

more completely appreciated the food value of commercially produced broiler meat, currently available in retail markets for slightly more than a half dollar per pound.

An alternative to directly experiencing all phases of poultry meat production would be a passive learning experience relying only on textbooks, lectures and audiovisual aids. This would eliminate students actually confronting the animal welfare issue head-on and being required to deal with it directly. Although they could learn about it indirectly, they would not as easily appreciate what can and should realistically be done to modify currently accepted poultry production management practices. A greater student appreciation of additional factors involved in commercial-scale poultry production would come from their visiting an actual production-processing facility. An even better experience would entail working at one for a semester or summer internship. Although students may object to various abuses of agricultural animals in any size and scale of production facility directly experienced, at least they would be able to directly evaluate any compromises with animal welfare. Thus, they would be able to more validly voice objections and offer constructive suggestions for realistic modifications.

### Conclusions

Integrating the controversial animal welfare issue into an introductory poultry science and production course, rather than ridiculing or ignoring the issue, was rewarding and beneficial to students, instructor, and resource expert. It was a pioneering effort in completely integrating the teaching of philosophy into an animal science course, rather than merely employing a guest lecturer. Based on this case study there appears to be good potential for successful interdisciplinary teaching, where philosophical or even sociological issues are related to animal science and production.

It is essential that students begin to confront both sides of this animal welfare issue while in college. There, they can safely think and debate with an open mind, rather than wait until they start careers as animal protection professionals or professional animal producers. In these professions their thought processes may be strongly influenced by bias. Their entire careers, including their future management decisions, will be positively influenced by an unbiased evaluation of the issue in college. This is an opportunity which current professionals in both animal welfare and animal production have not had. The animal welfare controversy will be resolved in the future by today's college students. These future professionals will make decisions based on studied, unbiased evaluation of all pertinent information available and will exhibit professional respect to proponents of an opposing viewpoint.

So often we hide "behind a hill" taking "potshots" at an equally invisible and misunderstood "enemy." In these kinds of battles, both sides lose. With the animal

welfare controversy, we recommend that both sides confront the "enemy"—at least on the college "battlefield"—learn from each other, respect each other, and work together for reasonable necessary changes in opinion, as well as changes in practice of our respective professionals. In the future may we both win, or at least both benefit from having learned, and reap the profits from desirable human behavior modification. The ultimate benefit will be the increased welfare of animals, including humans.

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## Four Curriculum Options Within Agricultural Economics

Douglas R. Franklin

The appropriate role that curriculum plays in guiding undergraduate students with respect to careers is very important. One question raised recently in the Department of Agricultural Economics at the University of Nevada, Reno, was, "How does our curriculum compare with that of other Agricultural Economics departments?" Initial answers to this question were investigated by examining comparison data in journal articles. The March 1985 *NACTA Journal* contained a subject and author index to the years 1985 through 1984 (Mortensena 1985). Of the subject matter, 17 articles were on specific curriculum development and effectiveness and two on specific evaluation of particular curricula at identified universities. Additionally, an article by Shute, et.al. on the evaluation of one program at one institution was written in March 1985 *NACTA Journal*.

The proceedings issue of the American Economic Association have specific sections on economic education, research effects on economic education, and the teaching of economics. See, for example, Sumansky 1985; Back and Kelley 1984; and Lumsden and Scott 1983. The *Journal of Economic Education* (JEE) prints numerous articles pertaining to teaching. In these three journals only articles dealing with teaching effectiveness and course development were discussed. Of primary importance to the author was the comparison of specific course offerings by numerous agricultural economics departments. Therefore, undergraduate curriculum requirements were requested

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from all of the Agricultural Economics departments in the United States and Canada.

Specific information sought included undergraduate field options and curriculum required for these field options. The four most frequently mentioned options were Farm and Ranch Management, Agricultural Business, Natural Resources and Agricultural Economics. The Farm and Ranch Management option is for students who have indicated a desire to work on a farm or ranch. This option provides the student with the knowledge and skills appropriate to manage crop and/or livestock enterprises. The Agricultural Business option is designed for students who want to work in an agricultural related industry such as an agricultural loan officer in a financial institution, a manager in a feed, fertilizer or chemical plant which supplies farm and ranch production inputs, or a manager in the food process industry that processes and markets farm products. The Natural Resource Option is designed to provide students with skills useful to work within private and public institutions managing natural resources, be they renewable, nonrenewable and/or environmental resources. The last option, Agricultural Economics, provides a general program for the student desiring a wide background on economic theory, policy, resource, management, marketing and quantitative skills. This option is typically taken by students anticipating graduate work.

#### Survey Information

Requests for undergraduate curriculum and curriculum requirements at 81 agricultural economics departments in the United States and Canada were mailed in May of 1985. Replies from 54 institutions were received by late June. Of that total, 43 replies were useful while 11 did not contain enough information to be used in the survey analysis. These eleven replies did not contain information on the title, description or requirement of courses within an option or the types of courses or options available. *The 1984 Directory of the American Agricultural Economics Association* (1984) contained a list of the 81 departments used in the mailing. In order to be designated as an agricultural economics department, the curricula included a significant number of agricultural economics or agribusiness courses.

Types of curriculum options offered by the 43 departments included Farm and Ranch Management, Farm Management, Ranch Management, Agricultural Economics, Natural Resources, Aquacultural, Pre-vet, International Agricultural Finance, Marketing, Real Estate Sales, Production, Rangeland, Human Resources, Development and one or two others. The four major curriculum listings were Agricultural Business (37 options), Farm and Ranch Management (17 options), Agricultural Economics (27 options), and Natural Resources (19 options).

It is recognized that the actual course content can vary greatly from one institution to another, or even

between instructors within the same institution under the same course title. Therefore, the only criteria included in the survey analysis are the course and title required within each option. For example, a course titled Introduction to Computers required by one department and Computers in Agriculture offered by another department is assumed to be the same required course. Also it is not unusual for numerous required courses to be taught within other departments within the university. It is not a prerequisite in this study that a course be taught in the Agricultural Economics Department, only that a particular type of course be required. For example, Introduction to Agricultural Economics is considered the same as Principles of Microeconomics if the latter is required by an Agricultural Economics Department but offered by an Economics Department. Thus, where courses are required and listed by the department and cross listed elsewhere they are counted. These include Mathematics, Statistics, Computer and Intermediate Economic courses. Table 1 summarizes the four options investigated and the number of departments requiring a particular type of course in order to fulfill the option degree requirements.

#### Survey Analysis

As Table 1 indicates not all departments require every single course for any of the four options

**Table 1. Number of Agricultural Economics Departments Requiring a Particular Course Under Four Degree Options.**

Course	Farm Mgt.	Ag. Bus.	Ag. Ec.	Nat. Res.
Total Number Departments	17	37	27	19
Introduction Course <sup>a</sup>	17	37	27	19
Introduction Statistics	16	33	24	17
Introduction Farm and Ranch Management	15	25	16	5
Computers	10	28	19	11
Agricultural Production	6	15	14	6
Agricultural Finance	11	21	10	2
Agricultural Policy	12	27	17	11
Advance Farm and Ranch Management	9	5	5	0
Agricultural Marketing	13	33	20	10
Intermediate Macroeconomics	7	20	20	16
Intermediate Microeconomics	12	22	20	16
Agricultural Price Analysis	5	16	16	8
Calculus	8	23	22	16
Quantitative Methods	5	8	11	5
Agricultural Law	4	8	2	1
Agricultural Business Management	4	23	7	2
Resource Economics <sup>b</sup>	6	8	14	19 <sup>c</sup>

<sup>a</sup> Introduction course includes either an Introduction to Agricultural Economics, Principles of Microeconomics, Principles of Macroeconomics or any combination.

<sup>b</sup> Resource Economics courses included Environmental, Energy, Land, Water, Outdoor-Recreation and Benefit Cost Evaluation.

<sup>c</sup> Most Departments require two or more courses to fulfill the degree requirements.

examined. There are several reasons for this. First and foremost, given the information received, a particular department may require one, two, three or more courses offered by an Economics, Business, Mathematics or Computer Department elsewhere in the university. Unless the information received specifically stated what the course was (title, etc.) the course was not included in the table. Further research indicated that all of the departments require two introductory type course for the options, however, the table only indicates one introduction course. Typically, courses titled Principles of Microeconomics and Principles of Macroeconomics are offered by an Economics Department and Agricultural Economics Departments offer a Introduction to Agricultural Economics. Numerous Agricultural Economics Departments require statistics and computers but again, due to the nature of the replies, i.e., catalogs, undergraduate pamphlets, etc., the number of departments requiring these courses may be underestimated. Therefore, it can be stated that Table 1 reflects the minimum number of institutions requiring a particular course to meet option degree requirements.

Secondly, several departments may not require a particular course but the course is offered to meet elective requirements within the department. For example, a department may require 6 or 7 particular courses and also require the student to take 2, 3, or more courses out of an additional 7 or so offered to meet degree requirements. It was determined from the departmental information provided that most courses listed in Table 1 are offered through the Agricultural Economics Department, only the total number of required courses from department to department is different.

Third, courses required by only one or two departments were not included in the table. These courses included Agricultural Development, Econometrics, Commodities, and Research Methods courses, to name a few.

A fourth point of importance from Table 1, related to the four major courses required by each option by most departments. These are the Introduction courses to Agricultural Economics, Statistics, Agricultural Marketing, and Intermediate Microeconomics. Five other courses also tend to have a majority of departments requiring them, though it is hard to rank them. These courses are Agricultural Policy, Calculus, Introduction to Farm and Ranch Management, Introduction to Computers and Intermediate Macroeconomics. Other required courses tend to increase the students knowledge and to meet the objectives of each option within each department. Numerous specialty courses required by departments within a specific option are also noted. Specifically, these courses include Agricultural Finance and Agricultural Business Management within the Agribusiness option, Resource Economics within the

Natural Resources option, and Advanced Farm and Ranch Management within the Farm and Ranch option.

### Conclusion

From a department standpoint, one of its functions is to teach the skills necessary for the student's chosen career. This cursory summary of 43 Agricultural Economics departments in the United States and Canada, identified the four major curriculum offerings, for major courses required, and five additional courses generally required. While this summary does not investigate if the courses listed are the best combination of courses, this does allow individual departments the opportunity to compare their curriculum with other departments. If a particular department does not require a specific course, or for that matter, does not offer a specific course required by a majority of departments in the United States and Canada, this allows the department the opportunity to review their curriculum options comparable to other departments in North America. This also allows the department the opportunity to investigate how rigid they are in the requirements area of the four curriculum options. A department that requires, for example, 11 courses doesn't necessarily imply it is the strongest department and a department that requires 3 courses doesn't necessarily imply it is the weakest. It is the departments' overall curriculum requirements and electives that needs to be evaluated.

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