# **DESCRIPTIONS of COURSES 1986**

This section provides descriptions of all courses given by the University at both the undergraduate and graduate levels. The courses are listed in the schools and departments which give the instruction. The schools and departments are arranged in alphabetical sequence.

Refer to the statements on credits and Course Formats and Credits in the Academic Programs section of catalog

#### **COURSE NUMBERS**

#### 001-099 Non-Credit Courses

Courses with these numbers are offered by the University to permit students to make up deficiencies in previous training or to improve their facility in certain basic skills without earning credit.

For information about remedial-developmental-preparatory courses, consult the *Academic Programs* section of the catalog.

#### 100-299 Undergraduate Courses

Courses with these numbers are for undergraduate students. They carry no graduate credit, although graduate students may be admitted to such courses in order to make up prerequisites or to gain a foundation for advanced courses.

For information about remedial-developmental-preparatory courses, consult the *Academic Programs* section of the catalog.

#### 300-499 Advanced Undergraduate Courses

Courses with these numbers are for advanced undergraduate students. They constitute the advanced portion of an undergraduate program leading to the bachelor's degree. A graduate student may carry 400 level courses for credit upon approval of the student's major department and the department offering the course. In exceptional cases, a graduate student may petition the dean of his or her college, in writing, for approval of a 300 level course for graduate credit.

#### 500-699 Graduate-Professional Courses

Courses with these numbers are courses in the graduateprofessional programs. A graduate student may carry these courses for credit with approval of the major department.

#### 800-899 Graduate Courses

Courses with these numbers are for graduate students. Advanced undergraduates with a 3.00 or better gradepoint average in their total programs may be admitted to 800-899 level courses; others, if recommended by their academic adviser and approved by their dean. At least 23 credits of the total required for a master's degree shall be taken at the 800 and 900 level except as specifically exempted by the dean of the college.

#### 900-999 Advanced Graduate Courses

Courses with these numbers are exclusively for graduate students and primarily for advanced graduate students. A master's degree candidate may take these courses with the approval of the major department, with the exception of courses numbered 999 (doctoral dissertation research). Admission to a doctoral degree program is a prerequisite of all courses numbered 999.

#### VARIABLE CREDIT COURSES

For each variable credit course, the range of credits for which a student may enroll in a given term shall be specified.

Except for courses numbered 899 (Master's Thesis Research) and 999 (Doctoral Dissertation Research), the maximum number of credits that a student may earn in a course with a reenrollment provision shall be specified.

#### **MULTITITLED COURSES**

A multititled course is one that has been approved as such by the Academic Council upon recommendation of the Full Committee, University Committee on Curriculum (UCC). Approval of a course as a multititled course shall include authorization for subtitles for the course to be established. Approved subtitles shall have the same status as separately approved courses that are included in the *Descriptions of Courses* section of the University catalog. For example, an approved subtitle shall be included in the *Schedule of Courses* in place of the general, authorized title for the multititled course and shall appear on students' academic records (including transcripts). Multititled courses are identified as such by the coding '(MTC)' after the course titles.

Multititled courses may have approved subtitles. A subtitle of a multititled course represents a subject matter area that is related to the course and that has been approved as a subtitle for that course by the Full Committee, UCC, upon recommendation of the appropriate UCC subcommittee.

#### **COURSE LISTINGS**

1 2 3 4

401. Comparative Physiology I

(412.) Fall. 4(3-4) 240 or B S 212 and CEM 132. Interdepartmental with the Department of Zoology.

A comparison of osmoregulation, digestion, respiration, and other physiological processes in a wide range of organisms.

This material has three categories.

**A** The course number and title including:

The course number suffix:

H — Honors Course

1— Type I2— Type IIRemedial-Develop-3— Type IIImental-Preparatory4— Type IVCourses.

4 — Type IV 5 — Type V

For additional information about remedialdevelopmental-preparatory courses, consult the *Academic Programs* section of the catalog. The General Education designation code in parentheses following the title:

ALPHA CODE

NAME

 (A) — Arts and Humanities
 (N) — Biological, Physical, and Mathematical Sciences

(S) - Social and Behavioral Sciences.

For additional information, refer to the section on Courses Approved for General Education Designation beginning on page A-3.

The multititled course designation code in parentheses (MTC) following the title of any course that has been approved as a multitled course.

(B)The material in italics which includes:

The former course number in parentheses if the course number has been changed within the past 5 years.

2 The term or terms the course is authorized to be given. Lack of staff or low student enrollment may preclude offering the course, particularly at the advanced level, every term for which it is authorized.

3 The term credits are designated to include class hours a week as follows: A(B-C) where:

- A = Number of term (quarter) credits.
- B = Number of class hours a week in lecture, recitation, quiz, etc., sections.
- C = Number of class hours a week in laboratory.

If the credit is indicated to be variable, the number of credits is to be determined at the time of enrollment. If the course is a non-credit course, the credit-equivalent is given in brackets.

4 The course number(s) or other information indicates the preparation or classification prerequisite to enrollment in the course. If a course alpha code and number are listed, the reference is to a course indicated by the code. The alpha codes and the corresponding names are listed on this page. The prerequisite may be satisfied by the course or courses indicated or equivalent background. If a class standing such as juniors is listed, only students with that or a higher class level are eligible for enrollment. A student who is unsure of eligibility for enrolling in a course should contact the department, school, or college that administers the course.

(C)A brief description of the course.

#### Course Alpha Code Designations

The codes are listed in alphabetical order. The departments are listed in alphabetical sequence by their names in the pages which follow.

ALPHA	
CODE	NAME
ΑE	Agricultural Engineering
ĀL	Arts and Letters (College of)
A S	Aerospace Studies
ACC	Accounting
ADV	Advertising
AEC	Agricultural Economics
AEE	Agricultural and Extension Education
AET	Agricultural Engineering Technology—See Agricultural
	Engineering
AFR	African Languages—See Linguistics and Germanic,
	African Languages—See Linguistics and Germanic, Slavic, Asian and African Languages
AMS	American Studies
ANP	Anthropology
ANR	Agriculture and Natural Resources
ANS	Animal Science
ANT	Anatomy
ARB	Arabic—See Linguistics and Germanic, Slavic, Asian and
	African Languages
ASC	Audiology and Speech Sciences Astronomy and Astrophysics—See Physics and
AST	Astronomy and Astrophysics—See Physics and
	Astronomy
ATL	American Thought and Language
BS	Biological Science
	3

BCH	Biochemistry
BCM	Building Construction Management—See Agricultural Engineering
BIM	Biomechanics
BME BOT	Biomedical Engineering Botany and Plant Pathology
BPY	Biophysics
CE	Civil Engineering
C J CAS	Criminal justice
CAS	Communication Arts and Sciences (College of)
CEM CEP	Chemistry Counseling, Educational Psychology and Special
CLI	Education
CHE	Chemical Engineering
CHS	Chinese—See Linguistics and Germanic, Slavic, Asian and African Languages
CLA	Classical Studies—See Romance and Classical Languages
CMS	Community Health Science
COM	Communication
CPS CSS	Computer Science
E E	Crop and Soil Sciences Electrical Engineering
E E E S EAD	Earth Science—See Geological Sciences
EAD	Educational Administration
EC EGR	Engineering
ENE	Engineering Environmental Engineering—See Civil and
	Environmental Engineering
ENG	English
ENT F I	Enfomology Finance and Insurance
FΜ	Family Medicine
F M F W	Fisheries and Wildlife
FCE	Family and Child Ecology
FMP FOR	Family Practice Forestry
FRN	French—See Romance and Classical Languages
FSC	Food Science
FSM	Food Systems Economics and Management—See Agricultural Economics
GR	German and Russian—See Linguistics, Germanic.
GBL	Slavic, Asian and African Languages
GEN	General Business and Business Law Genetics
GEO	Geography
GLG GRK	Geology—See Ceological Sciences Greek—See Romance and Classical Languages German—See Linguistics, Germanic, Slavic,
GRM	German—See Linguistics, Germanic, Slavic,
1	Asian and African Languages
H A H M	History of Art—See Art Human Medicine (College of)
HÉB	Hebrew—See Linguistics and Germanic, Slavic,
HEC	Asian and African Languages
HEC HED	Human Ecology (College of) Human Environment and Design
HNF	Human Nutrition and Foods—See Food Science and
LIDE	Human Nutrition
HPE HRI	Health and Physical Education Hotel, Restaurant and Institutional Management
HRT	Horticulture
HST	History
HUM I M	Humanities Internal Medicine
LS	Improvement Service
<u>IDC</u>	Interdisciplinary Courses
ITL JAP	Italian—See Romance and Classical Languages Japanese—See Linguistics and Germanic, Slavic,
-	Asian and African Languages
JRN	Journalism
Ĺ A	Landscape Architecture—See Urban Planning and Landscape Architecture
LBS	Lyman Briggs School
LCS	Large Animal Clinical Sciences
LIN	Linguistics—See Linguistics and Germanic, Slavic, Asian and African Languages
LIR	Labor and Industrial Relations
I.OA	Linguistics and Oriental and African Languages—See
	Linguistics and Germanic, Slavic, Asian and African Languages
LTN	Latin—See Romance and Classical Languages
M C M E	James Madison College
M S	Mechanical Engineering Military Science
ΜT	Military Science Medical Technology
MED MGT	Medicine Management
MMM	Management Metallurgy, Mechanics, and Materials Science
MPH	Microbiology and Public Health
MTA MTH	Marketing and Transportation Administration Mathematics
MUS	Music
ΝE	
NS	Nursing (College of) Natural Science
NSC O M	Natural Science (College of) Osteopathic Medicine
OGR	Osteopathic Medicine Obstetrics, Gynecology, and Reproductive Biology Osteopathic Medicine (College of)
OST	Osteopathic Medicine (College of)

ALPHA CODE	NAME
PAM	Public Affairs Management—See Agricultural Economics
PED	Pediatrics
PHD	Pediatrics and Human Development
PHL	Philosophy
PHM	Pharmacology and Toxicology
PHS	Physical Science
PHY	Physics—See Physics and Astronomy
PKG	Packaging
PLS	Political Science
PRR	Park and Recreation Resources
PRT	Portuguese—See Romance and Classical Languages
PSC	Psychiatry
PSL	Physiology
PSY	Psychology
PTH	Pathology
R D	Resource Development
RAD	Radiology
REL	Religious Studies
ROM	Romance Languages—See Romance and Classical
	Languages
RUS	Russian—See Linguistics and Germanic, Slavic, Asian
	and African Languages
SS	Social Science
S W	Social Work
SCS	Small Animal Clinical Sciences
SOC	Sociology
SPN	Spanish—See Romance and Classical Languages
<u>ss</u> c	Social Science (College of)
STA	Studio Art—See Art
STT	Statistics and Probability
SUR	Surgery
SYS	Systems Science—See Electrical Engineering and
	Systems Science
T E	Teacher Education
TC	Telecommunication
THR	Theatre
U P	Urban Planning—See Urban Planning and Landscape Architecture
V M	Veterinary Medicine (College of)
ZOL	Zoology

## GROUPINGS OF COURSES APPROVED FOR GENERAL EDUCATION CREDIT<sup>1</sup>

Each student must earn a minimum of 45 credits in General Education in courses divided among the following four areas: written and oral communication; arts and humanities; biological, physical, and mathematical sciences; and social and behavioral sciences. In meeting the minimum of 45 credits, no fewer than 9 credits and no more than 16 credits shall be taken to satisfy the General Education requirement in each of the four areas. Students must meet the written and oral communication General Education requirement by completing 9 credits in appropriate American Thought and Language courses.

Beginning in the Fall of 1982, any student who has not completed the General Education requirements in the arts and humanities; biological, physical, and mathematical sciences; and social and behavioral sciences must meet these requirements in accordance with the statements on the groupings of courses in these areas that follow. If after completing a prescribed grouping of courses in each of the three areas the General Education credits do not total 36, the student must select an additional course approved for General Education from any of the three areas.

The planned groupings of courses approved for General Education in the arts and humanities and social and behavioral sciences areas are arranged according to:

Option A — groupings of courses arranged as three term sequences/series representing a broadly integrative perspective on selected topics or issues.

Option B — groupings of courses arranged according to specific emphases representing selected approaches to knowledge within the relevant area or emphases on topics or issues within the area.

The planned groupings of courses approved for General Education in the biological, physical, and mathematical sciences correspond to Option B as described above.

The General Education courses that are offered each term are included in the appropriate departmental listings in the Schedule of Courses. For additional information concerning the University's general education requirements, refer to the Academic Programs section of the University Catalog.

Courses approved for General Education by the Academic Council will be counted toward the General Education requirements in accordance with the effective date for General Education approval. No course that was offered prior to the effective date for General Education approval shall be counted toward the requirements.

Any course that had General Education approval, but no longer has General Education approval, will be counted toward the General Education requirements if the course was completed during the period for which it had General Education approval. Any student who completed such a course should consult his or her academic adviser regarding the completion of the General Education requirements.

The current policy on substitutions shall remain in effect until such time as section 3. of the 1980 General Education Policy is implemented. At the present time, a college, or a department with the approval of the college, may permit or require its majors and major preference students to substitute certain alternative courses for those approved for General Education credit in the area which is closest to the student's major.

### GROUPINGS OF GENERAL EDUCATION COURSES IN THE ARTS AND HUMANITIES

Students complete either Option A or Option B

Option A— Students take all three courses in one of the following series/sequences. Additional series/sequences of courses are available to students who elect to complete three courses in the Department of Humanities; each such series/sequence is comprised of three courses, one of which ends in number 1, one of which ends in number 2, and one of which ends in number 3.

		,	which ends in humber 5.	
A-1	ΑL	311	Great Cities, Arts and Ideas: The Western Classical	CREDITS
	A L A L	312 313	Age (A)	4
A-2	GRM GRM GRM	241 242 243	German Literature in English Translation (A) German Literature in English Translation (A) German Literature in English Translation (A)	3
A-3	H A H A	206 207	History of Western Art: The Ancient World (A) History of Western Art: The Middle Ages and the	4
	на	208	Renaissance (A). History of Western Art: The Baroque to the Present (A).	
A-4	HST HST HST	111 112 113	The Roots of European History (A).  Maturing of European Civilization (A)  Europe in the Modern Age (A).	4
A-5	HUM HUM	201 202	Humanities in the Western World: Ancient (A) Humanities in the Western World: Medieval and Early Modern (A)	
	HUM	203	Humanities in the Western World: Modern (A)	4
A-6	HUM HUM	211 212	Great Books of Western Culture, Ancient (A) Great Books of Western Culture, Medieval and Early	/
	HUM	213	Modern (A)	4 4
A-7	HUM HUM	221 222	The Visual Arts and Western Culture, Ancient (A) . The Visual Arts and Western Culture, Medieval and	
	HUM	223	Early Modern (A)	
A-8	HUM HUM	261 262	Music and Western Culture, Ancient (A)	
	HUM	263	Modern (A)	4 4
<b>A</b> -9	HUM HUM		Honors Course: Ancient World (A)	
	HUM	283H	(A)	4
A-10	MUS MUS MUS	211 212 213	Introduction to Music Literature I (A)	4
A-11	PHL	211	Ancient Philosophy (A)	3

	PHL PHL	212 213	Medieval and Early Modern Philosophy (A)	ITL 341 Italian Literary Masterpieces in English Translation (A)
<b>A</b> -12		150 151 152	Exploring Religions (A)         3           Western Religions (A)         3           Eastern Religions (A)         3	LIN 280 Introduction to Sociolinguistics (A) 4 PHL 390 Philosophy in Literature (A)
A-13	REL REL REL	220 221 222	Old Testament (A)         3           Old Testament (A)         3           New Testament (A)         3	in English Translation (A)
A-14	REL REL REL	370 371 372	Religion in American Culture (A)         3           Religion in American Culture (A)         3           American Civil Religion (A)         3	B-4 Emphasis in Philosophy and Religion HUM 294 The Cultural Traditions of the Islamic World (A)
<b>A</b> -15	ROM ROM	241	Masterpieces of the Romance and Classical Literatures in English Translation (A)	HUM 298 The Cultural Traditions of China (A)
	ROM		Translation (A)	(A).  PHL 120 Classics of Philosophical Literature (A).  PHL 211 Ancient Philosophy (A).  PHL 212 Medieval and Early Modern Philosophy (A).
Opt	ion E		Students take one course in <i>each</i> of at least 3 of the following emphases:	PHL         213         Modern Philosophy (A).           REL         150         Exploring Religion (A).           REL         151         Western Religions (A).
			<ul> <li>B-1 Emphasis in Fine Arts</li> <li>B-2 Emphasis in History</li> <li>B-3 Emphasis in Language and Literature</li> </ul>	REL 152       Eastern Religions (A)         REL 220       Old Testament (A)         REL 221       Old Testament (A)         REL 222       New Testament (A)
			B-4 Emphasis in Philosophy and Religion	
			Students may not receive credit in more than one Humanities course which ends in the same number: 1, 2 or 3.	GROUPINGS OF GENERAL EDUCATION COURSES IN THE BIOLOGICAL, PHYSICAL, AND MATHEMATICAL SCIENCES <sup>1</sup>
B-1	Emph A L	asis in 311		Students complete a minimum of three courses; at least
	AL AL HA HA	312 313 205 206 207	Age (A)         4           Great Cities, Arts and Ideas: The Renaissance (A)         4           Great Cities, Arts and Ideas: The Modern World (A)         4           Purposes of Art (A)         3           History of Western Art: The Ancient World (A)         4           History of Western Art: The Middle Ages and the         4           Renaissance (A)         4	one course must be from each of the two major emphases and at least one course must include a laboratory experience. Only <i>one</i> course from each of the following groups may be counted toward the General Education requirement: N S 122, N S 125, N S 162; AST 119, AST 217, N S
	H A HUM	208 221	History of Western Art: The Baroque to the Present (A)	135. 1. Emphasis on The Philosophy and Methods of Science
	HUM HUM	222 223	The Visual Arts and Western Culture, Medieval and Early Modern (A)	IA Biological Science content  NS 115 The Nature and Continuity of Life (N) (Lab)
	HUM HUM HUM	262	Music and Western Culture, Ancient (A)         4           Music and Western Culture, Medieval and Early         4           Modern (A)         4           Music and Western Culture, Modern (A)         4	1B   Geological and Historical content   N S   122   Human Biosocial Evolution (N) (Lab)   4   N S   125   Time and Change in Nature (N) (Lab)   4
	MUS MUS MUS		Introduction to Music Literature I (A)         4           Introduction to Music Literature II (A)         4           Introduction to Music Literature III (A)         4	NS         1824         Natural Science (N) (Lab) <sup>1</sup> 4           1C         Physical Science content         AST         119         General Astronomy (N)         4
B-2	STA Emph HST		How to Look at Art (A)	AST 217 General Astronomy (N)  NS 135 Changing Concepts of the Universe (N) (Lab)
	HST HST HST	102 103 111	The Latin American Experience (A)         4           The East Asian Experience in the Modern World (A)         4           The Roots of European History (A)         4	(N)
	HST HST HST	112 113 121	Maturing of European Civilization (A)         4           Europe in the Modern Age (A)         4           Union to Disunion: America, The First Hundred         4	2A Issues in Human Biology         FSC 101 Food and Society (N)
	HST HUM HUM		Years (A) 4 History of the United States: The Nation State (A) 4 Humanities in the Western World: Ancient (A) 4 Humanities in the Western World: Medieval and	NS   129   Biotechnology and Human Values (N)   4
	HUM HUM HUM HUM	203 204 281H	Early Modern (A)         4           Humanities in the Western World: Modern (A)         4           The Humanities in the Contemporary World (A)         4           Honors Course: Ancient World (A)         4           Honors Course: Medieval and Early Modern Periods         4	BOT 201   Plants, People and the Environment (N)   CENT 201   Insects and Society (N)   ENT 250   Pests, Environmental Quality and Ecosystem   Management (N)   CLC 200   Geology of Human Environment (N)   Center   Cen
	HUM HUM REL REL	283H	(A)         4           Honors Course: Modern World (A)         4           The Cultural Traditions of Japan (A)         4           Religion in American Culture (A)         3           Religion in American Culture (A)         3	NS   142
B-3	REL Emph	372 asis in	American Civil Religion (A)         3           Language and Literature         3	2C Science and Human Values
5-0	A L ENG ENG FRN	345	Jewish Humanities in the Twentieth Century (A)	NS   152   Science and Culture in the 20th Century (N)
	GRM GRM GRM	241 242	(A).         3           German Literature in English Translation (A)         3           German Literature in English Translation (A)         3           German Literature in English Translation (A)         3	PHY 205 Bohr and Einstein: The Concept of Nature in Our Day (N)
	HUM HUM	21I 212	Great Books of Western Culture, Ancient (A)	Remedial-Developmental Writing Program. The General Education requirement in the Biological, Physical, and Mathematical Sciences may be met by completing N S 1814, N S 1824, and N S 1834.
	HUM HUM		Great Books of Western Culture, Modern (A)	NS 171H, NS 172H, and NS 173H are designed for honors students. The General Education requirement in the Biological Physical and Mathematical Sciences

4 4 4

HUM 295 HUM 297

The Cultural Traditions of Sub-Saharan Africa (A) ...
The Cultural Traditions of India (A) ...

NS 1814, NS 1824, and NS 1834 are designed for students who are enrolled in the Remedial-Developmental Writing Program. The General Education requirement in the Biological, Physical, and Mathematical Sciences may be met by completing NS 1814, NS 1824, and NS 1834. NS 171H, NS 172H, and NS 173H are designed for honors students. The General Education requirement in the Biological, Physical, and Mathematical Sciences may be met by completing NS 171H, NS 172H, and NS 173H.

## GROUPINGS OF GENERAL EDUCATION COURSES IN THE SOCIAL AND BEHAVIORAL SCIENCES

Option A Students take all three courses in one of the

Students complete either Option A or Option B

			following series/sequences.	
A-1	S S S S S S	201 202 203	Americans and Their Values (S)  Power in America (S)  America and World Problems (S)	
A-2	ss	211	Becoming Human: The Social Scientific Perspective	
	88	212	(S) Coping with Changing Institutions in Modern	
	SS	213	Society (S)	
A-3	S S S S	221 222	The Individual and Metropolitan Society (S)  Economics, Politics and the Individual in the  Metropolis (S)	
	SS	223	World Urbanization: Cultures and Common Issues (S)	
A-4	S S S S S S	241 242 243	Cultures in Crisis (S). Freedom and Justice (S). War and Morality (S).	
A-5	PLS PLS PLS	251 252 253	Human Values and Politics: On Liberty (S) Human Values and Politics: Equality and Justice (S) Human Values and Politics: Authority and the Individual (S)	
A-6	S S S S S S	251 252 253	Human Perspectives on Urbanization (S)	

- Option B Students take one course in each of the following emphases.
  - B-1 Emphasis on the Individual and Society

B-2	Emphasis on Social Institution
	and Processes

B-3 Emphasis on Global Interdependence and Conflict

			-			
B-1	Emphasis on the Individual and Society					
	ANP	171	Introduction to Sociocultural Anthropology (S)	4		
	PLS	251	Human Values and Politics: On Liberty (S)	4		
	PLS	253	Human Values and Politics: Authority and the			
				4		
	SS	201	Individual (S) Americans and Their Values (S)	4		
	SS	211	Becoming Human: The Social Scientific Perspective			
			(S)	4		
	SS	221	The Individual and Metropolitan Society (S)	4		
	SS	241	Cultures in Crisis (S)	4		
	SS	251	Human Perspectives on Urbanization (S)	4		
	SOC	150	The Individual in Modern Society (S)	4		
пα	FI.		• • •			
B-2			Social Institutions and Processes	4		
	ANP	250	Culture, Environment and Adaptation (S)	4		
	GEO	100	People, Location and Environment (S)			
	PLS	252	Human Values and Politics: Equality and Justice (S)	4		
	SS	202	Power in America (S)	4		
	SS	212	Coping with Changing Institutions in Modern			
		010	Society (S)	4		
	SS	213	Casualties of Contemporary Society (S)	4		
	SS	222	Economics, Politics and the Individual in the	4		
	0.0	242	Metropolis (S)			
	SS	242	Freedom and Justice (S)	4		
	SS	252	Historical Roots of Racism and Ethnocentrism (S)	4		
	SS	253	Minorities in American Cities (S)	4		
	SOC	160	Structural Problems of American Society (S)	4		
B-3	Emphasis on Global Interdependence and Conflict					
	GEO	204	World Regional Geography (S)	4		
	SS	203	America and World Problems (S)	4		
	SS	223	World Urbanization: Cultures and Common Issues			
			(S)	4		
	SS	243	War and Morality (S)	4		
	UP	231	Evolution of Urban Communities (S)	4		