480. Independent Study
Fall, Winter, Spring, Summer. 2 to 4 credits. May re-enroll for a maximum of 10 credits. Approval of department. Supervised individual study and projects.

485. Special Topics in Urban and Metropolitan Studies
Fall, Winter, Spring, Summer. 3 to 4 credits. May re-enroll for a maximum of 8 credits. Juniors or U.D. 200, S 321. Contemporary issues and problems in the urban areas. The topics will vary from time to time.

498. Prefield Experience Seminar
Fall, Winter, Spring, Summer. 1 credit. Approval of department. Interdepartmental with the College of Urban Development and the Department of Racial and Ethnic Studies. Administered by the College of Urban Development.
Prepares students for the required College of Urban Development field experience. Students work with instructor in planning their field experiences and developing objectives and rationale. Approved through Winter term 1978.

499. Field Experience
Fall, Winter, Spring, Summer. 3 to 15 credits. May re-enroll for a maximum of 24 credits. 498 or approval of department. Interdepartmental with the College of Urban Development and the Department of Racial and Ethnic Studies. Administered by the College of Urban Development.
The development of field research and analytical skills and the provisions of experiential learning via students participating in field work settings and public service projects. Approved through Winter term 1978.

URBAN PLANNING AND LANDSCAPE ARCHITECTURE

College of Social Science

Urban Planning U P

103. Design of Cities
Spring. 3(0-0) 201. Historical Roots of Racism and Ethnocentrism
Fall, Winter, Spring. 4(0-0) 201. Historical Roots of Racism and Ethnocentrism emphasizing a problem-solving approach in applying these theories to pluralism as it relates to Blacks, Spanish-Speaking and Indian Americans.

201. History of Urbanization
Fall, Winter, Spring. 4(0-0) 200 and 201.

202. Minorties in American Cities
Fall, Winter, Spring. 4(0-0) 200 and 201.

201. Changing socio-economic and political condition of minority groups in American cities associated with urbanization. Special emphasis will be given to Blacks, Spanish-Speaking and Indian Americans.

498. Prefield Experience Seminar
Fall, Winter, Spring, Summer. 1 credit. Approval of department. Interdepartmental with the College of Urban Development and the Department of Racial and Ethnic Studies. Prepares students for the required College of Urban Development field experience. Students work with instructor in planning their field experiences and developing objectives and rationale. Approved through Winter term 1978.

352. Urban Design Problems
Winter. 5(0-0) 351. Application of the physical design process from the scale of individual element groupings to complete community units in a two and three dimensional context.

363. Comprehensive Planning
Spring. 3(0-0) 363. Theory and application of coordinated planning for urban development, including policies and development plan formulation. Programming, evaluation and revision of policies and plans.

400. Urban Development and Planning
Fall, Spring. 3(3-0) Credit may not be earned in 333 and 400. Juniors. Not open to seniors in Urban Planning.
Planning concepts and powers used to guide contemporary urban growth and alleviate common problems. Major topics will be the planning commission, comprehensive plan, zoning, land development, parks, school location.

431. International Housing
Fall, Spring. 3(3-0) Credit may not be earned in 333 and 400. Juniors. Not open to seniors in Urban Planning.

461A. Comprehensive Planning
Fall. 4(0-0) 363A. Collection and analysis of planning information for an established urban area and region. Formulation of comprehensive physical development policies and plans and implementation programs.

461B. Comprehensive Planning
Winter. 4(0-0) 361A. Continuation of 461A.

461C. Comprehensive Planning
Spring. 4(0-0) 461B, 471. Continuation of 461B.

471. Ecological Basis for Planning
Fall. 3(0-0) Seniors. Ecological principles, relationships and interaction between natural and man-made elements of the environment; critical review of environmental planning projects at local, state and national levels.

472. Urban Development Regulation
Winter. 3(3-0) Seniors.
Public and private regulations basic to regulations influencing urban development; state enabling legislation and regulations; local ordinances, especially for zoning and subdivision regulations.

473. Urban Development Programs
Spring. 3(2-2) 472. Governmental programs influencing urban development, including direct development projects, technical and financial assistance, administrative regulations by federal and state agencies. National, state and regional programs.
480. Historic Preservation
Winter. 3(3-0) Seniors, approval of department and university with and administered by History of Art. History and philosophy of historic preservation; the new attitude toward preservation—historic districts and neighborhoods—adaptiveness, adaptability, use, documentation and tools for preservation; a project based on field research.

489. Internship in Urban Planning
Fall, Winter, Spring, Summer. 2(0-6) May re-enroll for a maximum of 6 credits. Senior majors, approval of school. Individual experience in approved agencies and departments in the Lansing area.

490. Independent Studies in Urban Planning
Fall, Winter, Spring. 2 credits. May re-enroll for a maximum of 4 credits. Senior majors, approval of school.

800. Special Problems
Fall, Winter, Spring, Summer. 2 to 6 credits. May re-enroll for a maximum of 6 credits. Approval of school.

806. Planning for Man and the Environment
Spring. 3(3-0) Multi-dimensional environments of human settlements, normative characteristics, relationships to man, functional and dysfunctional situations, problems of comprehension, description, normative design criteria, contemporary issues, and relationships to planning.

808. Background of Urban Development Planning
Fall. 3(3-0) American urban development from 1620 to the present, including shifts in technology and social forces that influenced development patterns. Problems faced by the professional planner are emphasized.

Winter. 3(3-0) STT 201 or 421 or approval of school. Basic quantitative techniques used in planning, including statistics, linear methods, and network methods. Introduction to use of the computer. Intended for students with limited background in mathematics.

815. Research Methods in Urban Planning: Applications to Planning Problems
Spring. 3(3-0) 814. Applied techniques used in planning research. Analysis and forecasting of urban population, economic activity, and land use. Analysis of transportation and other community facilities.

816. The Planning Process
Fall. 3(3-0) Basic research and survey methods, and procedures used by the professional planner in developing a comprehensive plan.

818. Planning Theory: Theory of the Planning Process
Winter. 3(3-0) Approval of school. Influential schools of thought, planning as a decision-making process, methods for defining goals in public and private programs, and the role of planning in formulating public policies.

819. Planning Theory: Theories of Urban Forms and Structure
Spring. 3(3-0) Approval of school. Idealized urban forms, theories and models in urban form as it relates to function and location of urban activities.

824. Legal Bases for Planning
Winter. 3(3-0) 475. Approval of school. Analysis of legislation pertinent to planning, emphasis upon legislation for city and regional planning bodies and creation of special authorities with general planning responsibilities.

826. Planning Program Implementation
Fall. 3(3-0) Completion of the first year MUP Core Program or approval of school. An analysis of various techniques utilized by professional planners in effectuating plans and programs. Governmental roles in land use control, fiscal matters, taxative policies, and federal and state programs are stressed.

828. Planning Presentation Techniques
Fall. 2(1-2) or 3(1-4) Students with basic graphic skills should enroll for 2 credits. Approval of school. Communication skills utilized by planners to present policy proposals to governmental decision-makers and citizens. Speaking, writing, and small group leadership is integrated with essential planning graphic skills.

834. Planning Practicum I
Winter. 3(3-0) 832. Approval of school. Field experience in the collection, analysis, and synthesis of information on the urban area and student groups, to develop solutions to specific urban problems.

835. Planning Practicum II
Winter. 3(3-0) 832. Continuation of 834.

836. Introduction to Design
Winter. 4(0-8) 524 or approval of school. Studio course emphasizing the role of planning in shaping the process of urban growth and development, and the role of physical form and structure in influencing cultural patterns.

840. Administration and Professional Practice
Winter. 3(3-0) Majors or approval of school. Expanding scope of urban planning and implications for administration, emphasis on relationships to governmental operations, other professions, public, staff functions and responsibilities; administrative instruments; practice of the consultant; professional ethics.

842. An International Comparative Study of Urban Planning
Winter. 3(3-0) 815. Winter of odd-numbered years.

850. Seminar in Housing and Urban Renewal
Spring. 3(3-0) Approval of school. Urban growth patterns; types, roles and design theory of new cities; techniques and organization for urban growth; selection of subject areas will be made according to the class composition.

854. Urban Circulation
Fall. 3(3-0) Spring of even-numbered years. 445 or 460 and approval of school. Functional requirements and interrelationships of all means for the movement of people and goods in urban areas as they affect the physical pattern of the community.

858. Urban Land Regulations
Fall. 3(3-0) Approval of school. Ordinance structure and planning theory as emphasized in texts of ordinances. Selected court cases.

862. Development Planning and Administration
Spring. 3(2-5) Approval of school. Measurement of urban obsolescence and deterioration with accompanying analysis of symptoms and causes for a selected community. Comprehensive plan for urban renewal and development objectives will be developed and one or more project areas will be studied and processed in accordance with most effective techniques and administrative procedures. Emphasis to be placed on the objective of unified, revitalized community development.

866. Urban Spatial Design
Fall, Spring of odd-numbered years. 5(0-16) Approval of school. Design projects for functions relating to selected community activities. Commercial, industrial, residential, institutional, and transportation land uses will be utilized for design study in appropriate dimensions.

870. Regional and State Planning
Fall, Spring of odd-numbered years. 5(2-6) Approval of school. Selected problems of metropolitan functions of present and future significance. Extra and intra-regional relationships of primary functional importance, such as, open spaces, economic development, community patterns, transportation, and associated land uses.

874. Health Issues and the Urban Planner
Spring of odd-numbered years. 5(2-6) Approval of school. Relationships between the practices and concerns of urban planners and the health of individuals.

880. Internship in Urban Planning
Fall, Winter, Spring, Summer. 2(0-8) May re-enroll for a maximum of 6 credits. Graduate students in Urban Planning, approval of school. Individual experience in approved agencies and departments in the Lansing area.

888. Master's Research
Fall, Winter, Spring. 2 or 3 credits. Approval of school. The research component of the Plan B option for the MUP degree.

899. Research
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 15 credits. Individual student research on a topic of critical importance to urban planning that will demonstrate student's competence and make a contribution to the knowledge of the field.
### Landscape Architecture

#### Courses

100. Environmental Perception
- **Fall, Winter, Spring. 3(3-0)**
  - Environmental concepts, orientation to landscape architecture, including environmental inventories, objectives and aspects of public and private professional practice, and scope and types of landscape development projects.

110. Fundamentals of Design
- **Fall, Winter. 4(2-4)**
  - Analysis and application of elements and principles of design and three-dimensional expressions to abstract and spatial design compositions for environmental requirements.

120. Graphic Communication
- **Fall, Spring. 4(1-6)**
  - Basic technical skills for graphic communications, mechanical and free-hand drafting and lettering, sketching, perspective drawings, use of graphic symbols, dimensioning, rendering media and techniques, and reproduction methods.

201. Site Planning Theory
- **Winter. 3(3-0)**
  - Elements, principles and concepts for site development, including site area organization, orientation and siting of buildings, circulation and parking systems, spatial definitions, and design considerations.

230. Landform Design
- **Winter. 4(2-4) 120 and professional majors.**
  - Elements and principles of site grading, relief visualization, contour interpretation, land form units, surface drainage, slope calculations, and earthwork quality determinations.

240. Landscape Design Methods
- **Winter. 4(1-6) 120 and professional majors.**
  - Considerations and techniques of landscape design, including design concepts and perceptual inventories, site and program analysis, development of design concepts, with verbal and graphic expressions. Field trips required.

241. Site Planning Studio
- **Spring. 3(0-6) 201, 240.**
  - Applications of site planning theory and landscape design methods to representative site development projects involving buildings, use areas, land, water and plant forms, with verbal and graphic expressions. Field trips required.

250. Introductory Planting Design
- **Spring. 4(2-4) 240.**
  - Principles and procedures for arrangement of plant compositions, emphasizing the perceptual characteristics of plants by means of models, sketches and plans, and potential applications to landscape developments. Field trips required.

303. Community Design Theory
- **Winter. 2(2-0)**
  - Ecological and cultural elements and concepts of community development, including data surveys, legal controls, design standards and site planning requirements for community facilities.

304. Housing Design Theory
- **Fall. 2(2-0)**
  - Concepts, principles and regulations for the development of housing areas, including ecological considerations, cultural implications, housing forms, types of developments, legal controls, and site planning requirements and procedures.

305. Recreation Design Theory
- **Spring. 3(2-0)**
  - Ecological and cultural considerations for development of open space and recreation areas, resource characteristics and limitations, activity requirements, recreation systems, site design standards, and recreational land use programs and policies.

311. Advanced Graphic Communication
- **Fall. 4(1-4) Junior majors.**
  - Development of proficiency in landscape delineation and rendering techniques, including specialized media and formats for visual presentations of design concepts, analysis and perceptions.

333. Site Construction
- **Spring. 4(3-4) Junior majors.**
  - Materials and methods for construction of landscape developments, including details, layouts, construction drawings, specifications and cost estimating procedures.

343. Design of Community Facilities
- **Spring. 3(0-6) Majors and 301.**
  - Applications of community design theory and landscape design methods to representative community developments, such as institutions, commercial, civic and industrial site design projects, with written, oral and graphic representations. Field trips required.

344. Design of Housing Developments
- **Winter. 3(0-6) Majors and 304.**
  - Applications of housing design theory and site planning principles and methods to representative housing developments, such as residential, land subdivisions, multi-family complexes and planned unit developments, with written, oral and graphic representations. Field trips required.

345. Design of Recreation Areas
- **Fall. 3(0-6) Majors and 305.**
  - Applications of recreation design theory, site planning principles and procedures to representative recreational land developments, parks, special recreation use areas, with verbal and graphic expressions. Field trips required.

353. Functional Planting Design
- **Winter. 4(2-4) Junior majors.**
  - Principles and procedures for selection and arrangement of plant materials for specific uses, including climate modification, spatial definition, circulation control, soil and water control, etc., as expressed by planting plans and specifications.

360. Architectural Design Theory
- **Spring. 2(2-0)**
  - Physical and visual properties of construction materials, structural elements and systems, siting of buildings, form-space relationships and related principles of architectural design.

362. Architectural Design Studio
- **Spring. 3(0-6) Majors or approval of school.**
  - Application of architectural design theory to representative building types and situations, with emphasis on structural and spatial form and site relationships of simple buildings. Field trips required.

370. History of Environmental Development
- **Winter. 3(3-2)**
  - Significant natural conditions and cultural events in their relationship to the landscape, including structural attempts to organize and design his physical environment, as expressed in historic landscape development styles and movements.

390. Landscape Architecture Field Studies
- **Fall, Spring. 2(1-2) May re-enroll for a maximum of 4 credits. Approval of school required.**
  - A 3 to 5 day field trip to visit contemporary and historical developments and various regional zones. Prior and post study required.

401. Regional Design Theory
- **Fall. 2(2-0)**
  - Concepts and policies affecting natural resource conservation, selection and location of significant human use areas, landscape development considerations and their environmental implications.

403. Urban Design Theory
- **Fall. 2(2-0)**
  - Concepts and procedures for the organization, design and development of public and private urban forms and spaces, including survey of urban elements, cultural, ecological and aesthetic considerations, and interdisciplinary collaboration.

423. Professional Graphics
- **Winter. 4(1-6) 321.**
  - Applications of advanced sketching, perspective and rendering techniques for typical professional presentations, including prints, reproductions, photography and multi-media audio-visual communications.

432. Site Engineering
- **Fall. 4(2-4) Senior majors and C.E. 251.**
  - Principles and procedures for design of site development systems, horizontal and vertical road alignments, storm and sanitary sewers, site utilities and computer applications for preparation of site construction drawings.

441. Regional Landscape Design
- **Winter. 3(0-6) Senior majors and 401 concurrently.**
  - Applications of regional design theory and landscape design methods to representative large scale land use and development projects, resource conservation, environmental restoration, and accommodation of various human activities. Field trips required.

443. Urban Landscape Design
- **Fall. 3(0-6) Senior majors and 403 concurrently.**
  - Applications of urban design theory and landscape design methods to representative urban development projects, public plazas, pedestrian malls, civic and cultural complexes, etc., with written, oral and graphic representations. Field trips required.

451. Ecological Planting Design
- **Fall. 4(2-4) 250, 351 and HRT 211, 212.**
  - Selection, utilization and arrangement of natural materials for various site development purposes, with emphasis on consideration of natural environmental factors which affect plant growth and location for distinctive sites and uses. Field trips required.

452. Architectural Design II
- **Winter. 4(1-6) 360, 362.**
  - Design of buildings and their groupings in relation to the landscape, including structural systems, form-space compositions, and applications to representative landscape development projects. Field trips required.
471. History of Landscape Architecture
Spring, 3(2-2)
Environmental design concepts and projects from 1850 to the present time, with emphasis on the development of the profession and practices of landscape architecture in the United States.

480. Professional Practice
Spring, 3(2-2) Senior majors.
Principles and procedures of professional landscape architectural practice, including ethics, client relations, registration, inter-professional collaboration and organization of operations for design implementation. Field trips required.

483. Landscape Architecture Seminar
Winter, 3(2-2) Senior majors.
Research presentation and discussion of significant current issues, trends, events and opportunities relating to contemporary theories and practices of landscape architecture.

490. Special Problems
Fall, Winter, Spring, Summer. 2 to 5 credits. May re-enroll for a maximum of 12 credits. Approval of school.
Investigation, for advanced undergraduate students in landscape architecture, developed from special interest areas.

499. Landscape Architecture Design Thesis
Spring, Summer, 3(1-2) Senior majors.
Demonstration of analytical, creative and technical competencies in the development of methods and/or concepts leading to design solutions for contemporary landscape architecture problems.

500A. Introduction to Veterinary Medicine I
(SSM 501) Summer, 2(2-0) Admission to professional veterinary program.
Species and breed identification, predisposition for specific diseases, basic care and feeding, restraint and handling of small domestic animals, unusual pets, and laboratory animals.

500B. Introduction to Veterinary Medicine II
Fall, 2(2-0) Second-term Veterinary Medicine students.

500C. Introduction to Veterinary Medicine III
(SSM 503) Winter, 4(3-0) Third-term Veterinary Medicine students.
Physical and systemic examination of the various domestic and laboratory species. Common restraint procedures, clinical skills, diagnoses, and an approach to clients are included.

500D. Introduction to Veterinary Medicine IV
(Spring, 4(3-0) Fourth-term Veterinary Medicine students.
Anesthetic principles, agents and techniques. Basic surgical principles, including aseptic technique, hemostasis, wound healing, suturing and suturing material. Fundamentals of radiology.

500E. Introduction to Veterinary Medicine V
Spring, 3(3-0) Fourth-term Veterinary Medicine students.
Emphasis on behavior of animals relating to disease prevention and treatment. Lectures, discussions and demonstrations on veterinary ethology including animal communications, reproduction, restraint, handling, housing and feeding habits.

501. Client Communication
(Seminar) Spring, 1(0-2) Fourth-term Veterinary Medicine students.
Communication and interviewing skills as the basis for establishing and maintaining effective client relationships.

503. Metabolic Diseases and Endocrinology
Summer, 2(3-0) Fifth-term Veterinary Medicine students.
Biochemical and physiological basis of metabolic and endocrine diseases of animals including diagnosis, treatment and management.

505. Veterinary Epidemiology
Summer, 2(3-0) Fifth-term Veterinary Medicine students.
Principles of epidemiology and their application in the study of diseases in animal populations.

507. Urinary System
Summer, 3(3-3) Fifth-term Veterinary Medicine students.
Integrative approach to the understanding of the urinary system in health and disease of animals.

509. Hematopoietic System
Summer, 2(1-3) Fifth-term Veterinary Medicine students.
Pathogenesis, diagnosis, and clinical management of diseases of the hematopoietic and lymphoid organs and tissues.

510. Survey of Infectious Agents
Fall, 3(4-0) Sixth-term Veterinary Medicine students.
Host-microorganism relationship in diseases of animals, laboratory diagnosis, treatment, control, and public health significance will be emphasized.

512. Nervous System
Fall, 3(3-0) Sixth-term Veterinary Medicine students.
Normal and abnormal neural structure and function in animals with emphasis on clinical neurology and neuropathology.

513. Cardiovascular System
Fall, 3(3-3) Sixth-term Veterinary Medicine students.
Pathogenesis, diagnosis, and management of cardiovascular diseases of animals; anatomical, physiological, pathological and pharmacological principles providing basis for medical and surgical treatment—includes diagnostic and surgical procedures and radiologic interpretation.

515. Respiratory System
Fall, 4(3-3) Sixth-term Veterinary Medicine students.
Pathogenesis, diagnosis, and management of respiratory disorders—includes anatomical, physiological and surgical treatments—includes diagnostic and surgical procedures and radiologic interpretation.

510. Reproductive System
Fall, 3(4-3) Sixth-term Veterinary Medicine students.
Reproductive diseases of animals with emphasis on genital structure and function, endocrine interrelationships, methods for examination of mammary gland and reproductive tract, diagnosis, and treatment.

520. Veterinary Public Health
Winter, 3(0-0) Seventh-term Veterinary Medicine students.
Public health aspects of veterinary medicine; the nature of laws, ordinances and regulations, and veterinary medicine’s role in the protection of the environment, ecology, and ensurance of food hygiene.

522. Digestive System and Nutrition
Winter, 2(0-9) Second-term Veterinary Medicine students.
Pathogenesis, diagnosis, and treatment of diseases of the alimentary tract and digestive organs of animals. Recognition and rational therapy of nutritional diseases in animals.

524. Integumentary System
Winter, 4(3-3) Seventh-term Veterinary Medicine students.
Diseases of the integumentary system of animals with emphasis on laboratory examinations, interpretations of pathological features, diagnosis, and treatment.

526. Musculoskeletal System I
Winter, 4(2-6) Seventh-term Veterinary Medicine students.
Diagnosis and treatment of musculoskeletal diseases of animals with emphasis on pathological changes, radiological techniques, and interpretation of radiographs. Surgical procedures applicable to small animals will be demonstrated.

530. Veterinary Toxicology
Spring, 4(4-0) Eighth-term Veterinary Medicine students.
Pharmacological basis and pathological features of diseases of animals caused by common toxic chemicals with emphasis on clinical manifestations, diagnosis, prevention, and treatment.

532. Visual and Auditory Systems
Spring, 3(2-3) Eighth-term Veterinary Medicine students.
Methods of examination, diagnosis, and treatment of diseases involving the eyes or ears of animals with emphasis on the anatomical, physiological, and pathological features.

534. Musculoskeletal System II
Spring, 5(2-9) Eighth-term Veterinary Medicine students.
Diagnosis, prognosis, and management of musculoskeletal diseases of the equine with emphasis on anatomical relationships to normal and abnormal function. Surgical procedures applicable to equine and ruminant will be performed.

536. Orthopedic Surgery
Spring, 4(1-6) Eighth-term Veterinary Medicine students.
Principles of orthopedic surgery and anatomical relations of the musculoskeletal systems in the canine and feline.

538. Veterinary Medical History, Ethics, Jurisprudence, and Epidemiology
Spring, 2(2-0) Eighth-term Veterinary Medicine students.
Historical background, ethical principles, and legal responsibilities of the veterinary medical profession. Epidemiological problems will be resolved and discussed.