

**534. Human Biology and Behavior**  
Spring. 1 to 8 credits. 533 or approval of department.  
Continuation of 533.

**590. Special Problems in Human Medicine**  
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 12 credits. Human Medicine students or approval of department.

Each student will work under direction of a faculty member of the college on an experimental, theoretical or applied problem. A student should employ this college level course, as distinguished from the departmental level special problems course, when his topic of interest seems to require a broad multidisciplinary approach.

**602. Fundamentals of Patient Care**  
Fall, Winter, Spring, Summer. 15 credits. Approval of department.

Introductory clinical experiences using selected patients with a broad spectrum of medical, surgical, pediatric, and psychiatric problems. History taking, physical examination and problem formulation are taught as a basis for rational and effective patient care.

**605. Sub-Specialty Clerkships**  
Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 41 credits. 602.

Hospital and office based clinical experiences in sub-specialties in medicine and surgery.

**609. Radiology Clerkship**  
Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 34 credits. 602.

Office and hospital based experience to acquaint the student with basic radiological information and develop X-ray interpretation skills.

**610. Family Practice Clerkship**  
Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 43 credits. 602.

A clerkship in a model family practice unit with graded responsibility and supervision in the care of families and their medical problems with emphasis on primary, continuing and comprehensive care.

**611. Anesthesiology Clerkship**  
Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 34 credits. 602.

Introducing common anesthetic agents and techniques, the Anesthesia Clerkship stresses pre-operative evaluation of physical and psychological status of patients and provides opportunity for performance of anesthetic procedures under supervision.

## HUMAN NUTRITION AND FOODS

See Food Science and Human Nutrition

## IMPROVEMENT SERVICES

I S

### All University

**194. Quantitative Techniques**  
Fall, Winter, Spring, Summer. 2(2-0)  
Proficiency test referral or approval of department.

Number system; rounding and estimating; fractions; decimals; percent; equations; formulas; direct and inverse proportion, including graphs; problem solving or applications; multiplication and division by powers of ten and their multiples; scientific notation; metric system conversions; bases other than ten.

## INTERDISCIPLINARY COURSES

IDC

### All University

**100. Career Planning and Academic Programming**  
Winter, Spring. 1(1-0) Administered by University College.

Philosophical and practical aspects of making career choices and designing academic programs to meet career objectives. Tools and techniques for self-evaluation and evaluation of career alternatives; employability, trends in occupations.

**200. Resource Ecology and Man**  
Fall, Winter, Spring. 3(3-0) Interdisciplinary with the following departments: Anthropology, Botany and Plant Pathology, Fisheries and Wildlife, Forestry, Geography, Park and Recreation Resources, Resource Development, and Zoology. Administered by the Fisheries and Wildlife Department.

Mechanisms by which the environment regulates man and his resources. Ecology as the unifying basis for resource management. Resource conservation policy and environmental health.

**201. Introduction to Environmental Systems**  
(SYS 150.) Fall, Winter, Spring. 3(3-0) Interdisciplinary with Systems Science and Engineering. Administered by Systems Science.

Basic systems concepts presented in a non-mathematical manner. Application to selected ecological topics, e.g., energy, water quality, food production, population dynamics. Interactive models provide opportunity for students to play decision-making role.

**203. Introduction to Study of the Moon**  
Spring. 3(3-0) Interdisciplinary with the departments of Astronomy, Geography, and Geology and administered by the Geology Department.

Lunar science presented from the viewpoints of astronomy, geography and geology with particular emphasis on the increasing importance of the moon in man's present and future. Evening lunar observations required.

**220. The Politics of Ecology**  
Spring. 4(3-0) Interdisciplinary with the departments of Political Science and Social Science and administered by the Department of Social Science.

Political considerations fundamental to environmental issues. Theory, practice, and prescriptions for action are included. Economic, legal, and ethical factors influencing public policy decisions will be emphasized.

**240. Religious Groups in Modern America**

Fall, Winter, Spring. 3(3-0) Interdisciplinary with Justin Morrill College and the Department of Religious Studies. Administered by the Department of Religious Studies.

Basic beliefs, history and practices of modern religious movements in the U.S. Groups studied include those usually overlooked in basic courses, e.g., Baha'i, Satanism, Rosicrucianism, Krishna Movement, Divine Light.

**255. Continuing Revolution in China: Problems and Approaches**

(389.) Fall. 4(4-0) Interdisciplinary with the departments of Anthropology, Geography, and History and administered by the Department of History.

The continuing revolution in China viewed first historically, then as it has affected various sectors of Chinese society, and finally as it has affected China's relations with other nations.

**256. Energy Consumption and Environmental Quality**

(LBC 256.) Spring. 3(3-0) Interdisciplinary with Lyman Briggs College and the Physics Department. Administered by Lyman Briggs College.

The role of energy as a fundamental pollutant will be discussed along with the availability of fossil energy sources. Limitations on the safe utilization of both fossil and nuclear energy will also be considered.

**320. Human Adjustment to Environment**

Winter. 4(4-0) Completion of University College natural science and social science sequences. Sophomores, Interdisciplinary with the colleges of Social Science and Natural Science.

Our life support system and our energy and resource base; social, political, economic and philosophical concerns and consequences of observed and predictable trends for life in a finite environment. Local field trips.

**341. Contemporary Problems of South Asia**

Spring. 4(3-0) Not open to Freshmen. Interdisciplinary with the departments of Anthropology, Geography, and Political Science and administered by the Department of Political Science.

Current problems in India, Pakistan and adjoining areas, studied through regional case studies of population growth, agricultural and industrial development, urbanization, and internal and international political and economic relationships.

**344. Modernization: India and Japan**

Winter, Spring. 4(4-0) Not open to Freshmen. Administered by the Department of Social Science.

Social, economic, and political development of non-western cultures in the movement from the traditional, non-industrial to the modernizing, industrializing stage.

**345. Modernization: The Middle East**

Winter, Spring. 4(4-0) Not open to Freshmen. Administered by the Department of Social Science.

Social, economic, and political development of non-western cultures in the movement from the traditional, non-industrial to the modernizing, industrializing stage.

**Descriptions — Interdisciplinary Courses  
of  
Courses**

**346. Far East: Contemporary Issues and Problems**  
Spring. 4(4-0) Administered by the Department of Social Science

Contemporary political, economic and social issues in the Far East affecting relationships among Far Eastern peoples and relationships between these peoples and the United States and other powers.

**347. Refugees, Displaced Persons, Hostages, Exiles**  
Spring. 4(4-0) Juniors. Interdisciplinary with the departments of History, Political Science, Social Science and Sociology and administered by the Department of Social Science.

The new refugedom is caused mainly by the new nations' emergence into independence. Course examines historical experiences, political causes and solutions, shocks and adjustments of assimilation, social life and organizations of refugees.

**384. Contemporary Problems of Japan (342.)** Winter. 4(3-0) Not open to Freshmen. Interdisciplinary with the departments of Anthropology, Geography, and History. Administered by the Department of Geography.

**390. Survey of Sub-Saharan Africa**  
Winter. 4(4-0) Credits may be counted in any of the cooperating departments. Interdisciplinary with the following departments cooperating: Anthropology, Geography, History, Political Science, and Sociology. Administered by the Geography Department.

Africa introduced through integration of the approaches of several disciplines in the social sciences and humanities. Designed as basis for further work in departmental African area courses.

**391. Survey of Sub-Saharan Africa**  
Spring. 4(4-0) Credits may be counted in any of the cooperating departments listed in 390. Administered by the Geography Department. Continuation of 390.

**400V. Distinguished Visiting Professor Series**  
Fall, Winter, Spring. Variable credit. Approval of the student's major department.

The title, content, and credits to be determined by the college sponsoring the course in consultation with the visiting professor. May be counted as credit in any major upon approval of major department, division or dean.

**421. Seminar on Recent Advances in Science and Mathematics**  
Fall, Winter, Spring, Summer. 2(2-0) May re-enroll for a maximum of 6 credits. Bachelor's degree.

A structured course which cuts across the other four major offerings. Selected topics in recent developments will be discussed by staff members and guest lecturers. Recent research is stressed and effort is made to show the inter-relatedness of the topics to general science course content materials.

**432. Introduction to Meteorology**  
Spring. 3(3-0) Credit may be counted in either of the cooperating departments. Interdisciplinary with the Departments of Agricultural Engineering and Geology. Administered by the Agricultural Engineering Department.

A purview of atmospheric science including a study of the interactions between meteorology and living organisms.

**433. Introductory Meteorology Laboratory**

Spring. 1(0-2) 432 or concurrently. Credit may be counted in either of the cooperating departments. Interdisciplinary with the departments of Agricultural Engineering and Geology. Administered by the Agricultural Engineering Department.

Weather map analysis, meteorological experimentation and instrumentation.

**435. Microclimatology**  
Fall. 3(3-0) MTH 108. Administered by Agricultural Engineering Department.

The physical environment in the lower few hundred meters of the atmosphere and within the biosphere is described and the components of the energy budget are qualitatively evaluated.

**470. Biological Membranes**

Spring. 3(3-0) BCH 401. Interdisciplinary with the departments of Biochemistry, Biophysics, Microbiology and Public Health and Physiology. Administered by the Department of Physiology.

The chemistry, physics and mathematics of the permeability, energy transductions and surface functions of differentiated cell membranes and membranous organelles are compared. A brief discussion of theoretical and experimental models is summarized.

**476. Canadian-American Studies**

Spring. 4(3-0) May re-enroll for a maximum of 8 credits. Juniors. Credits may be counted in any of the cooperating departments. Interdisciplinary with the following: Anthropology, Secondary Education, English, Geography, History, Marketing and Transportation Administration, and Romance Languages. Administered by the Canadian-American Studies Committee.

Introduction to Canadian-American Studies. Materials from various disciplines enable the student to integrate subject-matter, areas, and methodology. Content varies from term to term, but course is always focused upon significant issues and subjects in the interrelated fields of Canada and the United States.

**488. The Impact of Animal Resource Management Upon the World's Developing Nations**

Winter. 4(5-0) Interdisciplinary with the following departments: Agriculture, Animal Husbandry, Crop and Soil Sciences, Dairy Science, Large Animal Surgery and Medicine, and Poultry Science, and administered by the Animal Husbandry Department.

Role of the domesticated animal resources of the underdeveloped world as managed by man to produce essential nutrients to alleviate starvation and deficiency disease and in diversifying economic development in the utilization of land resources.

**803. Seminar in Industrial Relations**

Fall, Winter, Spring. 4(3-0) May re-enroll for a maximum of 16 credits, all applicable to the student's major field, with approval of the student's major department. Conducted jointly by the departments of Economics, Management, Political Science, Psychology, and Sociology, and the School of Labor and Industrial Relations. Administered by the School of Labor and Industrial Relations.

Research and literature in industrial relations with emphasis on current research.

**838. Interdisciplinary Seminar on Africa**

Fall. 4 credits. Approval of department. Credits may be counted in any of the cooperating departments. Interdisciplinary with the following departments: Anthropology, Economics, Education, Geography, History, Linguistics, Political Science, and Sociology. Administered by the Anthropology Department.

Behavioral science problems in an African setting, viewed from perspective of relevant social science and humanistic disciplines associated with the African Studies Center.

**ITALIAN**

See Romance Languages

**JAMES MADISON COLLEGE**

M C

**111. American Thought and Language**

Fall. 3(3-0) Students may not receive credit in both M C 111 and ATL 121, 131, 141, 151, 161, 171, 181, 191H.

Emphasis is on language skills, particularly expository writing and effective reading through the use of selected American documents, political, social and literary.

**112. American Thought and Language**

Winter. 3(3-0) 111. Students may not receive credit in both M C 112 and ATL 122, 132, 142, 152, 162, 172, 182, 192H.

Continuation of 111.

**113. American Thought and Language**

Spring. 3(3-0) 112. Students may not receive credit in both M C 113 and ATL 123, 133, 143, 153, 163, 173, 183, 193H.

Continuation of 112.

**200. Introduction to the Study of Policy Problems**

Fall, Winter. 4(2-2) Introduction to the social sciences and related disciplines as these apply to the study of major social, economic and political problems.

**201. Introduction to the Study of Policy Problems**

Winter. 4(2-2) 200. Continuation of 200.

**202. Introduction to the Study of Policy Problems**

Spring. 4(2-2) 201. Continuation of 201.

**205. Methodology for Policy Sciences**

Fall, Winter, Spring. 4(3-1) Introduction to the logic of social research, techniques of data collection, and procedures in quantification. Emphasis will be on interpretation and evaluation of findings for policy decision making.