Building Construction Management

200. American Housing and Building Industry
   (B C 200.) Fall, Winter, Spring, Summer. 3(3-0)
   Residential and light commercial construction industry in America. Impacts of government, finance, zoning ordinances, codes, aesthetics, construction technology, demographics, energy and society.

215. Architectural Drafting I
   (B C 215.) Fall, Winter, 4(3-4)
   Residential design including site plans, floor plans, foundation plans, elevations, sections, and details.

216. Architectural Drafting II
   (B C 216.) Winter, Summer, 4(2-4)
   Light commercial design including site plans, floor plans, foundation plans, elevations, sections and details, barrier free accessibility.

239. Housing Conservation
   (A E T 239, B C 239.) Spring, 3(3-0)
   Interdepartmental with the Department of Human Environment and Design.
   Skills and techniques in conserving, repairing and remodeling existing housing. Structural components of housing and evaluation of housing structure.

301. Energy Conservation Systems for Buildings
   (B C 301.) Winter, 3(3-0) BCM 215, MTH 168 or MTH 111 or approval of department.
   Solar energy, earth sheltered and energy conservation systems for buildings will be analyzed for operation, optimum size, construction, performance, climate, cost effectiveness and human comfort for northern climates.

312. Structural Design
   (B C 312.) Winter, 4(5-0) PHY 237, BCM 215 or approval of department. Interdepartmental with Agricultural Engineering Technology.
   Concepts of structural mechanics, material strengths and section properties are developed and applied to design using wood, steel and concrete.

313. Construction Systems
   (B C 413.) Spring, 4(3-2) BCM 200, BCM 315. CPS 115.
   Primary construction systems employed in the residential and light commercial construction industry. Interrelationships between planning, processes, costs and management.

412. Utilities Design
   (B C 412.) Fall, 4(4-0) PHY 238, BCM 215 or approval of department.
   Design and planning for mechanical and electrical utilities in residential and light commercial construction.

415. Building Materials
   (B C 415.) Spring, 4(4-0) BCM 312 or approval of department.
   Properties of building materials pertinent to their application and performance in service.

416. Building Costs
   (B C 416.) Winter, 4(2-4) BCM 312 or concurrently.
   Methods of cost estimating. Effects of codes and production practices on costs.

417. Construction Management Finance
   (B C 417.) Winter, 4(4-0)
   Financing methods for the construction, rehabilitation, and purchase of real estate.

418. Special Problems
   (B C 418.) Fall, Winter, Spring, Summer 1 to 4 credits.
   May reenroll for a maximum of 11 credits. Written approval of department.
   Special problems in the areas of acquisition and development of residential land, design, construction technology, building materials, finance, marketing, construction management and land use codes and regulations.

419. Senior Seminar
   (B C 419.) Fall, 1(1-0) Senior majors.
   Professional practices, business ethics, market trends, and structure of the construction industry.

420. Construction Management
   (B C 420.) Spring, 4(4-0) Senior majors.
   Systems management techniques for building organizations, development, operations, planning, scheduling and control, and administrative procedures.

520. Research Methods
   (B C 520.) Fall, 1(1-0) Approval of department. Interdepartmental with and administered by Agricultural Engineering Technology.
   Procedures for initiating, developing, carrying out and completing research projects.

580. Special Problems
   (B C 580.) Fall, Winter, Spring, Summer 1 to 4 credits.
   May reenroll for a maximum of 6 credits. Approval of department.
   Individual student research and study in land acquisition and development, design, construction, management, finance, marketing, and structural analysis.

890. Advanced Topics
   (B C 890.) Fall, Winter, Spring, Summer. 1 to 4 credits.
   May reenroll for a maximum of 12 credits if different topics are taken. Approval of department.
   Topics will be selected from: computer methods in construction management, advanced construction management, optimization techniques, solar energy buildings, advanced estimating, numerical structural analysis, new construction techniques and materials.

599. Master's Thesis Research
   (B C 599.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

AGRICULTURAL ENGINEERING TECHNOLOGY

See Agricultural Engineering.
445. Pest Management: Biological Systems for Plant Protection
Fall, Winter, Spring. 3(3-0). ENT 425, HRT 402 or CSS 402, BOT 405 or concurrently or approval of instructor. Interdepartmental with and administered by the College of Natural Science. A broad overview of pest management, including cultural practices, cultural practices, and biological systems.

447. Pest Management: Systems Management for Plant Protection
Fall, Winter, Spring. 3(3-0). ENT 425, HRT 402 or CSS 402, BOT 405 or concurrently or approval of instructor. Interdepartmental with and administered by the College of Natural Science. Designed to integrate knowledge and improve ability in arriving at pest management decisions of varying complexity involving the fields of agronomy, wildlife, horticulture, entomology, and plant pathology.

450. Natural Resource Administration
Winter, Fall, Winter, Spring. 3(3-0). Senior; not open to forestry majors. Interdepartmental with the departments of Fisheries and Wildlife, Forestry, Park, and Recreation Resources and Resource Development. Administered by the Department of Forestry. Concepts and methods of administering natural resource properties. The legal, economic, and social environment. Benefits-cost analysis of management changes. Unit organization, personnel management, and accounting. Presents a systems view of administration.

455. Natural Resource Economics
Fall, Winter, Spring. 3(3-0). Approval of department. Interdepartmental with the departments of Fisheries and Wildlife, Forestry, Park, and Recreation Resources and Resource Development. Administered by the Department of Forestry. Basic economic and political principles and techniques that govern the production and consumption of forest land products, including basic forest valuation procedures.

462. Agricultural and Rural Development in Developing Nations

475. International Studies in Agriculture and Natural Resources
Spring, Summer. 3 to 9 credits. Approval of college. Study-travel experience emphasizing contemporary problems affecting agriculture in the world, national, and local communities. Field trips, case studies, interviews with leaders, government officials, community leaders. Supervised individual study.

480. Selected Topics
Fall, Winter, Spring. 1 to 4 credits. May enroll for a maximum of 9 credits if different topics are taken. Approval of department. Juniors. Exposition of special topics in agriculture and natural resources.

491. Natural Resources and Modern Society
Fall, Winter, Spring. 3(3-0). Juniors. Interdepartmental with the departments of Forestry, and Resource Development. Administered by the Department of Forestry. A survey of the social and economic significance of natural resources in modern industrial and urban society. Current problems of natural resources management and use are examined in terms of the society in which they exist.

American Studies

301. Issues in American Civilization
Fall, Winter, Spring. 3(3-0). May enroll for a maximum of 9 credits. Sophomores. Selected topics in American life past and present, with materials drawn from such disciplines as history, social science, philosophy, literature and the arts. Topics vary.

378. Popular Culture and Technical Change
Winter, Fall, Winter, Spring. 3(3-0). Juniors or approval of department. Interdepartmental with and administered by Lyman Briggs School. Interrelationships among elements of mass culture and technical change. Introduction to relevant research methods.

410. Perspectives in American Studies
Winter. 3(3-0). Juniors, approval of American Studies adviser. Methods and significant works, for majors in the American Studies program. Offered by members of the relevant departments.

411. Problems in American Civilization
Spring, 3(3-0). May enroll for a maximum of 9 credits of different topics. Juniors, approval of American Studies adviser. Seminar approach to selected problems in American life employing the objectives and approaches of interdisciplinary studies. Offered by members of relevant departments, for majors in the American Studies program.

American Thought and Language

ATL

College of Arts and Letters

To satisfy the University General Education requirement, a student must take one course in each of the following groups. No courses may be taken for elective credit.

1. 201, 202, 211, 131, 141, 151, 101, 171, 181, 191H
2. 215, 220, 132, 142, 152, 162, 172, 182, 192H
3. 318, 143, 133, 143, 153, 163, 173, 183, 193H

0142. Writing Laboratory I
Fall, Winter, Spring. 0(0-2) See page A-1 item 3.1 ATL. 0991 or admission by placement test. ATL 1144 concurrently. An individualized program to develop composition skills by aiding students to discover how language functions in communication and by helping them to exercise responsibility for learning to write correctly.

0152. Writing Laboratory II
Fall, Winter, Spring. 0(0-2) See page A-1 item 3.1 ATL 0142, ATL 1144 or approval of department. ATL 1154 concurrently. Continuation of ATL 0142.

0182. Writing Laboratory III
Fall, Winter, Spring. 0(0-2) See page A-1 item 3.1 ATL 0152, ATL 1154 or approval of department. ATL 1184 concurrently. Continuation of ATL 0152.

0991. Preparatory Writing Skills
Fall, Winter, Spring. 0(0-3) See page A-1 item 3. Admission by placement test. (3-3) Concurrent enrollment in ATL 1142, 1152.

Instruction and practice in writing. Emphasis on mastery of fundamental skills needed for a variety of writing assignments.

104. Writing for Science Majors
Fall, Winter, Spring. 3(3-0) Satisfactory grade in English proficiency exam; College of Natural Science majors. Interdepartmental with and administered by the Department of English. Writing workshop for science students that develops and refines composition ability.

105. The Scientist as Writer
Winter, Fall, Winter, Spring. 3(3-0) See page A-1 item 3. Admission by placement test. Writing for science students that develops and refines composition ability.

106. Introductory Scientific Writing
Spring, 3(3-0) ENG 104. Interdepartmental with and administered by the Department of English. Writing of popular essays, scientific papers and reports, and other papers related to science.