

378.7M71
J
cop. 1
v. 49
no. 22

UNIVERSITY OF MISSOURI

Bulletin



Missouri's oak forests, under proper management, could supply all the State's timber needs and considerable surplus for export to neighboring states that cannot produce their timber needs.

COLLEGE of AGRICULTURE • AT COLUMBIA

Announcement of Four-year Degree Course

In Forestry • 1948

THE UNIVERSITY OF MISSOURI BULLETIN

FOUR-YEAR FORESTRY COURSE ANNOUNCEMENT

1948-49



VOLUME 49, NUMBER 22

GENERAL SERIES 1948, NUMBER 15

Entered as Second Class Matter, Jan. 2, 1914, at the Postoffice at Columbia, Missouri, under the Act of August 24, 1912. Issued three times monthly.—1500

AUGUST 10, 1948

ADMINISTRATIVE OFFICERS

FREDERICK ARNOLD MIDDLEBUSH, Ph.D., LL.D., President of the University

EDWIN A. TROWBRIDGE, B.S. in Agr., Dean, Faculty of College of Agriculture

SAM B. SHIRKY, A.M., Associate Dean, Faculty of College of Agriculture

JAMES EDGAR CROSBY, A.M., Assistant Director, Agricultural Experiment Station

FORESTRY DEPARTMENT FACULTY

RUTHFORD HENRY WESTVELD, Ph.D., Professor of Forestry

KENNETH CHARLES COMPTON, M.S., Assistant Professor of Forestry

PAUL YODER BURNS, M.F., Assistant Professor of Forestry

RICHARD CHANDLER SMITH, M.F., Assistant Professor of Forestry

ROBERT EMMET McDERMOTT, M.S., Instructor in Forestry

J. MILFORD NICHOLS, B.S., Field Forester

FACULTY IN RELATED DEPARTMENTS

ROBERT P. BEASLEY, A.M., Assistant Professor of Agricultural Engineering

RUDOLF BENNITT, Ph.D., William Rucker Professor of Zoology

ELLIS R. GRAHAM, Ph.D., Associate Professor of Soils

ROBERT B. LIVINGSTON, Ph.D., Assistant Professor of Botany

EVERETT S. LUTTRELL, Ph.D., Assistant Professor of Botany

PHILIP C. STONE, Ph.D., Assistant Professor of Entomology

378.7M71

J

cop. 1

V. 49

no. 22

The Department of Forestry

The Department of Forestry of the University of Missouri College of Agriculture offers full professional training in forestry which leads to the degree, Bachelor of Science in Forestry, upon completion of the four-year forestry curriculum. This training prepares young men for technical and administrative positions in various types of forestry work. The research program of the department furnishes students an opportunity to have first-hand contact with the latest development in forest management practices and in wood utilization.

FORESTRY PROFESSION

Although forestry is an old profession in European countries, it did not receive recognition in the United States until about 1900. At that time the first professional training was begun in this country, and the first foresters were trained primarily to manage the national forests which had been set aside by Congress as the first step in a program of forest conservation in this country. Since then, foresters have found widely varied opportunities in many different kinds of work. Basically forestry has not changed however.

The professional work may be divided into two broad classes. One deals with land management and the other with the utilization of the products which the land produces. Within each of these broad fields, there is a great variety of types of work. The land manager is concerned not merely with the production of trees. He must take into consideration the possibilities which the land has for wildlife, grazing, recreation, and watershed protection. To do this, he must be familiar with the broad aspects of land use; he must understand the effect of various kinds of soils on tree growth and upon watershed protection; he must be able to recognize and combat various forest insects and diseases; he must understand fire protection methods; he must be thoroughly familiar with the relative

commercial values of various tree species; he must be able to gauge the economic feasibility of various types of forestry practice. If he is engaged in the utilization of timber, he must understand wood properties; he must know when wood serves best and when some other material is superior; he must have some engineering skill in that the removal of the timber products from the woods often becomes an engineering problem; he must also be familiar with the various machines which convert wood into useful products. There are numerous specialized jobs within each of these broad fields which require specialized advanced training in the physical or biological sciences and in certain aspects of forest production or timber utilization.

EMPLOYMENT OPPORTUNITIES

Various departments of the federal and state governments and private industries provide varied opportunities for employment in forestry. The United States Forest Service of the Department of Agriculture employs more foresters than any other federal agency. Most of these foresters are assigned to administrative work on the national forests. Some of these men, however, are engaged as technical specialists in forest, range, or wildlife management or in recreational work. The research program of the forest and range experiment stations and the Forest Products Laboratory provides employment for many foresters with advanced specialized training. Other federal agencies which employ foresters in a variety of work are the Soil Conservation Service, National Park Service, Bureau of Entomology and Plant Quarantine, Fish and Wildlife Service, Indian Service, Tennessee Valley Authority, and the Grazing Service. All permanent positions with these agencies are secured through competitive examination given by the United States Civil Service Commission.

The forest services of nearly every state employ many foresters in fire protection, timber management, and other activities. With the exception of those employed by the Forest Products Laboratory and a limited number employed at the various federal experiment stations, most of the jobs with federal and state agencies are concerned with land management.

In the field of private employment, there are numerous opportunities both in the field of land management and in wood utilization. Many of the owners of sawmills and paper mills own extensive tracts of timber, and for the management of these lands, they

employ foresters. Foresters are used in various capacities as technicians in sawmills, paper mills, veneer plants, wood treating plants, and many other wood-using industries. Foresters are being sought more and more by the furniture manufacturers. In addition to these large fields of employment, there are numerous opportunities in teaching, research, and extension at the state colleges and universities; with railroads; with banks; with lumber and pulpwood associations; and with a great variety of other agencies.

IMPORTANCE OF FORESTRY IN MISSOURI

More than 15 million acres (35%) of Missouri's land area is forest land. Although badly abused, this land is capable of contributing greatly to the economy of the state. Because of abuse this land is now producing only 20% of Missouri's demand for wood products. In other words four-fifths of the wood used in Missouri

Headquarters of the University's forestry department is Whitten Hall.



must be imported from other parts of the country. If properly rehabilitated, the more than 15 million acres of forest land could easily produce all of the wood needed in this state. It has been estimated that if these forests were reasonably productive, they would provide employment for approximately 100,000 workers. Missouri obviously has a tremendous asset in its forest resources which, if properly developed, would play a vital part in the state's economy. To develop resources on these lands and to provide for progressive development of the state's wood-using industries, Missouri needs adequately trained foresters.

HIGH SCHOOL BACKGROUND FOR FORESTRY

Since forestry is based primarily on the physical and biological sciences, prospective forestry students should secure as thorough training in these fields as possible. It is desirable that they take the maximum amount of mathematics in high school and that they take advantage of courses in physics, chemistry, botany, and zoology. Since English is such an important tool in every-day life, high school students should secure the maximum of training in the use of written and spoken English. Since many jobs in forestry are concerned with dealing with the public, the prospective forestry student should take courses in history, government, and sociology.

Many prospective forestry students first enroll for some of their college work at junior colleges, teachers colleges, or liberal arts colleges. There is danger in attempting to acquire too much of the preliminary work at institutions of this type because of the fact that certain courses in forestry are offered early in the curriculum and that certain other courses such as land surveying are commonly not available at these institutions. If the student remains at such a school for more than one year, he is handicapped when he transfers to the University of Missouri. Students who plan to take a part of their work at some other institution and then transfer to the University of Missouri should write to the Forestry Department for advice.

TYPE OF TRAINING OFFERED

A broad training in forestry is offered at the University of Missouri. This type of training has the advantage of equipping the prospective young forester for a variety of jobs. Seldom do students have enough experience to be able to choose the exact type of work which they prefer and they are, therefore, not in a position



Barrel staves and heading are valuable products cut from white oak at numerous small mills which provide jobs for many individuals.

to specialize. Furthermore, specialization should be provided by graduate training. The curriculum provides a sound liberal education through its fifty semester credit hours of forestry, fifty-one credit hours in physical and biological sciences, and twenty-two credit hours in cultural subjects. For those individuals who believe they have some special objective, there is provided an opportunity through seventeen credit hours of electives to emphasize any phase or phases of the forestry work that have special appeal.

The oak forests of Missouri are representative of the vast area of central hardwoods which occupy many millions of acres in the central part of the United States. Although the management and use of hardwoods will be given special consideration in the training, the management of pines which are represented by the shortleaf pine in the Ozarks will be given attention also.

FACILITIES

The classroom and laboratory instruction is offered in Columbia and a major part of the field work is given at the Forestry Summer Camp in southeastern Missouri. Approximately 125 different species of forest trees are found in the immediate vicinity of Columbia. This provides exceptionally good instructional facilities for dendrology. This field material is supplemented by a considerable amount of herbarium material particularly of the western conifers. Some 700 samples of wood specimens representing wide variety of trees characteristic of the entire United States are available for instruction in wood technology. These samples are supplemented by large quantities of the important commercial tree species of the United States. All types of tree measuring and surveying equipment are available for instruction in forest mensuration.

A small timbered area of some fifty acres which is used for instruction in dendrology, silvics and silviculture is within walking distance of the campus. Ten miles from the campus is a 120-acre forest of mixed hardwoods and eastern redcedar which is used for similar purposes. Twenty miles from Columbia is the 2,000-acre Ashland Wildlife Area which is managed chiefly for wildlife. The area supports several hundred acres of natural forest and about thirty acres of forest plantations the first of which were established in 1936. This area provides additional facilities for studies in dendrology, silvics and silviculture.

The University Forest of 9,000 acres is the headquarters for the sophomore Forestry Summer Camp. This is located approximately fifteen miles from Poplar Bluff. This forested area, composed chiefly of mixed hardwoods, supports a limited area of short-leaf pine. It provides excellent field facilities for instruction in forest mensuration, silvics, and silviculture. A well-equipped camp providing accommodations for approximately forty men was completed in the summer of 1947. The camp and University Forest are completely surrounded by the Clark National Forest which has a gross area of 1,971,885 acres. The various activities in timber sales, fire protection, recreational development, grazing, and other major forest activities are available for observation and study. Through the cooperation of the U. S. Forest Service, observational trips are planned by the personnel of this organization. The seven fire protection districts of the Division of Forestry of the Missouri Conservation Commission are within easy traveling distance of both the

summer camp and Columbia. These facilities provide additional opportunity for studying forest fire protection organization. Missouri has state parks in most of which various types of recreational facilities have been developed. These are likewise available for observation and study.

The Library contains copies of practically all of the early bulletins published by the federal government as well as recent bulletins of all of the important forestry organizations. Many of the important leading periodicals in forestry are currently received.

STUDENT ACTIVITIES

The activities of the forestry students center in the Forestry Club which has regular meetings on alternate weeks. These meetings are educational and social in character. Prominent men in various lines of forestry work make frequent appearances on the programs of the Forestry Club. In 1948 the club inaugurated the

Timber cruising requires skill in the use of a staff compass and the cruiser stick.



publication of a yearbook known as the MISSOURI LOG. This publication gives students an opportunity to gain valuable experience in the business and editorial aspects of publication. Also for the first time in its history, the Forestry Club sponsored a basket ball team which competed in an intramural league during the school year of 1947-48. Other featured activities of the club were camp fires and dances.

CURRICULUM AND COURSE DESCRIPTION

The four-year curriculum in forestry leads to the degree of Bachelor of Science in forestry. The arrangement of the courses and the description of each is given in the following pages.

FRESHMAN YEAR

<i>First Semester</i>	<i>Hours</i>
*Mathematics 7—Algebra	3
Botany 1—General Botany	5
Forestry 50—General Forestry	3
English 1—Composition and Rhetoric	3
Military	1
Physical Education	1
	16

<i>Second Semester</i>	<i>Hours</i>
Mathematics 9—Trigonometry	2
Forestry 55—Cartography	2
Zoology 1—General Zoology	5
English 2—Composition and Rhetoric	3
Botany 10—Taxonomy	3
Military	1
Physical Education	1
	17

*All students must meet the Mathematics 2 requirement of the College of Agriculture. This may be done either by passing an examination arranged by the Dean of the College or by successful completion of Mathematics 2. Students who have had less than two units of high school mathematics will find it advantageous to register in Mathematics 2. If a student has had three or more units of mathematics in high school, he should register in Mathematics 10 instead of Mathematics 7.

SOPHOMORE YEAR

<i>First Semester</i>	<i>Hours</i>
Chemistry 1—General Inorganic Chemistry	5
Economics 51—General Economics	5
or	
Agr. Economics 1—Agricultural Economics and	
Agr. Economics 50—Advanced Agricultural Economics	
Forestry 57—Dendrology (Softwoods)	2
Forestry 60—Forestry Reports	1
Geology 2—Physical Geology	3
Military	1
Physical Education	1
	18



Missouri's virgin pine is completely cut out. Rehabilitation of the State's deteriorated lands is the forester's job.

<i>Second Semester</i>	<i>Hours</i>
Forestry 58—Dendrology (Hardwoods)	2
Agricultural Eng. 21—Land Surveying	3
Chemistry 15—Elementary Organic Chemistry	3
Soils 25—Soils	5
Forestry 59—Foundations of Silviculture	2
Military	1
Physical Education	1
	<hr style="width: 100%; border: 0.5px solid black;"/>
	17

JUNIOR YEAR

<i>First Semester</i>	<i>Hours</i>
Forestry 156—Forest Mensuration	3
Forestry 301—Practice of Silviculture	3
Rural Sociology 75—Rural Sociology	3
Forestry 163—Logging and Milling	3
Elective	3
	<hr style="width: 100%; border: 0.5px solid black;"/>
	15

<i>Second Semester</i>		<i>Hours</i>
Forestry 160—Wood Technology		3
Forestry 161—Forest Economics		3
Entomology 310—Forest Insects		3
Speech 75—Public Speaking		3
Elective		3
		<hr/> 15

SENIOR YEAR

<i>First Semester</i>		<i>Hours</i>
Forestry 315—Forest Management		3
Forestry 157—Forest Protection		3
Botany 312—Forest Pathology		3
Political Science 1—American Government		5
Elective		3
		<hr/> 17

<i>Second Semester</i>		<i>Hours</i>
Forestry 158—Forest Policy		2
Forestry 191—Forest Products		3
Elective		8
		<hr/> 13

SUMMER CAMP

Forestry 70—Forest Measurements	4
Forestry 71—Silvics	2
Forestry 72—Field Dendrology	1
Forestry 74—Silviculture	2
Forestry 75—Forest Utilization	2
Forestry 76—Forest Improvements	1
	<hr/> 12

The electives which are available in the forestry curriculum are designed to allow each student to emphasize the phase of forestry work in which he is particularly interested. All electives must be chosen from the seven groups listed below. Credit will not be granted in courses which are not included in this list. The general electives are for the purpose of broadening the individual's training in certain fundamental subjects. The six specific groups, graduate study or forest research, forest land management, forest wildlife management, forest recreation and municipal forestry, forest utilization, and business aspects of forestry are designed to allow the student to emphasize a specific phase of forestry work.

GENERAL ELECTIVES

	<i>Hours</i>
Accounting and Statistics 37—Elementary Accounting	4
Economics and Business 354—Business Law A	3
Economics and Business 355—Business Law B	3

Geology and Geography 6—Introductory Geography	3
Geology and Geography 125—Economic Geography	3
Geology and Geography 142—Introductory Meteorology	3
History 1—Modern Civilization	3
History 20—American History	5
Philosophy 1—Elementary Logic	3
Philosophy 5—Introduction to Philosophy	3
Physics 1—Elementary College Physics	5
Physics 2—Elementary College Physics	3
Political Science 5—International Relations	3
Political Science 301—Local Rural Government	3
Psychology 1—General Psychology	3
Sociology 310—Public Opinion	2

GRADUATE STUDY OR FOREST RESEARCH

	<i>Hours</i>
Agricultural Chemistry 404—Plant Chemistry	3-5
Agricultural Economics 325—Elementary Agricultural Statistics	3
Agricultural Economics 415—Statistics for Students in the Biological Sciences	4
Botany 202—General Bacteriology	3
Botany 203—Plant Physiology	3
Botany 306—Plant Ecology	3
Chemistry 25—Analytical Chemistry	5

Classes in wood technology study commercial woods under microscope and with hand lens.



Chemistry 26—Qualitative Analysis	2
Chemistry 27—Qualitative Analysis	3
Chemistry 221—Quantitative Analysis	2
Chemistry 222—Quantitative Analysis	3
Physics 1—Elementary College Physics	5

FOREST LAND MANAGEMENT

Forestry 155—Forest Nursery Management	3
Forestry 164—Timber Seasoning and Preservation	2
Forestry 190—Forest Recreation	2
Forestry 300—Special Problems	
Forestry 302—Forest Management Plans	5
Forestry 303—Range Management	2
Forestry 304—Applied Silviculture	3
Forestry 310—Forest Valuation	3
Forestry 311—Forest Photogrammetry	2
Forestry 313—Forest Influences	2
Agricultural Economics 240—General Agricultural Marketing	3
Agricultural Economics 360—Land Economics	2
Botany 306—Plant Ecology	3
Economics and Business 336—Personnel Management	3
Geology and Geography 3—Interpretation of Maps and Aerial Photographs	1
Soils 102—Soil Surveying and Land Appraisal	3
Soils 204—Soils and Land Use in the United States	2
Soils 308—Soil Conservation	3

FOREST WILDLIFE MANAGEMENT

	<i>Hours</i>
Forestry 155—Forest Nursery Management	3
Forestry 303—Range Management	2
Forestry 304—Applied Silviculture	3
Agricultural Engineering 221—Farm Water Management I	3
Agricultural Engineering 231—Farm Water Management II	3
Zoology 120—Invertebrate Zoology	3
Zoology 5—Ornithology	2-3
Zoology 6—Principles of Wildlife Conservation	3
Zoology 305—Animal Ecology	3
Zoology 309—Mammalogy	3
Zoology 311—Ichthyology	3
Zoology 415—Wildlife Management	3
Zoology 416—Wildlife Management	3
Zoology 418—Limnology	4

FOREST RECREATION AND MUNICIPAL FORESTRY

	<i>Hours</i>
Forestry 155—Forest Nursery Management	3
Forestry 190—Forest Recreation	2
Landscape Gardening 6—Elementary Landscape Gardening	3
Landscape Gardening 104—Ornamental Horticulture, Shrubs, and Vines ..	3
Landscape Gardening 102—Elementary Landscape Design I	3

FOREST UTILIZATION

	<i>Hours</i>
Forestry 164—Timber Seasoning and Preservation	2
Forestry 312—Forest Products Marketing	2
Agricultural Economics 240—General Agricultural Marketing	3



More than 30 acres of forest plantations of various species are available for field study at the Ashland Wildlife tract 20 miles from Columbia.

Economics and Business 304—Principles of Marketing	3
Economics and Business 370—Market Analysis	3
Physics 1—Elementary College Physics	5

BUSINESS ASPECTS OF FORESTRY

	<i>Hours</i>
Forestry 310—Forest Valuation	3
Forestry 312—Forest Products Marketing	2
Accounting and Statistics 317—Intermediate Accounting	3
Accounting and Statistics 319—Advanced Accounting	3
Accounting and Statistics 303—Accounting for Small Businesses	2
Economics and Business 303—Corporation Finance	3
Economics and Business 304—Principles of Marketing	3
Economics and Business 310—Labor Problems	5
Economics and Business 302—Industrial Management	4
Economics and Business 312—Marketing Management	4
Economics and Business 336—Personnel Management	3
Economics and Business 318—Property and Casualty Insurance	3
Economics and Business 345—Industrial Organization and Control	3
Economics and Business 347—Wage and Salary Administration	2

FORESTRY

50 General Forestry (3) f, w.

An introduction to the entire field of forestry.

55 Forest Cartography (2) w.

Lettering, use of drafting instruments, preparation and interpretation of forest and topographic maps.

57 Dendrology (2) f.

A systematic study of Gymnosperm tree forms native to the U. S. and their occurrence and identification.

58 Dendrology (2) w.

A continuation of Forestry 57, but dealing with Angiosperm tree forms.

59 Foundations of Silviculture (2) w.

The influence of site factors on the reproduction, growth, development, and characteristics of forest vegetation; the effect of forest cover on the site. The classification of forest vegetation.

60 Forestry Reports (1) w.

Methods of organizing and presenting various kinds of data in technical reports. Use of forestry terminology.

155 Forest Nursery Management (3) w.

Principles of seed collection and treatment, seeding, and nursery practice.

156 Forest Mensuration (3) f.

Prerequisite Forestry 70. Methods and principles of measuring contents of trees, stands of timber, and rough wood products. Application of yield tables and growth studies.

157 Forest Protection (3) f.

An intensive study of forest hazards and their control. Meteorology in relation to fire hazard. Protection from fire, animals, human use, and climatic disturbances.

158 Forestry Policy (2) w.

History of U. S. forestry and forest land legislation. Forestry programs of federal, state, and local governments. Trends in forestry legislation and policy.

160 Wood Technology (3) w.

Anatomy and variations in properties of wood. Microscopic examination and identification of wood specimens. Wood properties in relation to use.

161 Forest Economics (3) w.

The forest resource; its relation to social and industrial development. Problems in forest regulation, taxation, and insurance. Economics of forest land use and production.

163 Logging and Milling (3) f.

Methods, costs of harvesting, and transporting primary wood products. Lumber manufacture by portable and permanent sawmills.

164 Timber Seasoning and Preservation (2) w.

Air seasoning, kiln drying, and chemical conditioning of lumber. Pressure and non-pressure methods of wood preservation.

190 Forest Recreation (2) f.

Analysis of forest recreational possibilities and needs; relation to other forest uses; forest recreation plans.

191 Forest Products (3) w.

Construction materials, chemically derived products, wood containers, mechanically reduced products, fuel and miscellaneous products from the forest, and the industries producing these products.

300 Special Problems (credit to be arranged) f and w.

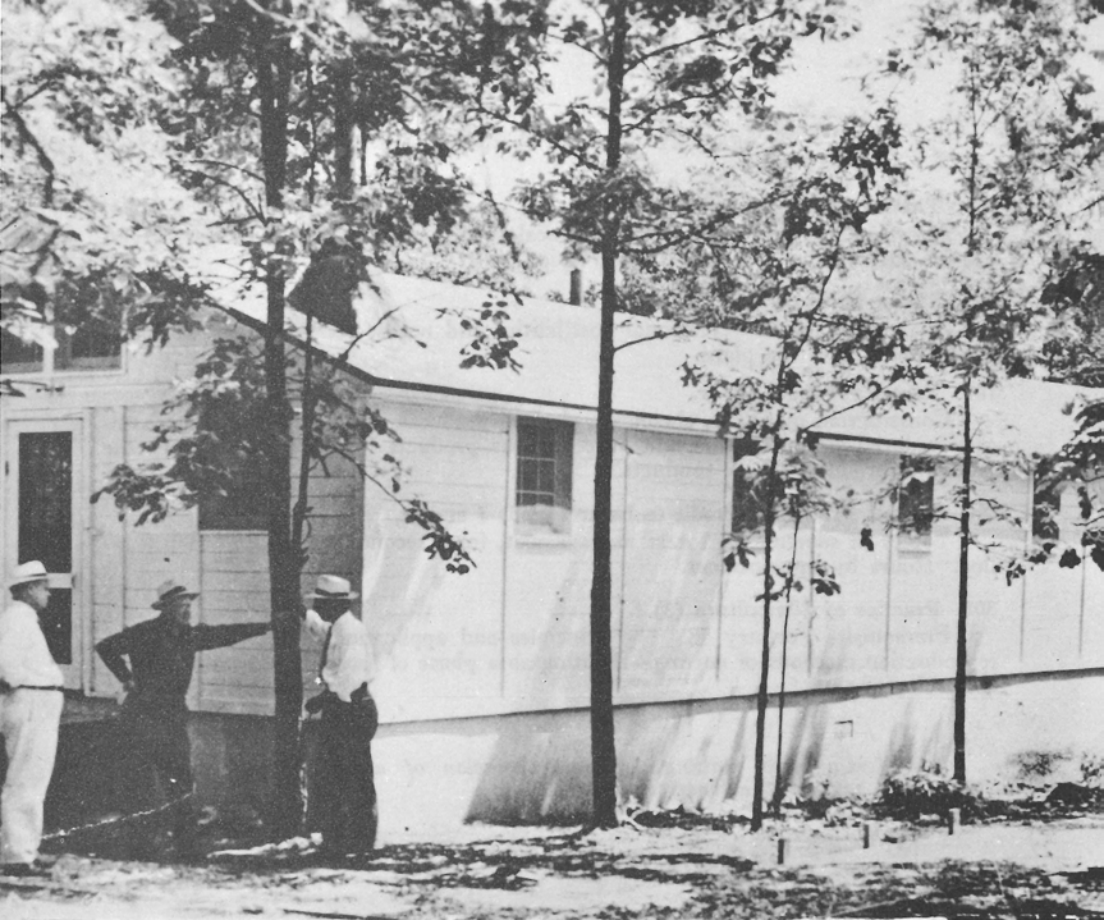
Topics in silviculture, forest management, forest economics, and wood utilization. Hours by appointment.

301 Practice of Silviculture (3) f.

Prerequisite Forestry 58. The principles and application of intermediate and reproduction methods of cutting. Planting as a phase of forest regeneration. Silvicultural plans.

Drafting, map making, and interpretation of aerial photographs are a part of the forester's training.





The dormitory at the forestry summer camp is comfortably equipped to accomodate forty students.

Photo courtesy American Republic, Poplar Bluff, Mo.

302 Forest Management Plans (5) w.

Prerequisite Forestry 315. Application of principles of forest regulation in preparation of a management plan for a forest in southern Missouri including plans for orderly cutting, utilization and administration of the area.

303 Range Management (2) w.

Prerequisite Forestry 58. The ecology of forage production in forests. Benefits and damage from grazing in forests. Administration of the forage resources in forests.

304 Applied Silviculture (3) w.

Prerequisite Forestry 301. The ecological and economic factors affecting the application of silviculture in each of the eighteen forest regions in the United States.

310 Forest Valuation (3) f.

Prerequisite Forestry 156. Appraisal of forest land and stumpage. Determination of profits in forest enterprises. Appraisal of damages to forest property. Financial aspects of sustained yield management compared with destructive logging.

311 Forest Photogrammetry (2) f.

Prerequisite Forestry 156. The theory of aerial photographs and their use in various phases of forestry.

312 Forest Products Marketing (2) f.

Prerequisite, Forestry 191. Economics of the timber industry; wholesaling and retailing of forest products; exports and imports; lumberman's associations.

313 Forest Influences (2) f.

Prerequisite, Forestry 59. The influence of forests on soil moisture, run-off, stream flow, floods, erosion, local climate, and soil productivity and forest growth.

315 Forest Management (3) f.

Prerequisite, Forestry 301. Organizing forest properties for systematic management, regulation of annual cut, rotation, and cutting cycles to achieve sustained yield.

350 Farm Forestry (3) f, w.

The place of farm forests in agriculture. The application of forestry principles to the problems of the farm woodland, especially as they relate to Missouri condition. Not open to students in curriculum E.

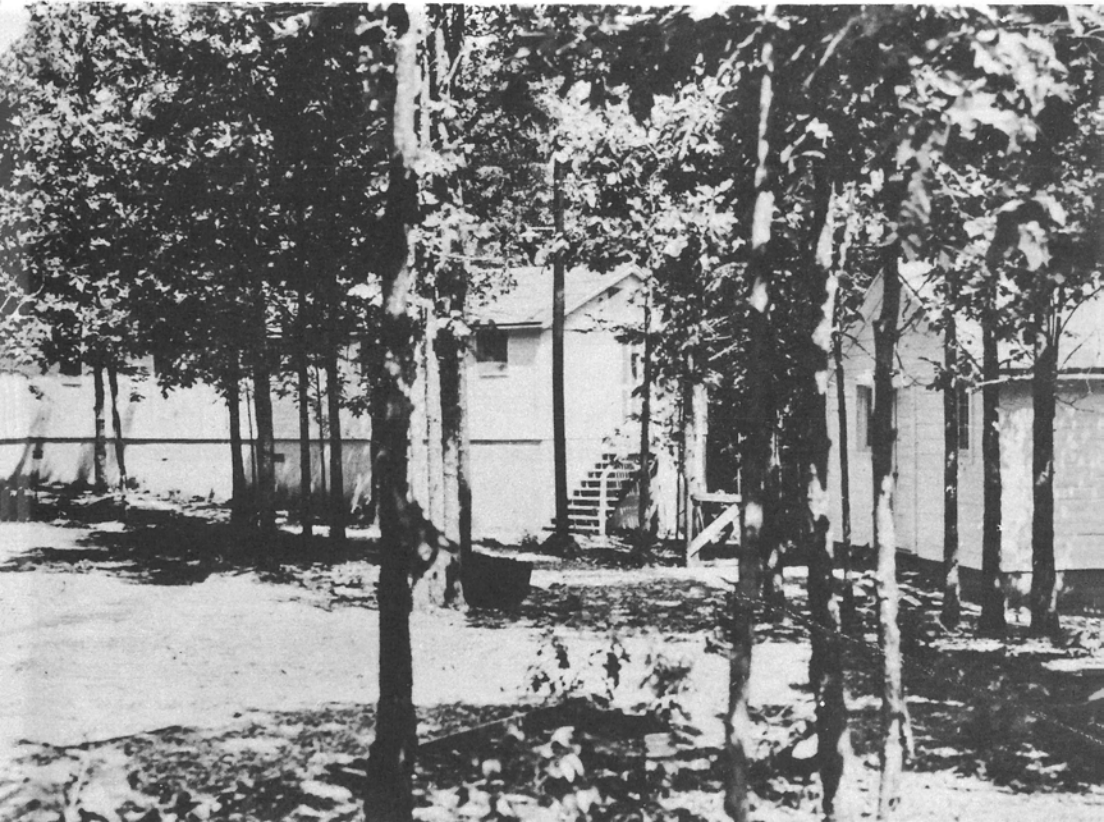
351 Forest Conservation (3) f.

The forest resources of the United States; forest economics; methods of conserving forest resources.

490 Research (credit to be arranged) f, w.

A six-building modern camp on the 9000-acre University Forest in Butler County completed in 1947, is the base for the 12-week Summer camp which is attended by sophomore forestry students

Photo courtesy American Republic, Poplar Bluff, Mo.



Forestry Summer Camp

(All courses in 70-series given at 12-weeks sophomore field camp).
(Prerequisite—first two years of forestry curriculum).

70 Forest Measurements (4) s.

Field studies in methods of measuring content and growth of trees and forest stands. Practice in timber estimating, log scaling, and collection of basic data.

71 Silvics (2) s.

Field studies of forest soils, sites, and types. Forest type mapping and ecological studies.

72 Field Dendrology (1) s.

Series of field trips to identify woody vegetation.

74 Silviculture (2) s.

Practice in the application of intermediate and regeneration cutting methods to various types of stands.

75 Forest Utilization (2) s.

A field study of logging equipment and methods and of wood-using industries.

76 Forest Improvements (1) s.

Forest engineering, layout and construction of roads, trails, lookout towers, communication lines, water storage facilities, administrative buildings, recreational developments.

University of Missouri - Columbia



010-103951868

576948

University of Missouri Libraries
University of Missouri

MU Catalogs

Source information

Identifier	010-103951868
Format	Book
Content type	Text
Notes	Digitized duplicate copy not retained in collection.

Capture information

Date captured	2018 September
Scanner manufacturer	Ricoh
Scanner model	MP C4503
Scanning software	
Optical resolution	600 dpi
Color settings	8-bit greyscale, 24-bit color
File types	Tiff
Notes	Images originally grayscale.

Derivatives - Access copy

Compression	LZW
Editing software	Photoshop
Resolution	600 dpi
Color	8-bit greyscale, 24-bit color
File types	Tiffs converted to pdf
Notes	Image editing: pages lightened, canvassed, and noise removed. Color pages cropped.