

New Courses Offered Ag Students at U

Planned to Meet Needs of Wide Range
Of Research Work and Practical Studies

By Russell W. Cline

When students register in the College of Agriculture at the University of Arizona in Tucson next September, they will find eight new courses which may be included in their programs of study. A special course is also planned for students who will return to the college for graduate study during the 1951 summer session.

New Subjects

The new offerings are planned to meet the needs of a wide range of students throughout the College of Agriculture. The list therefore includes both practical undergraduate courses such as farm accounting and beekeeping, and specialized graduate courses in proteins, carbohydrates, and enzymes, for students working

toward Master's and Doctor's degrees in the field of nutrition.

Most members of the teaching staff in the College of Agriculture are also engaged in research. Four of the new courses will be taught by research workers in the Agricultural Experiment Station who have not previously taught courses in the University.

The list of teachers includes: A. R. Kemmerer, Head of the Department of Nutrition; Rex D. Rehnberg, Department of Agricultural Economics; V. H. Fisher, Department of Animal Pathology; Frank E. Todd and S. E. McGregor, staff members of the USDA Southwestern Bee Culture Laboratory located in the College of Agriculture at Tucson; A. L. Schrader, Lecturer in the Department of Horticulture who joined the staff of the college in September, 1950.

Undergraduate Courses

Four of the new courses are planned primarily as electives for undergraduate students. A summary of the content of these courses follows:

**Agricultural Economics 107—
Farm and Ranch Accounting**
—3 credits

Objectives and methods in keeping farm and ranch accounts, including data necessary for federal and state income tax reporting, accounts required in securing agricultural credit, and procedures for summarizing and analyzing records. Instructor—Rex D. Rehnberg.

Entomology 114—The Honeybee—
3 credits.

Biology of the honeybee, principles and practices in beekeeping, and pollination of agricultural crops with special reference to conditions and problems in the Southwest. Instructors—Frank E. Todd and S. E. McGregor.

**Agricultural Education 101—Rural
Leadership**—2 credits.

Developing ability for effective leadership in agricultural and educational organizations including objectives and functions of rural organizations, program planning, conducting meetings, duties and responsibilities of officers. Instructor—W. A. Schafer.

Horticulture 123—World Horticulture—3 credits.

A study of world trends in production, consumption, breeding, and varieties of fruits, vegetables, and other horticultural plants. (This course is approved for graduate credit.) Instructor—A. L. Schrader.

Graduate Courses

The following courses are planned for students pursuing study for advanced degrees in the various departments of the College of Agriculture.

**Botany and Range Ecology 246—
Range Research Methods**—3
credits.

The work in this course will include procedures in the measurement of various factors that affect plant and animal growth and behavior. A specific area will be selected and studied

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← College of Agriculture Building,
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A Water Policy for the American People

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the heaviest increases (as in the past 10 years) in the eleven western states. The past 10 years also have shown improved dietary trends, both as to quantity and quality. People now are eating 15 percent more per person than they did 10 years ago. This is equivalent to feeding 50 million more people at the 1935-40 consumption level.

Furthermore, the quality of food has improved. The use of starchy foods (grains and potatoes) has declined by an average of 30 percent. Fruits and vegetables are up almost 50 percent, and livestock products—meats, dairy and poultry products—are up 12 percent. This shift represents more proteins, vitamins and minerals per calorie.

Need Livestock Products

A fully adequate diet is one in which 43 to 45 percent of the total food energy is secured from livestock products. We are approaching this desirable goal although many of our people still are below standard, due either to poverty or to ignorance in food selection.

Now, what effects do increasing populations eating more and better food have on land requirements? We can be sure that present agricultural surpluses are very temporary. Heavily expanded production will be required to meet future needs if we are to improve or even maintain our present living standards.

We are now farming about 375 million acres and grazing about a billion acres of range lands. There has been little increase in either category during the past 35 years, although 60 million acres formerly used for feed for work stock and 20 million acres formerly devoted to export have been released for domestic food production. Also in the past 10 years, production per acre has been increased by about 25 percent—largely at the expense of our soil fertility. Thus have we provided in the past for our gradually increasing needs.

More Crop Land Needed

On the basis of careful analysis, it is predicted that the amount of food and fiber produced from about 100 million additional acres of average crop land will be required to meet our

requirements by 1975. To accomplish this, we must either produce more on lands presently farmed or bring in new lands through reclamation. With proper price incentives we may increase production on present acreage by another 15 percent which would be the equivalent of about 60 million acres of this requirement, leaving 40 million acres of production to come from newly irrigated, drained or cleared lands.

Twenty million acres are now irrigated in the western states and there is sufficient water to irrigate another 17 million acres and to provide about 8½ million acres of presently irrigated land with badly-needed additional water. But, based on past rates of development, not over 7 or 8 million additional acres of new irrigated land will be producing in the next 20 or 25 years. This would be equivalent in crop production to possibly twice this acreage of average, non-irrigated crop land.

25 Million New Acres

There would be left some 25 million new acres to be brought into production by drainage, flood protection and clearing projects which past experience indicates to be of questionable desirability due to the usual low fertility of drained lands. A greatly accelerated reclamation program thus appears necessary to meet demands, especially in the West.

It is thus apparent that full development of production potentials must be considered if we are to provide sufficient food and fiber to satisfy anticipated requirements. While these are merely predictions, they are based, nevertheless, on the best information presently available. They show that future needs will be great and the challenge must be met by a unified agricultural program.

—Paul S. Burgess is Dean of the College of Agriculture, and Director of the Agricultural Experiment Station.

Cotton income in Arizona last year to farmers totaled \$118,000,000.

Cash income from cattle and calves in Arizona in 1950 was \$54 million.

Arizona leads all other states in yield per acre of cotton. Last year it was 890 lbs.

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in detail and comparisons will be made of different measurement techniques on the same area. Instructor—R. R. Humphrey.

Animal Pathology 201—Advanced Problems in Disease Control—2 credits.

Animal disease control problems with reference to the needs of Arizona teachers of vocational agriculture, especially in communities where veterinary services are not available. (First term of the 1951 summer session.) Instructors—W. J. Pistor and V. H. Fisher.

Three of the new courses were planned specifically for graduate students in the field of nutrition. The titles and content of these courses were developed in response to recommendations from the Nutrition Committee on graduate study. The courses are as follows:

Animal Husbandry 204—Chemistry of Enzymes—2 credits.

Classification, sources, methods of study; physiochemical properties and actions of enzymes. Instructor—B. P. Cardon.

Home Economics 202—Chemistry and Metabolism of Carbohydrates and Lipids—3 credits.

The chemistry and metabolism of carbohydrates and lipids with emphasis on recent contributions and interpretations. Instructor—Ethel M. Thompson.

Nutrition 208 — Chemistry and Metabolism of Proteins — 2 credits.

The chemistry and structure of proteins and amino acids; the chemistry and physiology of their metabolism and their biological and chemical evaluations. Instructor—A. R. Kemmerer.

—Russell W. Cline, is Head of the Department of Agricultural and Home Economics Education.