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Changes in the Graduate Program at
Iowa State University

By GORDON E. GATHERUM

The Department of Forestry at Iowa State University has offered a strong graduate program for many years. However, many recent developments in program, staff and facilities1 have occurred. The current forestry graduate program is closely coordinated with intensive research programs in biological, technological and social science problems in forestry. Iowa State University has excellent supporting departments and research facilities in these subject matter areas. Moreover, U. S. Forest Service scientists, working on research projects in hardwood physiology, share facilities and cooperate closely with the faculty in research and supervision of graduate studies. These advantages enable Iowa State University to offer a stimulating educational environment for men and women with advanced professional, research or teaching interests in forestry.

History of Forestry Graduate Program

The Forestry Graduate Program was begun at Iowa State in 1915, 11 years after the initiation of a 4-year undergraduate curriculum in Horticulture and Forestry (MacDonald 1953). By 1915–16, four distinct groups (forest management, forest protection forest products and lumbering) were recognized in a 5-year curriculum, and upon completion of this curriculum, the degree, Master of Science in Forestry, was awarded. Because of the limited number of participants in this program, in 1918–19, the 5-year curriculum was dropped and the 4-year curriculum continued with provision for a year of advanced work in either forest management and protection or lumbering and forest products. The Master of Forestry degree was awarded at the completion of the advanced year’s work. However, to conform to institutional policy, the degree for advanced work in residence was changed to Master of Science in 1920–21. From 1920 to 1936, the Master of Forestry degree was recognized as a professional degree that was awarded occasionally for outstanding accomplishments in professional work following 5 or more years after graduation.

For many years the Master of Science degree was offered in forest management, forest range management, forest utilization, silviculture and wood technology. In 1953, in addition to the Master of Science degree offerings, a Doctor of Philosophy degree in silviculture or wood technology was offered as a divided major with other departments offering work in related fields. In 1961, forest economics and forest mensuration were included in the Master of Science degree offerings and in the Doctor of Philosophy split-major offerings. In 1963, work in the area of water resources was first offered under a cooperative, interdisciplinary arrangement between the Department of Forestry and nine other departments in the University.

Current Forestry Graduate Program

In 1965, in addition to the existing graduate offerings, the Department of Forestry was authorized to offer the Master of Forestry degree and the Doctor of Philosophy degree with a single major in Forestry. Therefore, the current graduate programs now include the Master of Forestry, emphasizing professional goals, and the Master of Science and Doctor of Philosophy, emphasizing scientific research. All programs are offered by the Department of Forestry through the Graduate College, and all programs are limited to areas of specialization with both a competent specialist on the staff of the Department of Forestry and with strong support throughout the University. These graduate programs have improved the opportunities for our undergraduate as well as our graduate students and made more efficient use of the University’s existing resources in serving society. Moreover, the well balanced graduate program makes possible a sound forestry curriculum based on the excellent faculty needed to maintain the excellent reputation of our undergraduate program and its graduates.

A general description of the current graduate opportunities in Forestry at Iowa State University was presented in last year’s Ames Forester (Forestry Graduate Committee 1966). For a general description of programs and areas of specialization, the reader is referred to this article. In the present paper, the author has included the following descriptions of each of the graduate degrees in terms of objectives and general requirements:

1 See Dr. Dwight Bensend’s article in this issue of the Ames Forester.

1 For a more detailed description of the Forestry Graduate Program at Iowa State University, a brochure, “Graduate Opportunities in Forestry at Iowa State University” and multilith copies with a complete description of the graduate study program in each area of specialization have been prepared. This literature is available upon request.

AMES FORESTER
MASTER OF FORESTRY DEGREE

Objectives
1. Advanced study to develop a professional level of competence in forestry.
2. Preparation for careers as professional foresters in or closely related to the administration of forest land areas or wood-products organizations. Primary emphasis will be on development on a broad plane for administrative careers, but with freedom for some concentration within this framework.
3. Permit broadening of educational program of MF and BS students in forestry.

Requirements
1. Accomplishment of a specified scope and level of professional competence in forestry or wood utilization, as defined by the following:
   Five of the following courses:
   Course No.  Subject                  Credits
   Forestry 504  Advanced silviculture  3
   Forestry 543  Forest mensuration      3
   Forestry 570  Economics of forest production  3
   Forestry 587  Advanced topics in wood science  3
   Forestry 688  Formation of wood       3
   Forestry 694  Advanced forest management  3
   Plus
   A course in forest protection (e.g., Forestry 577, Forest pathology)  3
   Two courses in Forestry 540 (Special topics). Courses must be in different areas of specialization (e.g., forest economics and forest mensuration)  8
   Twenty-six credits of acceptable graduate electives, at least 9 of which must be outside the Department.  26
   Total  52
2. Completion of electives to develop a modest amount of specialization within forestry or to strengthen the student’s grasp of subject matter across the breadth of forestry.
3. Completion of 52 credits of acceptable graduate work, of which not less than 36 credits must be received from Iowa State University.
4. Modern language: None
5. Residence: Three quarters, or a minimum of 30 weeks of full-time graduate study, must be spent in residence at Iowa State University.
6. Ability, as demonstrated by the completion of a comprehensive oral examination, to synthesize information from various subject matter areas in forestry in the analysis and solution of professional forestry problems. A written examination may be required at the discretion of the student’s committee.

MASTER OF SCIENCE DEGREE

Areas of Specialization
Forest Economics, Forest Management, Forest Mensuration, Silviculture and Wood Technology.

Objectives
1. Study to achieve special scientific competence in one of the above phases of forestry.
2. A step toward the Ph.D. for students interested in research and teaching careers. (Particularly valuable for those who will not take all graduate work at one time or at one university.)
3. A terminal degree for those interested in research, but who do not seek a Ph.D.

Requirements
1. Completion of a pre-determined core of course requirements, a separate core for each area of specialization.
2. Completion of elective courses to meet the needs and interests of an individual student.
3. Demonstrated ability to synthesize and utilize techniques and knowledge from various subject-matter areas in the solution of forestry problems in the student’s area of specialization.
4. Demonstrated ability to design, conduct and report research on forestry problems of limited scope, depth and complexity.
5. Normally students admitted for graduate study toward the M.S. will have received a B.S. or equivalent in forestry.

Departments in Which Related Coursework is Concentrated
Areas of Specialization: Department:
1. Forest Economics Economics, Statistics, Government
2. Forest Management Economics, Industrial Engineering, Statistics
3. Forest Mensuration Mathematics, Statistics
4. Silviculture Agronomy, Botany, Genetics, Statistics
5. Wood Science Botany, Chemistry, Mathematics, Statistics

DOCTOR OF PHILOSOPHY DEGREE

Areas of Specialization
Forest Economics, Forest Mensuration, Silviculture and Wood Science

(Continued on page 40)
Graduate

(Continued from page 19)

Objectives
1. Advanced study to develop exceptional competence in one of the above phases of forestry.
2. Preparation for careers in research and teaching in forestry.

Requirements
1. Competence in the general area of specialization, level and scope defined by a core of required courses. The core includes many courses outside of forestry, some of which meet minor requirements listed on the student's Program of Study, but many go toward the forestry major. Required background courses are listed, indicating areas in which the student must have competence, even if the courses are not taken formally or are taken without graduate credit.
2. Completion of elective courses to meet individual student needs and interests (in addition to core requirements).
3. Demonstrated ability to synthesize and utilize techniques and knowledge from various basic subject matter areas in the solution of complex forestry problems in the student's area of specialization.
4. Demonstrated ability to design, conduct and report on original research on forestry problems.
5. Normally, students admitted for graduate study toward the Ph.D. will have received an M.S. or equivalent in forestry.

Departments in Which Related Coursework is Concentrated

Areas of Specialization: Department:
1. Forest Economics Economics, Statistics, Government
2. Forest Mensuration Mathematics, Statistics
3. Silviculture Agronomy, Biochemistry and Biophysics, Botany, Genetics, Statistics
4. Wood Science Biochemistry and Biophysics, Botany, Chemical Engineering, Chemistry, Physics, Statistics, Theoretical and Applied Mechanics

Graduate forestry education has developed at Iowa State University over the past half century and has always been an important part of the forestry program; to date, 150 degrees have been granted in forestry and related areas. Presently, 25 students are working on graduate degrees, with about half seeking the Ph.D. By 1970, at least 40 to 50 students should be enrolled in forestry graduate study at Iowa State University.

Literature Cited