**Engineering Technology Courses 261**

**TEC 464 Applied Strength of Materials (4).** Deflection and internal stresses of basic load-carrying members caused by external forces, composite materials and combined forces. 3 hrs. lecture, 3 hrs. lab. *Prerequisite:* TEC 351.

**TEC 465 Structural Design (4).** Design of simple members of statically determined steel, timber, and reinforced concrete structures computer applications. 3 hrs. lecture, 3 hrs. lab. *Prerequisite:* TEC 464.

**TEC 471 Semiconductor Theory and Technology (4).** The theory of semiconductors, diodes, transistors and integrated circuits, coupled with a laboratory which investigates device fabrication. 3 hrs. lecture, 3 hrs. lab. *Prerequisite:* TEC 240.

**TEC 473 Mechanical Design (3).** Design of mechanical and machine elements. Teams of students carry a design project to completion, including modeling, documentation, and finite element modeling. 2 hrs. lecture, 3 hrs. design lab. *Prerequisites:* TEC 426, TEC 464.

**TEC 478 Hydrology and Drainage (3).** Hydrologic cycle; rainfall and runoff as they affect drainage and flood control structures computer analysis of water surface elevations. *Prerequisite:* EGR 270; TEC 421.

**TEC 479 Water and Wastewater Technology (3).** Water chemistry, wastewater biology, water pollution, water distribution systems, with computer analysis, water processing, wastewater collection systems, and wastewater processing. *Prerequisites:* CHM 151, TEC 421.

**TEC 480 Technology Applications in Numerical Modeling (3).** Introduction to design of Micro-CAE software; use of Micro-CAE software in optimizing systems design and performance; individualized design of a systems software package is a major part of this course. *Prerequisites:* CSE 172 or 174 and one of the following: TEC 322, 407, 445, 464.

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**School of Forestry**  
L. David Garrett, Dean  
523-3031


**Objectives**

The School of Forestry provides professional training at the bachelor and master levels in the management and use of the nation’s forests and related resources. The academic program strives to instill an awareness of the complexities inherent in contemporary forest wildland management and to develop the individual as both an involved citizen and a professional land manager.

The school places corollary emphasis on demonstration and research to encourage proper care and use of forest resources.
Bachelor of Science in Forestry

Since 1972 NAU has incorporated a unique concept in undergraduate education in forestry. In place of the usual two to three years of conventional forestry courses, this program includes three semesters of wholly integrated forestry instruction beginning when required freshman and sophomore preparatory courses have been completed. During these semesters, students enroll in no other classes. The instruction is continuous and uncompartmentalized. All forestry faculty members are involved.

In the fall of the junior year (FOR 311), important aspects of the technical portion of forestry are presented through detailed field study of forest and range ecosystems. Students learn to use forestry tools and techniques. Plant identification, wood characteristics, ecological principles, and other basic forest sciences used by foresters are introduced.

In the spring semester of the junior year (FOR 312), more advanced forestry concepts are developed through study units that focus on integrated forest resource management situations. Emphasis is on decision techniques for and management of timber, range, watershed, wildlife, and recreational resources for maximum benefit.

The fall semester of the senior year (FOR 421), is devoted to collecting information and preparing comprehensive multiple forest resource management plan for a large land area in northern Arizona. After completing the management plan students engage in case studies of actual or simulated management situations.

Off-campus field trips of several days, duration involving extra expense to students may be scheduled in the three integrated, professional semesters.

NAU is ideally located for the study of forestry and related resources. Available facilities include large sawmills, a new modern pulpmill, a wood preservation plant, the oldest experimental forest in the United States, and the largest ponderosa pine forest in America. There are also famous recreational areas, outstanding watershed research facilities, and extensive grazing areas close by. Thus, the realistic field experiences that are essential to forestry training are available to students in NAU’s forestry program.

Admission to Professional Forestry Courses

Admission to the School of Forestry during the freshman and sophomore years is governed solely by University regulations and procedures.

The three-semester sequence of FOR 311, 312 and 421 begins only in the fall semester. Admission into the professional program is limited and requires acceptable scholastic performance on all required lower division courses and approval of the forestry faculty. Applications for acceptance into FOR 311 should be made to the Office of the Dean, School of Forestry, PO Box 4098, Flagstaff, AZ 86011-4098, when one of the following criteria has been met.

1. Students have completed or are concurrently enrollment in at least 28 credit hours of the required lower division courses listed in the current NAU general catalog, including ENG 101, 102 and the mathematics requirements.
Cooperative Education Program

No more than 16 of the 28 credit hours may be in progress at the time of application, and a minimum cumulative grade point average of 2.5, based on the designated courses, is required. Students who qualify under these conditions are automatically accepted into the professional forestry program and are considered members of the appropriate FOR 311 class when all required lower division coursework has been completed with a minimum cumulative grade point average of 2.5. In the event that maximum enrollment is reached for a specific FOR 311 class, the date of application will determine priority for acceptance of qualified individuals.

2. Students with a cumulative grade point average below 2.5 may apply for consideration when enrolled in their final semester of required lower division coursework. The decision on acceptance of these individuals is made by the School of Forestry faculty.

School of Forestry Curriculum

Entering students are expected to have three units of high school mathematics (including trigonometry), and one unit each of biology, chemistry, and physics.

The following courses must be satisfactorily completed prior to entering FOR 311: ENG 101, 102; MAT 130 or 135 or 136; CHM 130, 151L; FOR 101, 102; BIO 184, 190; ECO 284, 285; GLG 101:103; CIS 120; MAT 270; COM 161; ENG 302; FOR 201, 202; and 12 hours of electives.

A number of the required freshman and sophomore courses are approved toward fulfillment of the current NAU liberal studies requirements. To completely satisfy the liberal studies requirements for graduation, students must select at least 3 additional hours in the Social and Behavioral Sciences block, 6 hours in the Creative Arts block, and 6 hours in the Letters block. Of these 15 credits, a minimum of 6 hours must be upper division coursework.

The upper division professional program consists of FOR 311, 312, 421, and 402. Fourteen hours of general electives are also required for the student's personal and professional improvement are also required. To receive the Bachelor of Science in Forestry degree, students must satisfactorily complete all requirements of the curriculum, including 130 semester hours.

In addition to the regular forestry program, the School of Forestry actively encourages and supports student participation in cooperative education opportunities. These formal agreements, which are mainly with federal land management agencies, alternate periods of practical work experience in resource management with academic studies, and provide a vehicle for full-time employment with the agency following graduation.

Students at the sophomore level and above are eligible to apply for cooperative education positions. Eligible students must be registered full time in the forestry program.
Forestry Courses (FOR)

FOR 101:102  Forestry Introduction (2:2). Required of all freshman forestry majors currently enrolled at NAU.

FOR 201  Foundations of Forestry (2). Required of all sophomore forestry majors currently enrolled at NAU.

FOR 202  Elements of Forest Management (2). Required of all sophomore forestry majors currently enrolled at NAU.


FOR 311  Forest Science-A (16). Fundamentals of plant identification, ecology, soils, forest measurements, and wood properties.

FOR 312  Forest Science-B (16). Multi-resource management, economics, and decision theory; management of timber, range, watershed, wildlife, and recreational resources. Prerequisite: a grade of C or better in FOR 311 or approval of the School of Forestry faculty.

FOR 322  Environmental Conservation (3). Environmental quality problems in natural and human-made environments.

FOR 402  Current Forestry (1). Current literature in forestry and analysis of trends in forestry and conservation.

FOR 421  Forest Science-C (16). Collection of data, analysis, and preparation of a multi-resource management plan; case studies of actual or simulated management situations. Prerequisite: a grade of C or better in FOR 312 or approval of the School of Forestry faculty.

Graduate Courses

FOR 500A  Introduction to Multi-resource Management (1).

FOR 500B  Overview of Multi-resource Management Problems (2).

FOR 501  Ecological Response Functions (2).

FOR 502  Multi-resource Management Economics (2).

FOR 503  Optimization Techniques (2).

FOR 504  Decision Theory (2).

FOR 506  Special Studies in Forestry (1-4).

FOR 522  Design and Analysis of Experiments (3).

FOR 524  Airphoto Interpretation (3).

FOR 525  Geographic Information Systems (3).

FOR 541  Wood Products (3).

FOR 563  Watershed Hydrology (3).

FOR 571  Landscape Planning and Design (2).

FOR 573  Recreation Management Problems (2).
Forestry Courses 265

FOR 593 Natural Resource Economics (3).
FOR 601 Advanced Ecological Relationships (3).
FOR 602 Advanced Multi-resource Management Economics (3).
FOR 603 Selection of Analytical Methods (3).
FOR 604 Evaluation of Analytical Methods (3).
FOR 605 Policy Process in Multi-resource Management (3).
FOR 607 Conservation of Natural Resources (3).
FOR 611 Forest Tree Improvement (3).
FOR 612 Forest and Range Ecology (3).
FOR 653 Forest Entomology (3).
FOR 654 Forest Pathology (3).
FOR 674 Recreation Resource Development (3).
FOR 690 Research Methods (3).
FOR 695:696 Advanced Studies in Forestry (3:3).
FOR 700 Practicum (8).

School of Health Professions
Richard A. Borden, Dean
Don Q Paris, Associate Dean
523-4331

Statement of Purpose
The School of Health Professions promotes excellence in teaching and prepares students with a broad liberal arts education to assume professional responsibilities as providers of health and human services. The faculty of the School is committed to attracting and retaining qualified students from diverse cultural and academic backgrounds. The School offers continuing education opportunities on a local, state, and national level and seeks to promote wellness at NAU, in the surrounding community, and in the unique populations of northern Arizona. The School of Health Professions will encourage and provide opportunities for faculty development, support the pursuit of scholarly activities, facilitate the acquisition of educational and research resources, and establish interdisciplinary relationships with other departments and programs on campus.

The School of Health Professions provides professional education in Dental Hygiene, Physical Therapy, Speech Pathology and Audiology, and Nursing. The School offers programs in Health, Physical Education, and Recreation, and in Dietetics/Foods and Nutrition. These programs are designed to provide a broad scientific background, an accredited professional curriculum, and maximum interaction between faculty and students in a career-oriented setting. Modern