.7	4.8	6.7
South Carolina State	17.5	10.0	12.5	53.3	1.7	5.0
South Dakota State	13.0	13.0	8.3	51.9	4.6	9.3

Southern Illinois, Carbondale	8.2	13.6	19.1	44.5	19.1	5.5	9.1
Tennessee State	9.4	7.0	13.3	47.7	13.3	16.4	6.3
Texas A&M	12.6	7.6	22.7	45.4	22.7	5.0	6.7
California, Davis	18.1	8.0	a	44.9	a	a	a
Georgia	13.9	8.3	11.1	44.4	11.1	11.1	11.1
Idaho	14.3	9.8	12.5	45.5	12.5	10.7	7.1
Illinois	13.5	9.6	15.4	a	15.4	a	7.7
Maine	13.6	8.2	19.1	50.9	19.1	0.9	7.3
Minnesota	5.3	10.1	18.9	47.9	18.9	9.5	8.3
Missouri, Columbia	8.3	8.3	12.8	46.8	12.8	11.0	12.8
Nebraska	7.4	7.4	9.9	49.6	9.9	15.7	9.9
Nevada, Reno	24.2	12.6	18.9	37.9	18.9	0.0	6.3
Tennessee	12.4	9.9	9.9	42.1	9.9	12.4	13.2
Wisconsin, Madison	17.7	7.1	10.6	53.1	10.6	3.5	8.0
Wisconsin, Platteville	5.0	6.7	18.3	52.5	18.3	10.0	7.5
Wisconsin, River Falls	9.2	7.6	10.9	37.0	10.9	26.9	8.4
Wyoming	10.2	8.3	13.9	47.2	13.9	9.3	11.1
Utah State	14.3	6.8	15.0	56.4	15.0	0.0	7.5
Virginia Polytech & State	12.2	10.4	10.4	49.6	10.4	5.2	12.2
Washington State	13.8	10.3	18.1	46.6	18.1	2.6	8.6
Average Percentage	11.9	9.1	14.9	46.5	14.9	9.0	8.6
Standard Deviation	4.1	2.4	4.9	6.0	4.9	6.1	2.6
Number of Schools	42	43	42	40	42	39	41

^a Program gave students the flexibility to take several courses from groups that crossed categories.

programs did not require any technical agriculture courses and two others allocated less than 1 percent of the credits to the category. Current agricultural business management degree programs have significant differences in their emphasis.

Changes in Agricultural Business Management Degree Requirements

By comparing the results from previous surveys with those in Table 1, it is possible to examine how agricultural business management degree requirements have changed during the last ten to twelve years. Larson completed a survey of programs as part of a University of Minnesota curriculum review. Twelve agricultural business management programs were included and their requirements were classified into the same categories. Table 2 shows how their requirements were allocated by group during the early 1980s. By comparing these percentages with those in Table 1, it appears that, on average, these programs maintained their emphasis in the Math, Statistics and Computer group. Some increased their percentage by as much as 3.7 percent while others reduced it by as much as 4.0 percent. The largest increase in the average percentage was for Agricultural Economics, Economics and Business (although some schools reduced their emphasis in this group). The largest reductions were in Technical Agriculture and Science. The size of the increases in communication skills and in business training might disappoint some employers and alumni.

Some of these changes can be verified by using the survey by Carman and Pick. They analyzed the requirements at thirty-five schools and thirty-two of them were included in this analysis. Table 3 shows the quarter-credit requirements by school for calculus, technical agriculture and accounting. Following Carmen and Pick, semester credits were multiplied by 1.5 to convert them to quarter credits for comparison. Note a slight increase in the average for calculus. One change that may explain the increase in calculus but reduction in Math, Statistics and Computer category is that several schools stopped requiring courses below the calculus level. This would reduce the required credits and percentage in the area, but might not reduce the level of training. The 5.9 credit decrease in technical agriculture requirements confirms the trend noted in Table 2. However, most of the change came from five programs with double-digit credit reductions. Similarly, most of the reduction in accounting came from five schools that reduced their requirements to only one year of accounting. Twenty-two of the schools shown in this table required at least one year of accounting for their agricultural business management degrees.

Another issue is what courses are required in the professional skills area. Franklin surveyed thirty-seven schools to address this issue. Table 4 compares his

Table 2.

Requirements in 1983 and Changes in Emphasis Between 1983 and 1995

Universities with Agribusiness Degrees or Options	Math, Statistics & Computer	Written & Oral Communication	Humanities, Social Science & International	Ag. Econ., Economics, & Business	Technical Agriculture	Science
Cornell	a	11.1	11.1	a	a	a
Iowa State	11.5	11.0	10.6	46.7	10.6	9.7
Oklahoma State	11.9	12.7	9.3	48.3	13.6	4.2
Pennsylvania State	10.5	10.5	18.4	39.5	10.5	10.5
Purdue	16.3	14.4	11.5	37.5	6.7	13.5
South Dakota State	13.5	12.6	10.8	45.9	7.2	9.9
California, Davis	15.3	6.8	a	50.8	6.8	a
Minnesota	6.1	10.3	13.9	45.5	12.1	12.1
Missouri, Columbia	8.3	11.0	12.8	44.0	5.5	18.3
Tennessee	12.0	7.4	8.6	39.4	16.6	16.0
Wisconsin, Madison	a	8.6	8.6	a	5.7	6.7
Virginia Polytech & State	13.8	6.9	8.6	50.0	6.9	13.8
Average Percentage	11.9	10.3	11.3	44.8	9.3	11.5
Standard Deviation	3.1	2.4	2.9	4.6	3.7	4.2
Number of Schools	10	12	11	10	11	10
Average Percentage Change	0.0	0.3	0.8	1.4	-2.1	-1.0

^a Program gave students the flexibility to take several courses from groups that crossed categories.

Table 3.

Current Requirements Compared with Carman and Pick (1996)

Quarter Credit Comparison Between 1985 and 1995 for Selected Requirements	Calculus		Technical Agriculture			Accounting			
	1985	1995	Change	1985	1995	Change	1985	1995	Change
	Arizona State	0.0	0.0	0.0	60.0	4.5	-55.5	4.5	4.5
Calif. St, San Luis Obispo	0.0	0.0	0.0	30.0	32.0	2.0	8.0	4.0	-4.0
Calif. St, Pomona	0.0	0.0	0.0	0.0	17.0	17.0	4.0	4.0	0.0
Calif. St, Fresno	0.0	0.0	0.0	18.0	13.5	-4.5	4.5	9.0	4.5
Colorado State	6.0	4.5	-1.5	31.5	22.5	-9.0	6.0	9.0	3.0
Cornell	a	a	a	a	a	a	6.0	9.0	3.0
Iowa State	4.5	4.5	0.0	13.5	13.5	0.0	9.0	9.0	0.0
Louisiana State	4.5	6.0	1.5	48.0	15.0	-33.0	18.0	9.0	-9.0
Michigan State	0.0	0.0	0.0	40.0	18.0	-22.0	10.0	10.5	0.5
Mississippi State	4.5	4.5	0.0	15.0	10.5	-4.5	13.5	13.5	0.0
North Carolina State	6.0	6.0	0.0	a	a	a	4.5	4.5	0.0
Ohio State	8.0	4.0	-4.0	15.0	21.0	6.0	10.0	10.0	0.0
Oklahoma State	0.0	4.5	4.5	22.5	19.5	-3.0	13.5	9.0	-4.5
Oregon State	4.0	4.0	0.0	27.0	27.0	0.0	8.0	4.0	-4.0
Pennsylvania State	9.0	9.0	0.0	9.0	13.5	4.5	9.0	9.0	0.0
Purdue	4.5	4.5	0.0	9.0	1.5	-7.5	4.5	4.5	0.0
Rutgers	12.0	9.0	-3.0	9.0	7.5	-1.5	9.0	4.5	-4.5

South Carolina State	0.0	4.5	4.5	0.0	3.0	3.0	9.0	9.0	9.0	0.0
South Dakota State	7.5	7.5	0.0	12.0	7.5	-4.5	9.0	9.0	9.0	0.0
Southern Illinois, Carbondale	0.0	0.0	0.0	9.0	9.0	0.0	9.0	9.0	9.0	0.0
Idaho	6.0	6.0	0.0	18.0	18.0	0.0	13.5	13.5	13.5	0.0
Illinois	0.0	6.0	6.0	a	a	a	12.0	4.5	4.5	-7.5
Maine	9.0	4.5	-4.5	18.0	1.5	-16.5	9.0	9.0	9.0	0.0
Minnesota	5.0	5.0	0.0	20.0	16.0	-4.0	10.0	8.0	8.0	-2.0
Nebraska	4.5	0.0	-4.5	9.0	28.5	19.5	18.0	9.0	9.0	-9.0
Nevada, Reno	0.0	4.5	4.5	22.5	0.0	-22.5	9.0	9.0	9.0	0.0
Tennessee	4.0	9.0	5.0	27.0	22.5	-4.5	9.0	9.0	9.0	0.0
Wisconsin, Madison	12.0	7.5	-4.5	9.0	6.0	-3.0	9.0	9.0	9.0	0.0
Wisconsin, River Falls	4.0	4.5	0.5	51.0	48.0	-3.0	8.0	4.5	4.5	-3.5
Wyoming	0.0	0.0	0.0	18.0	15.0	-3.0	4.5	9.0	9.0	4.5
Utah State	0.0	3.0	3.0	12.0	0.0	-12.0	9.0	11.0	11.0	2.0
Virginia Polytech & State	0.0	9.0	9.0	18.0	9.0	-9.0	13.5	9.0	9.0	-4.5
Average Quarter Credits	3.7	4.2	0.5	20.4	14.5	-5.9	9.2	8.1	8.1	-1.1
Standard Deviation	3.8	3.0		14.5	10.8		3.6	2.7	2.7	
Number of Schools									29	32

^a Program gave students the flexibility to take several courses from groups that crossed categories.

results with the current survey. Because Franklin did not identify the schools in his survey, the mix of schools may vary. These surveys should be considered two draws taken from the population at different times. Shifts from quarters to semesters at several schools would tend to reduce the number of courses required. Changes in the requirement profiles suggest that Introductory and Advanced Farm and Ranch Management, Agricultural Production, Agricultural Policy, and Agricultural Price Analysis courses may have been replaced by Agricultural Business Management and other business courses. Part of the increase for Finance and Law may be the result of coding difficulties faced by Franklin. Because many departments require finance and law courses from business schools, classifying those courses without course descriptions may have been challenging and some business courses may not have been counted in the earlier survey. This comparison shows that the typical program's professional skills requirements have changed significantly during the last ten to twelve years.

Implications from the Analysis

Every department's curriculum evolves over time. The need for curriculum changes may take several years to recognize. To remain competitive, departments need to periodically review the market and what their customers desire. By examining what other schools offer and surveying student, alumni and employer suggestions, departments may learn how to enhance programs. When asked, agribusiness employers and alumni have suggested greater emphasis on communication and business. In the aggregate, the subject emphasis increases in these areas were surprisingly small. Perhaps some programs should require an additional communications course to build student skills or should add writing and presentation assignments to existing agricultural economics courses to give students opportunities to enhance their communication proficiencies. Within the professional skills area, significant requirement substitutions have occurred that have boosted the business content of agricultural business management degrees. Because many firms are stressing flexibility and teamwork, students may benefit from learning more about all business operations and functions. It is likely that more courses will be added and the average percentage of required credits in the Agricultural Economics, Economics and Business category will approach 50 percent. Emphasis reductions in Technical Agriculture and Science may be needed to give students the extra communication skills and business training they need to excel in agribusiness careers. At many schools, agribusiness has been a major growth area in agricultural economics and may continue to grow. By talking with customers, studying the market, and learning about variations in agricultural business management curricula,

Table 4.

Course Requirements Compared with Franklin (1986)

Courses Required for Agricultural Business Management Degrees	Programs Requiring Courses in 1984-86		Programs Requiring Courses in 1995-96	
	Number	Percentage	Number	Percentage
Introductory Principles	37	100	43	100
Introductory Statistics	33	89	41	95
Introductory Farm & Ranch Management	25	68	19	44
Computers	28	76	41	95
Agricultural Production	15	41	7	16
Agricultural Finance	21	57	36 ^a	84
Agricultural Policy	27	73	25	58
Advanced Farm & Ranch Management	5	14	0	0
Agricultural Marketing	33	89	37	86
Intermediate Macroeconomics	20	54	24	56
Intermediate Microeconomics	22	59	27	63
Agricultural Price Analysis	16	43	10	23
Calculus	23	62	30	70
Quantitative Methods	8	22	19	44
Agricultural Law	8	22	27 ^b	63
Agricultural Business Management	23	62	36	84
Resource Economics	8	22	5	12
Total Number of Departments	37		43	

^a Thirty Departments had an Agricultural Finance Course and 6 Required a Business Finance Course.

^b Nine Departments had an Agricultural Law Course and 18 Required a Business Law Course.

departments can identify valuable course and requirement innovations and start thinking about how their individual degree programs can be enhanced.

Notes

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