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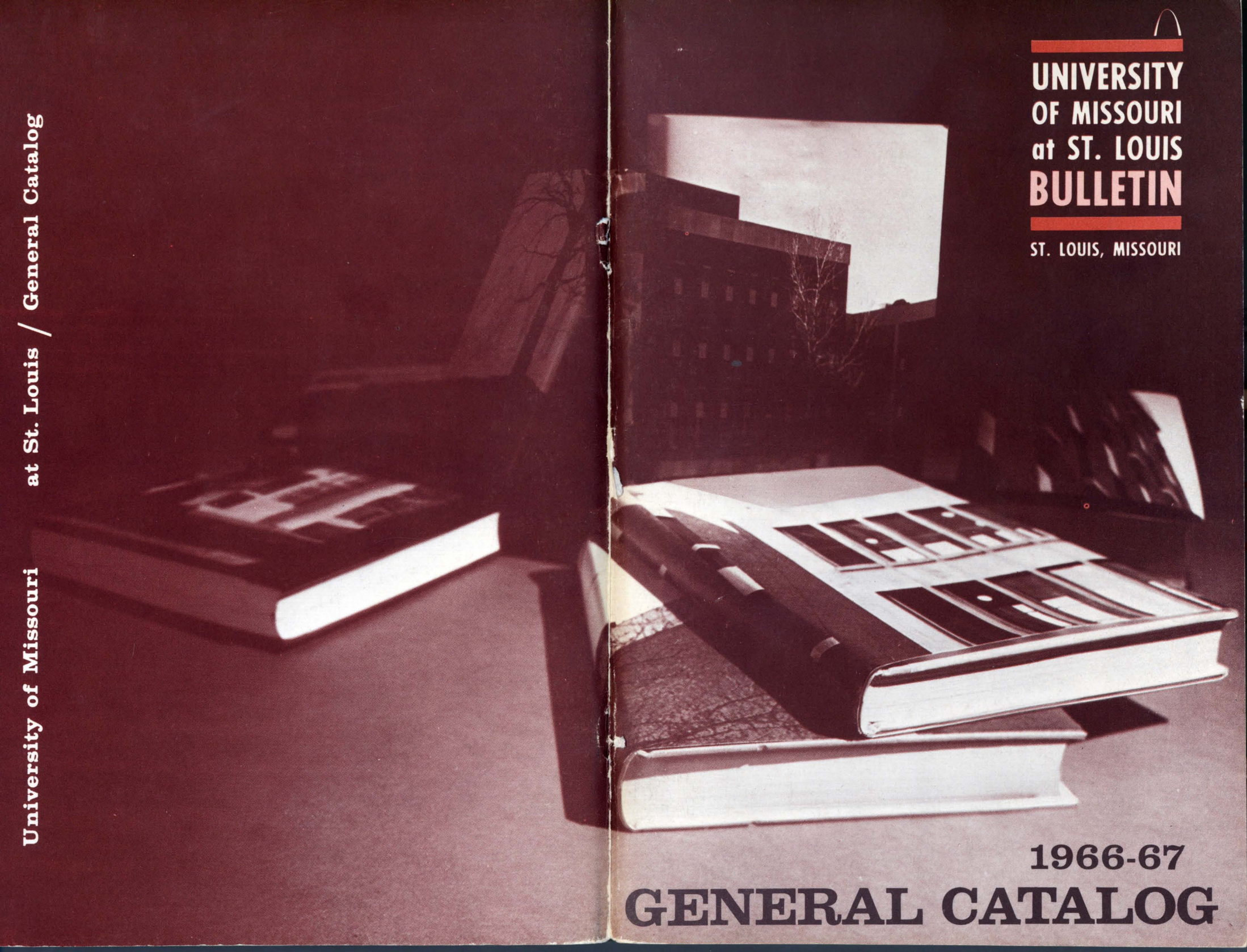

UNIVERSITY OF MISSOURI at ST. LOUIS

BULLETIN

ST. LOUIS, MISSOURI

1966-67 GENERAL CATALOG

UNIVERSITY OF MISSOURI AT ST. LOUIS

Offers Work in the Following Divisions:

- Business
- Education and Teacher Training
- Humanities
- Mathematics
- Modern Foreign Languages
- Science
- Social Science

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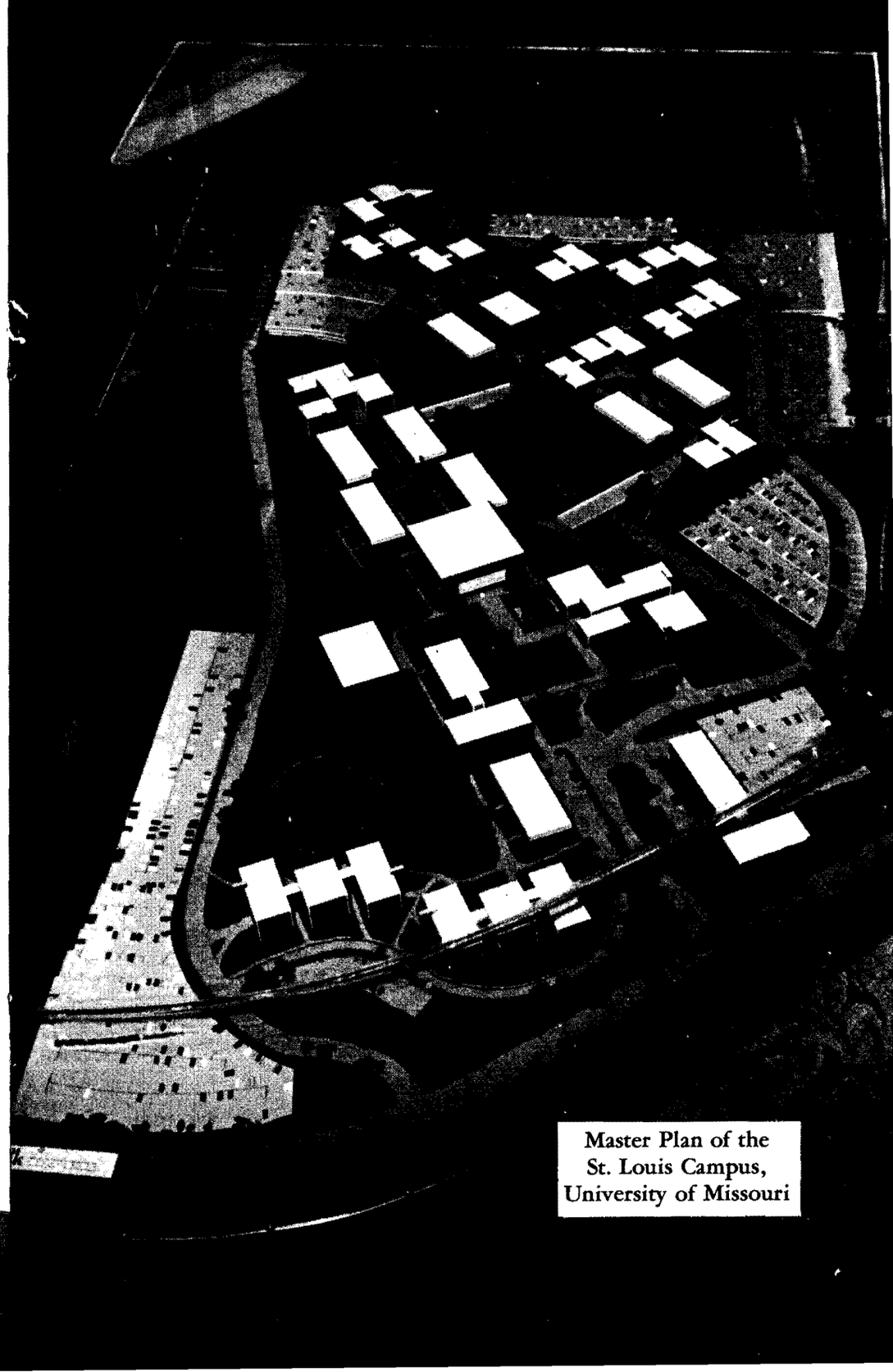

Master Plan of the St. Louis Campus, University of Missouri

Prerequisites may be waived by consent of the department.

1 **Elementary Spanish** (4)
Acquisition of basic Spanish vocabulary, grammar, and syntax.

2 **Elementary Spanish** (4)
Prerequisite: Spanish 1 or equiv. Contin. of Spanish 1.

101 **Intermediate Spanish** (3)
Prerequisite: Spanish 2 or equiv. Grammar review and cultivation of language skills through the study of moderately difficult selections of prose.

102 **Intermediate Spanish** (3)
Prerequisite: Spanish 101 or equiv. Contin. of Spanish 101. Further development of language skills through the use of unedited texts.

106 **Spanish Composition** (2)
Prerequisite: Spanish 2 or equiv. Grammar review and composition. May be taken concurrently with Spanish 101 or 102.

107 **Advanced Composition** (3)
Prerequisite: Spanish 106 or equiv. Contin. of Spanish 106. May be taken concurrently with Spanish 102.

121 **Conversation** (3)
Prerequisite: Spanish 2 or equiv. Practice in speaking and understanding Spanish. May be taken concurrently with Spanish 101, 102, 106 or 107.

122 **Advanced Conversation** (3)
Prerequisite: Spanish 121 or equivalent. Continuation of Spanish 121. May be taken concurrently with Spanish 107.

190 **Readings in Spanish** (3)
Prerequisite: Consent of instr. Readings on a topic mutually acceptable to student and instr.

251 **Spanish Literature** (3)
Prerequisite: Spanish 102 or equiv. Through the Golden Age. Required for Spanish majors.

252 **Latin American Literature** (3)
Prerequisite: Spanish 102 or equiv. From the Colonial period to 1821. Required for Spanish majors.

261 **Spanish Literature** (3)
Prerequisite: Spanish 102 or equiv. From the Golden Age to the present.

262 **Latin American Literature** (3)
Prerequisite: Spanish 102 or equiv. From 1821 to the present.

264 **The Curriculum and Methods of Teaching Foreign Language** (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign language.

350 **Special Readings** (cr. arr.)
Prerequisite: consent of instr. Independent study through readings, reports and conferences.

390 **Senior Readings** (3)
Prerequisite: Permission of dept. Required of all senior Spanish majors. Directed readings in an area mutually acceptable to student and instructors.

391 **Senior Seminar** (3)
Prerequisite: Permission of dept. Required of all senior Spanish majors. Directed reading and research, one product of which shall be a formal paper.

THE UNIVERSITY OF MISSOURI AT ST. LOUIS

GENERAL CATALOG INCLUDING DESCRIPTION OF COURSES*

1966-67

*Courses offered only on the campus at St. Louis. For information concerning the University of Missouri, Columbia, the University of Missouri at Rolla, and the University at Kansas City, write directly to the Director of Admissions at the campus concerned.

"I want to build up a people's institution, a great free university, eventually open and accessible to the poorest boy in the land, who may come and receive an education practical and suitable for any business or profession in life. I want to cheapen this whole matter of education, so that, under the broad and expansive influences of our republican institutions, and our advancing civilization, it may run free, as our great rivers, and bless the coming millions.

"Hitherto, our colleges and universities have been accessible only to the few, such are the expenses attending them. We therefore want a university with all the colleges attached, giving education of the highest order to all classes. We want ample grounds and buildings and libraries, and apparatus, and museums and endowments, and prize funds, and professors of great heads and hearts, men of faith and energy. Indeed, we want everything which will make this institution eventually equal to any on this continent. Why should we not have them? I think we can."

John B. Bowman
President
University of Kentucky
(1865)

153 Peoples and Cultures of the World (3)
Prerequisite: Anthropology 10 and 11. Examination of a variety of societies and their cultures, with emphasis upon those which are preliterate. Required of anthropology majors.

160 Social Psychology (3) (Same as Psychology 160.)
Prerequisite: Psychology 2 or Sociology 2. Study of the interaction between the individual and his social environment. Examination of basic principles, concepts, methods.

190 Junior Readings in Sociology (3)
Prerequisite: Sociology 2, 101, and 102. A general survey of theory, methods, current research and prospectives in sociology. Required of sociology majors in junior year.

192 Senior Readings (3)
Prerequisite: consent of instr. Readings and discussions covering specific areas of student interest. Course includes the planning phase for senior thesis. Required of sociology and anthropology majors in senior year.

193 Senior Seminar (Thesis Research) (3)
Prerequisite: Sociology 192. Completion of a major report dealing with a subject chosen through student-staff consultation. Periodic conferences with designated faculty. Required of sociology and anthropology majors in senior year.

310 Social Stratification (3)
Prerequisite: Sociology 1. Theories of social stratification and an examination of current research. Changes in the occupational and hierarchical structure of contemporary society.

311 Criminology (3)
Prerequisite: Sociology 1. Crime as a social phenomenon. The treatment of offenders. Theories of deviance and anti-social behavior.

314 Sociology of the Family (3)
Prerequisite: Sociology 1. Universal and variable aspects of family organization. Family role systems. Changes in family social structure.

316 Urban Sociology (3)
Prerequisite: Sociology 1. Urbanism as a world phenomenon; ecological, demographic, and structural characteristics of cities. The sociological aspects of urban problems.

320 Medical Sociology (3)
Prerequisite: Sociology 1. The application of sociology in the field of health and human behavior. Patterns of medical care. Sociological aspects of mental illness.

327 Race and Ethnic Relations (3)
Prerequisite: Sociology 1. Cultural and social-psychological aspects of race and ethnic categories. Historical and contemporary perspectives.

328 Personality and Culture (3)
Prerequisite: Anthropology 10 and 11 or Psychology 2. Analysis of relationships between sociological systems and individual psychological processes. Cultural factors emphasized.

330 Organizational Analysis (3)
Prerequisite: Sociology 1. The structural characteristics of formal and informal organizations. Rational and natural-system models. Pressures toward equilibrium and change.

331 The Sociology of Art and Literature (3)
Prerequisite: Sociology 1. The creative individual, his work, and his public. Social pressures and rewards.

332 The Sociology of Religion (3)
Prerequisite: Sociology 1. Religion as a universal phenomenon. The effect of religion upon the individual and society. The organization of religious enterprises.

350 Special Readings (cr. arr.)
Prerequisite: consent of instr. Independent study through readings, reports, and conferences.

SPANISH

ENRIQUE NOBLE, Professor
PETER COCOZZELLA, Assistant Professor
MARION HOLT, Assistant Professor
NOAMI RAMIREZ, Instructor
ELBA REMMLING, Instructor
RAYMOND TAMANTINI, Instructor

358 Comparative Psychology (4) (with lab.)
Prerequisite: Psych. 201 and 320. Methods and techniques in the investigation of learning processes in infra-human organisms.

361 History and Systems of Psychology (3)
Prerequisite: 12 hours of psychology. Historical antecedents of contemporary scientific psychology, including a survey of systems and schools of psychology.

RUSSIAN

JACK EVANS, Instructor

1 Elementary Russian (4)
Acquisition of basic Russian vocabulary, grammar, and syntax.

2 Elementary Russian (4)
Prerequisite: Russian 1 or equiv. Contin. of Russian 1.

101 Intermediate Russian (3)
Prerequisite: Russian 2 or equiv. Grammar review and cultivation of language skills through the study of moderately difficult selections of prose.

102 Intermediate Russian (3)
Prerequisite: Russian 101 or equiv. Contin. of Russian 101. Further development of language skills through the use of unedited texts.

SOCIOLOGY-ANTHROPOLOGY

HARRY BASH, Assistant Professor
JOHN E. KRAMER, Jr., Assistant Professor
EDWARD C. LEHMAN, Assistant Professor
IRMA B. MATHES, Assistant Professor (on leave)
SAMUEL M. VINOCUR, Assistant Professor
JAMES M. HENSLIN, Instructor

Prerequisites may be waived by consent of the instructor.

1 Introduction to Sociology (3)
Study of human behavior as related to the human group. Principal sociological concepts and theories.

2 Introduction to Sociology (3).
Prerequisite: Sociology 1. Application of basic sociological principles to the ptoblems of contemporary society. Contin. of Sociology 1.

10 Introduction to Anthropology (3)
Principles of physical anthropology. Fossil man, racial types, the origin and growth of civilization. Required of sociology and anthropology majors.

11 Introduction to Anthropology (3)
Contin. of Anthropology 10. Principles of social and cultural anthropology. Required of anthropology majors.

101 Sociological Theory (3)
Prerequisite: Sociology 2. The nature of sociological theory. A survey of theory from Compte through the Parsonian school. Required of sociology majors in sophomore or junior year.

102 Research Methods (3)
Prerequisite: Sociology 2. Research planning; the collection, analysis, and presentation of data. Course includes practical experience in the conduct of a research project. Required of sociology majors in sophomore or junior year.

150 Social Disorganization (3)
No prerequisite. May not be taken by students who have taken Sociology 2. Carries no credit toward a sociology major. A survey of contemporary social problems.

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University Calendar 1966-1967

St. Louis Divisions

First Semester

1966

September 22—Thursday, Registration
September 23—Friday, New Student Orientation
September 26—Monday, Classwork begins, 7:40 a.m.
November 23—Wednesday, Thanksgiving vacation begins, end of day
November 28—Monday, Classwork resumes, 7:40 a.m.
December 16—Friday, Christmas vacation begins, end of day

1967

January 3—Tuesday, Classwork resumes, 7:40 a.m.
January 26—Thursday, Classwork first semester ends, end of day
January 27—Friday, Examinations begin
February 3—Friday, First Semester closes, end of day

Second Semester

February 10—Friday, Registration
February 13—Monday, Classwork begins, 7:40 a.m.
March 22—Wednesday, Easter recess begins, end of day
March 26—Sunday, Easter
March 29—Wednesday, Classwork resumes, 7:40 a.m.
May 30—Memorial Day
June 1—Thursday, Classwork second semester ends, end of day
June 2—Friday, Final examinations begin
June 8—Thursday, Final grades for candidates for graduation due, 12 noon
June 9—Friday, Second Semester closes, end of day
June 14—Wednesday, Commencement

Summer Session

June 19—Monday, Registration and Orientation
June 20—Tuesday, Classwork begins
July 4—Tuesday, Independence Day
August 11—Summer Session closes, end of day
Summer Commencement, evening

1 **General Psychology (3)**
A survey of the facts, principles, and methods in the study of human behavior.

2 **General Psychology (3)**
Prerequisite: Psych. 1. Contin. of Psychology 1.

160 **Social Psychology (3) (Same as Sociology 160.)**
Prerequisite: Psych. 2 or Sociology 2. Study of the interaction between the individual and his social environment. Examination of basic principles, concepts, methods.

192 **Senior Readings (3)**
Prerequisite: consent of dept. Required for all senior psychology majors. Directed readings in an area mutually acceptable to student and instr.

193 **Senior Seminar (3)**
Prerequisite: consent of dept. Required for all senior psychology majors. Directed reading and research, one product of which shall be a formal paper.

201 **Psychological Statistics (4) (with lab.)**
Prerequisite: Psych. 2. Statistical methods in psychological measurement, analysis of psychological data, frequency distribution analysis, sampling, tests of significance, correlational methods.

212 **Principles of Learning (3)**
Prerequisite: Psych. 2. A consideration of critical findings in learning.

270 **Child Psychology (3)**
Prerequisite: Psych. 2. Principles of biological, behavioral and personality development from conception to puberty.

271 **Adolescent Psychology (3)**
Prerequisite: Psych. 2. Principles of biological, behavioral and personality development from puberty to maturity.

290 **Psychology Readings (3)**
Prerequisite: Psych. 2 and permission of instructor. Readings on a topic mutually acceptable to student and instructor.

301 **Advanced Statistics and Experimental Design (3)**
Prerequisite: 12 hours of psychology, including Psychology 201. Statistical methods particularly useful in psychological research and the design of experiments appropriate to these methods.

310 **Motivation Theory (3)**
Prerequisite: 12 hours of psychology. Survey of current theoretical material in the area of motivation.

313 **The Psychology of Exceptional Children (3) (Same as Education 313.)**
Prerequisite: Education 102 and either Psych. 270 or Psych. 271. A study of the special psychological and educational problems of the child who deviates from the normal.

314 **Physiological Psychology (3)**
Prerequisite: 12 hours of psychology and Biology 11 and 12. Critical consideration of the biological determinants of behavior with particular emphasis on the nervous and endocrine systems.

315 **Personality Theory (3)**
Prerequisite: 12 hours of psychology. Structural and dynamic aspects of the human personality considered in the context of selected theoretical systems.

319 **General Experimental Psychology (3) (with lab.)**
Prerequisite: Psych. 201. Study of various classical areas in psychology including reaction time, psychophysics, perception, psychomotor skills, and autonomic reactions.

320 **General Experimental Psychology (3) (with lab.)**
Prerequisite: Psych. 319. Contin. of Psych. 319.

328 **Personality and Culture (3) (Same as Anthropology 328.)**
Prerequisite: Anthropology 10 and 11; or Psych. 2. Analysis of relationships between sociocultural systems and individual psychological processes. Cultural factors emphasized.

345 **Abnormal Psychology (3)**
Prerequisite: 12 hours of psychology. Etiology and description of certain symptom complexes commonly found in the mentally ill, with a consideration of selected therapeutic procedures.

350 **Special Readings (cr. arr.)**
Prerequisite: consent of instr. Independent study through readings, reports and conferences.

357 **Psychology of Learning (4) (with lab.)**
Prerequisite: Psych. 201 and 320. Lecture and laboratory in area of human learning (verbal and motor skills.) Primary emphasis on methodology.

321 The Constitution and Civil Rights (3)
Prerequisite: Pol. Sci. 11. Civil rights in American constitutional context emphasizing freedom of religion, freedom of expression, minority discrimination, loyalty, rights of defendants.

323 The Judicial Process (3)
Prerequisite: Pol. Sci. 11. Analysis of the role of the judiciary in policy formation.

335 Political Parties (3)
Prerequisite: Pol. Sci. 11. Development, organization, functions, activities of major and minor political parties; pressure groups; election administration, especially in United States.

336 Interest Groups (3)
Prerequisite: Pol. Sci. 11. Examination of the basis of power and methods of interest groups and of the points of access to and influence on public policy. Attention will be given to the problems of defining power and comparing the behavior of groups with their statements of interest.

338 Political Behavior (3)
Prerequisite: Pol. Sci. 11. Economic, psychological, and social dimensions of political behavior, political participation, leadership and elites; political attitudes; voting behavior and decision making processes.

340 Public Administration (3)
Prerequisite: Pol. Sci. 11. Survey of public administration with reference to organization, financial administration, personnel management, judicial control of the administrative process.

343 Public Policy and the Administrative Process (3)
Prerequisite: Pol. Sci. 11. Analysis of the formulation of public policies through the administrative process.

353 Totalitarianism: The Soviet System (3)
Prerequisite: Pol. Sci. 11. An introduction to the comparative study of totalitarian systems and an analysis of the Soviet state in theory and practice.

360 American Political Thought (3)
Prerequisite: Pol. Sci. 11. Development of political thought in America from colonial period to contemporary scene.

365 The Theory of Political Equality (3)
Prerequisite: Pol. Sci. 11. Analysis of the concept of political equality in political thought, including a consideration of the ramifications of this concept for any political theory.

376 Municipal Government (3)
Prerequisite: Pol. Sci. 11. Study of political organization of urban communities; place of municipal corporation in American governmental system.

377 Municipal Administration (3)
Prerequisite: Pol. Sci. 11. Study of administrative organization and problems at the municipal level.

382 United States Foreign Policy (3)
Prerequisite: Pol. Sci. 11. Examination of the factors influencing the formation and the execution of U.S. foreign policy and of specific contemporary foreign policies and problems.

385 International Organization (3)
Prerequisite: Pol. Sci. 11. Forms, functions of international organizations; special reference to the United Nations and International Court of Justice.

390 Special Readings (cr. arr.)
Prerequisite: consent of instr. Independent study through readings, reports and conferences.

PSYCHOLOGY

ALAN GERALD KRASNOFF, Associate Professor
DONALD DENNIS LISENBY, Assistant Professor
JOHN JULIAN BOSWELL, Assistant Professor
D. J. ZERBOLIO, JR., Assistant Professor
MARY AILEEN SAYONS, Instructor (part-time)

Prerequisites may be waived by consent of the instructor.

The Board of Curators with President Elmer Ellis, seated second from right: From left, seated, William C. Tucker, Robert Neill, Dr. Ellis, Orestes Mitchell Jr.; standing, William C. Myers Jr., Pleasant R. Smith, William H. Billings, Doyle Patterson, Oliver B. Ferguson, and John H. Caruthers.

The Board of Curators

Terms Expire January 1, 1967

John H. Caruthers ..... St. Louis
Oliver B. Ferguson ..... Fredericktown
Orestes Mitchell, Jr. ..... St. Joseph

Terms Expire January 1, 1969

Robert Neill ..... St. Louis
William C. Tucker ..... Warrensburg
William C. Meyers, Jr. ..... Joplin

Terms Expire January 1, 1971

William H. Billings ..... Kennett
Doyle Patterson ..... Kansas City
Pleasant R. Smith ..... Mexico

OFFICERS OF THE BOARD

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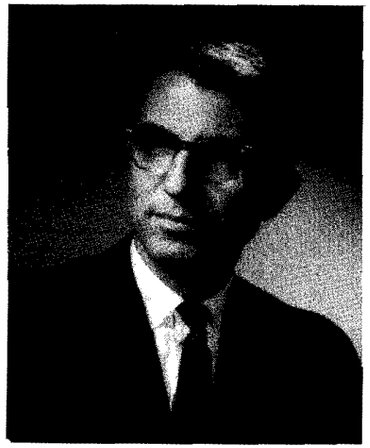
Oliver B. Ferguson, Vice President ..... Fredericktown
Mary Robnett, Secretary ..... Columbia
Albert M. Price, Treasurer ..... Columbia

Administration



Chancellor James M. Bugg, Jr.

UNIVERSITY OF MISSOURI SYSTEM

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DALE O. BOWLING, B.S.B.A., Business Manager of the University
RAY BEZONI, B.S.B.A., Comptroller

UNIVERSITY OF MISSOURI AT ST. LOUIS

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JOHN P. PERRY, M.S., Business Officer
VIRGIL N. SAPP, B.S., Director of Extension
JOY WHITENER, Ed.D., Dean of the Evening Division

POLITICAL SCIENCE

ROBERT S. SULLIVANT, Professor
EARL J. REEVES, Associate Professor
LYMAN T. SARGENT, Assistant Professor
JAMES SOLEM, Assistant Professor
MARIAN E. KROGMANN, Instructor
INA FITZHENRY COOR, Instructor (part-time)
ALICE W. KARL, Instructor (part-time)

Prerequisites may be waived by consent of the instructor.

11 **Government in Modern Society** (3)
Introduction to some of the basic concepts of government and politics including a comparative survey of the institutions of government and major mdern political philosophies. Special emphasis on constitutions and constitutionalism. Course fulfills the state requirement.

12 **Government in Modern Society** (3)
Prerequisite: Pol. Sci. 11. Application of basic concepts of government to the study and analysis of the functions of government in modern society, with special emphasis on the United States.

150 **Comparative Government and Politics** (3)
Prerequisite: Pol. Sci. 11. Examination of theoretical approaches to the study of political systems and a study of selected foreign political systems with primary emphasis upon a comparison of the British parliamentary system to other democratic and dictatorial systems.

160 **Introduction to Political Thought** (3)
No prerequisite. Survey of political thought relating to source and nature of authority. Forms of government, control of power. Cannot be used as credit toward a major in political science.

170 **State and Local Government** (3)
Prerequisite: Pol. Sci. 11 or permission of instr. Origin, development and problems of state and local government in the American federal system including the role of the United States Constitution as the framework for the federal system. Survey of the organization, functions, and operation of state and local governments in the U. S., with special emphasis on Missouri. This course meets both the general state requirement and the state education requirement.

180 **International Politics** (3)
Prerequisite: Pol. Sci. 11. Major factors shaping relations between nations. Development of international institutions. Focus on such problems as European integration; emerging nations; the impact of the armament race on world politics.

190 **Political Science Readings** (3)
Prerequisite: Pol. Sci. 11, permission of instr. and jr. standing. Readings on topics mutually acceptable to student and instr.

192 **Senior Readings** (3)
Prerequisite: consent of dept. Required for all senior political science majors. Directed readings in an area mutually acceptable to student and instr.

193 **Senior Seminar** (3)
Prerequisite: consent of dept. Required for all senior political science majors. Directed reading and research, one product of which shall be a formal paper.

255 **Asian Comparative Politics** (3)
Prerequisite: Soph. standing. Study of the political systems of Asia including China, Japan, India, and Southeast Asia. Application of contemporary approaches in comparative politics. Emphasis on the non-western political process. Fulfills non-western requirement.

261 **History of Political Thought** (3)
Prerequisite: Pol. Sci. 11. Study of political theory from Plato to Machiavelli.

262 **History of Political Thought** (3)

315 **The American Presidency** (3)
Prerequisite: Pol. Sci. 11. Study of the constitutional, political, legislative and administrative roles played by the American chief executive in the development of public policy.

320 **The American Constitution** (3)
Prerequisite: Pol. Sci. 11. Study of leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

211 Intermediate Physics Laboratory I (1)
Prerequisite: Physics 12 and Math. 301 (Math. 301 may be taken concurrently.) Experiments covering topics in classical and quantum physics with emphasis on experimental accuracy and modern laboratory techniques. Time to be arranged.

212 Intermediate Physics Laboratory II (1)
Prerequisite: Physics 211. Contin. of Physics 211. Time to be arranged.

221 Mechanics (3)
Prerequisite: Physics 12 and Math. 301 (Phys. 12 and Math. 301 may be taken concurrently). Advanced course covering rigid-body dynamics, damped and undamped oscillatory motion, perturbation methods, Lagrange's equations and variational principles, Hamilton's equations. 3 hrs. lecture per week.

223 Electricity and Magnetism (3)
Prerequisite: Physics 12. Maxwell's equations: special techniques in electrostatics and magnetostatics; direct, alternating and transient currents; electromagnetic plane waves in space. 3 hrs. lecture per week.

231 Quantum Physics (3)
Prerequisite: Physics 221. A qualitative and quantitative study of the experimental and theoretical aspects of non-relativistic quantum mechanics. 3 hrs. lecture per week.

241 Thermal and Statistical Physics (3)
Prerequisite: Physics 12. Laws of theormodynamics, kinetic theory, introduction to statistical mechanics. 3 hrs. lecture per week.

289 Seminar (1)
All physics majors must enroll as hearers in Physics 289 during both semesters of junior year; all physics majors must take Physics 289 for credit during both semesters of senior year. Presentation of selected papers by students and faculty members at weekly departmental meetings.

290 Research (cr. arr.)

301 Introduction to Mathematical Physics (3)
Prerequisite: 16 hours of physics. A course covering mathematical techniques as applied to the equations of theoretical physics; calculus of variations; Green's functions; linear vector spaces; integral equations. 3 hrs. lecture.

311 Advanced Physics Laboratory I (1)
Prerequisite: Physics 211 and 212 plus 16 hours of physics. Physics majors are introduced to the experimental techniques used in research; use of the literature and professional report writing are included. A student may be given a special problem or assigned to an existing research project. Time to be arranged.

312 Advanced Physics Laboratory II (1)
Prerequisite: Physics 311. Contin. of Physics 311. Time to be arranged.

321 Dynamics (3)
Prerequisite: Physics 221 and 301 (Physics 301 may be taken concurrently). Theory of small oscillations, canonical transformations; Hamilton-Jacobi theory; Poisson Brackets; Lagrangian formulations of continuous systems. 3 hrs. lecture per week.

323 Electromagnetic Theory (3)
Prerequisite: Physics 223 and 301 (Physics 301 may be taken concurrently). Reflection and refraction at dielectric and conducting surfaces; spherical, cylindrical, and guided waves; relativistic four-dimensional formulation of electromagnetic theory. 3 hrs. lecture per week.

331 Introduction to Quantum Mechanics (3)
Prerequisite: Physics 221. Elementary treatment of quantized mechanical systems and methods of Schrödinger's wave mechanics. 3 hrs. lect. per week.

335 Atomic and Nuclear Physics (3)
Prerequisite: Physics 231. Contin. of Physics 231. Applications of Schrödinger's equation to hydrogen-like atoms; atomic structure and spectra; nuclear masses, energy levels; alpha, beta, and gamma radiation, nuclear reactions, models of the nucleus, 3 hrs. lecture per week.

341 Statistical Thermodynamics (3)
Prerequisite: Physics 241. An introduction to ensemble theory applied to systems in equilibrium. Applications include Fermi-Dirac and Einstein-Bose statistics; specific heats of solids. 3 hrs. lecture per week.

351 Elementary Solid State Physics (3)
Prerequisite: Physics 231 and 241. Theoretical and experimental aspects of solid state physics, including one-dimensional band theory of solids; electron emission from metals and semiconductors; electrical and thermal conductivity of solids. 3 hrs. lecture per week.

Chairmen of Divisions

EDWARD ANDALAFTE, Ph.D., Division of Mathematics
CHARLES W. ARMBRUSTER, Ph.D., Division of Science
WILLIAM C. HAMLIN, Ph.D., Division of Humanities
PAUL HOFFMAN, M.A., Division of Modern Foreign Languages
ROBERT S. SULLIVANT, Ph.D., Division of Social Science
EMERY C. TURNER, M.B.A., Division of Business Administration
ADOLPH UNRUH, Ph.D., Division of Teacher Education

Members of Administrative Staffs

GLENN R. ALLEN, M.S., Assistant Director of Admissions
MORRIS E. BLITZ, M.A., Testing and Counseling
DONALD G. BOWLING, M.A., Assistant to the Dean of the Evening Division
MAXINE CHRISTIAN, B.A., Academic Adviser, Arts and Science
DONNA ENGLE, B.S., Administrative Assistant for Public Relations
JACK FISHER, B.S., Accountant
MYRNA L. HARPER, Administrative Assistant to the Dean of Arts & Science
DONALD W. MOCKER, B.S., Extension Education Coordinator
NORMA PATTERSON, Administrative Assistant to the Director of Teacher Education
MARY POGUE, Administrative Assistant to the Dean of the Evening Division
ROBERT R. RUSSELL, M.A., Academic Adviser, Teacher Education
KENNETH A. SMITH, B.S. in E.E., Superintendent, Physical Plant
BILLIE A. SNYDER, Administrative Assistant to the Chancellor
D. EVERETT THOMAS, M.Ed., Extension Education Coordinator

UNIVERSITY OF MISSOURI AT ST. LOUIS

The University of Missouri at St. Louis opened in the fall of 1960 as the Normandy Residence Center of the University of Missouri. Established through the joint efforts of the University of Missouri and the Normandy (St. Louis County) School District, it began as a junior college serving 250 students its first year. An evening curriculum supervised by the Extension Division of the University provided adult education courses.

The University of Missouri, established in 1839 at Columbia, has, from its inception, taken as its major task the role of leadership in the developing system of higher education in the state. Through the years, the changing demands of this role altered the University from a small liberal arts college, emphasizing a classical curriculum, to a large university embracing fourteen schools and colleges in Columbia, and a separate School of Mines and Metallurgy in Rolla, founded in 1870.

In 1963 an historic and fundamental change added the former University of Kansas City and the Normandy Residence Center in St. Louis to a new University of Missouri system, which now embraces four campuses in Columbia, Kansas City, Rolla, and St. Louis. The administrative leadership of the University resides in a single Board of Curators and President, and in four Chancellors who act as the administrative heads of the campuses.

A federalistic administrative policy allows each of the four campuses the maximum freedom to develop programs designed to meet the needs of each area, while providing common overall policies and objectives. Thus the University of Missouri has provided a means by which it may more readily achieve its purpose. One university system of four campuses with a common policy on admission, fees, research, faculty, and quality of education seems the best method of meeting the changing demands of an omnipresent future.

Today, in its classrooms, thousands of students are educated in a catalogue of disciplines which range from accounting to zoology, while its professional schools graduate each year a constantly increasing number of engineers, physicians, veterinarians, pharmacists, lawyers, journalists, educators, business men, and other highly trained specialists. In its libraries and laboratories a constant search goes on to broaden the boundaries of knowledge. On each campus an Extension Division brings the services of the University to virtually every county, city and village in the state, as its programs to citizens in all parts of Missouri grow in size and quality.

The University of Missouri at St. Louis owes its establishment to the rapidly growing educational need of the state's largest urban area for a state university

330 Rationalism and Empiricism (3)
Prerequisite: Philosophy 5 or permission of the dept. A study of classical rationalism of Descartes, Spinoza, and Leibniz as well as the empiricism of Locke, Berkeley, and Hume.

340 Formal Logic (3)
Prerequisite: Elementary Logic or Math. 80. A study of the principles and techniques of modern deductive logic. Both truth-functional and quantificational methods will be employed. Special emphasis given to construction of proofs; some attention to the properties of deductive systems and the axiomatic method.

341 Existentialism (3)
Prerequisite: Philosophy 5 or permission of the department. A study of the metaphysics and ethics of Jaspers, Heidegger, Sartre, and Marcel.

350 Special Readings (cr. arr.)
Prerequisite: consent of instr. Independent study through readings, reports and conferences.

351 Philosophy of Science (3)
Prerequisite: Philosophy 1 or permission of the dept. A study of the nature and presuppositions of science, rypes of scientific explanation, the logical character of scientific laws, the cognitive status of theories, the space-time problem, causality and indeterminism. The place of science in human life and its relation to human values are critically investigated.

360 Recent American and Analytic Philosophy (3)
Prerequisite: Philosophy 5 or permission of the dept. A study of American philosophers from Peirce to the present, along with an examination of British and American analytical philosophers.

PHYSICS

JAMES C. GRAVITT, Associate Professor
ROBERT HIGHT, Associate Professor
BOB L. HENSON, Assistant Professor

Laboratory Instructors: Joseph Michaud, Johnathan Mishory, Roger Vespa

Prerequisites may be waived by consent of the department.

1 General Physics (3)
Prerequisite: Math. 12 or equiv. 3 hrs. lect. per week.

2 General Physics (3)
Prerequisite: Physics 1. Contin. of Physics 1. 3 hrs. lect. and 1 hr. discussion per week.

3 General Physics Laboratory (2)
Lab. course to accompany Physics 1. 3½ hrs. lab. per week.

11 Introductory Physics I (5)
Prerequisite: Math. 175 (may be taken concurrently). A quantitative study of elementary mechanics including an introduction to the special theory of relativity; the basic principles of thermodynamics. 3 hrs. lect., 1 hr. discussion, and 3½ hrs. lab. per week.

12 Introductory Physics II (5)
Prerequisite: Physics 11 and Math. 201 (Math. 201 may be taken concurrently). A continuation of Physics 11 with emphasis on electricity and magnetism. 3 hrs. lect., 1 hr. discussion, and 3½ hrs. lab. per week.

180 Methods of Teaching Physics in Secondary Schools (3) Same as Education 268.

200 Survey of Theoretical Physics (3)
Prerequisite: Physics 12, or Physics 2 and Math. 201. A survey of the main areas of theoretical physics using relatively elementary mathematical techniques including classical mechanics; electricity and magnetism; quantum mechanics; relativity; and statistical mechanics. 3 hrs. lecture per week.

PHILOSOPHY

EDWARD B. COSTELLO, Associate Professor
DONALD DAMHORST, Associate Professor
JAMES F. DOYLE, Associate Professor
MALCOLM B. BROWN, Assistant Professor
JOSEPH WU, Assistant Professor
KAY BIKSON, Instructor
THOMAS BIKSON, Instructor

Prerequisites may be waived by consent of the department.

1 **Elementary Logic** (3)
No prerequisite. Study of the traditional laws of thought; terms, judgments, reasoning and the detection of fallacies. Fundamental operations of some systems of modern symbolic logic.

5 **Introduction to Philosophy** (3)
No prerequisite. A systematic study of alternative solutions to the major fundamental problems in metaphysics, theory of knowledge, ethics.

192 **Senior Readings** (3)
Prerequisite: permission of dept. Required for all senior Philosophy majors. Directed readings in an area mutually acceptable to student and instr.

193 **Senior Seminar** (3)
Prerequisite: permission of dept. Required for all senior Philosophy majors. Directed readings and research, one product of which shall be a formal paper.

200 **Ethics** (3)
Prerequisite: soph. standing or permission of the dept. An examination of major ethical theories in the Western tradition.

201 **Eastern Philosophy** (3)
No prerequisite. A general survey of the main philosophical and religious ideas of India and China through such oriental classics as Vedanta, Buddhism, Confucianism, Taoism, the Yin Yang cosmological doctrines, and Zen Buddhism.

209 **History of Western Philosophy: Thales Through Leibniz** (3)
Prerequisite: soph. standing or permission of the dept. A survey of the major philosophers from the earliest Greeks through the Medieval thinkers and the early modern rationalists.

210 **History of Western Philosophy: Locke Through Contemporary** (3)
Prerequisite: soph. standing or permission of the dept. A survey of major philosophers from the British Empiricists to the present.

220 **Philosophical Ideas in Literature** (3)
No prerequisite. The search for self in literature: epic and dramatic poetry and the novel. "Self" will include the less technical notions of the moral-social human being in his conduct as well as some of the more technical notions of "ego" and "personal identity."

260 **John Dewey** (3)
Prerequisite: soph. standing or permission of the dept. The main ideas in John Dewey's major philosophical work. Attention will be given to his theory of inquiry, philosophy of experience, ethics, aesthetics, and philosophy of education.

300 **Plato and Aristotle** (3)
Prerequisite: Philosophy 5 or permission of the dept. The ethics, method, epistemology and metaphysics of Plato's later works and the study of Aristotle's physics, psychology, metaphysics and ethics.

311 **Augustine and Aquinas** (3)
Prerequisite: Philosophy 5 or permission of the dept. A study of the epistemologies, psychologies, metaphysics, and ethics of Augustine and Aquinas together with Augustine's philosophy of history and Aquinas' political theory.

320 **Kant** (3)
Prerequisite: Philosophy 5 or permission of the dept. A study of Kant's "Critique of Pure Reason" and of his "Critique of Practical Reason" with some attention to his aesthetics.

campus which would provide education of high quality at moderate cost and serve the people of the metropolitan area by supplying the assistance and leadership which the responsibilities of the state university demand. Altered from a two year to a four year institution in 1963, the St. Louis Campus will add a graduate program as soon as the acquisition of faculty and the erection of additional physical facilities permit.

The original student body of 250 had grown to 550 by 1963 and to 4,857 in the fall of 1965. The faculty, originally four full-time and eight part-time instructors, numbered 104 in the fall of 1965.

A full resident program has been instituted in place of the earlier extension program in the late afternoon and evening, and the University now has two programs, Day and Evening, each under its own dean and faculty. Seven divisions—Business, Education, Humanities, Mathematics, Modern Languages, Science, and Social Sciences—administer courses in twenty-six different disciplines. In the near future the University of Missouri at St. Louis will be divided into a College of Arts and Science and Schools of Business and Education.

The campus is located in Normandy on the site of the former Bellerive Country Club. Its 128 acres of grass, trees, and rolling land contain a recently completed three-building complex which houses classrooms; fully equipped science, language, psychology, and statistics laboratories; faculty research laboratories; and faculty, departmental and divisional offices. Another building, the old Bellerive Country Club house, completes the physical plant. A library, langauge-mathematics classroom building, Student Union, life sciences building, Extension building, and a gymnasium will be under construction in the near future.

The objectives and purpose of this campus are outlined in the faculty bylaws reproduced on the following page. Summarized, they may be stated as the three-fold purpose of the discovery, the dissemination, and the application of knowledge. Or, stated in a different way, its purpose is that of research, teaching, and service to the people of the metropolitan area of St. Louis and to the state of Missouri. Its objective is academic excellence, and all students are required to follow a curriculum which gives them a broad training in the liberal arts and sciences and depth in a major discipline of their choice.

This institution encourages students to qualify for advanced placement and credit, to enroll in the Honors Program if they qualify, to enroll whenever possible in seminars, in individual readings courses, and in courses which emphasize undergraduate research. Faced with the necessity of a rapid expansion which will bring more than 20,000 students to the campus by 1975, it intends to maintain its primary concern with superior teaching, informal and frequent contacts between faculty and students, creative research, and service to the metropolitan community.

The Purpose of the University of Missouri at St. Louis: A Statement from the Faculty By-Laws

A. It shall be the policy of this University, and a principal concern of its Curriculum Committee, to insure that each student who graduates completes a program which provides a broad liberal education in the fine arts, the humanities, the social sciences, and the sciences; depth of training in a major area of study; knowledge of the heritage of the past, of the political, social, and economic responsibilities of citizens, and of cultures other than his own.

B. Every student shall be required to enroll in at least one seminar in his major discipline during his senior year, to complete successfully an approved research project, and to pass a comprehensive examination in his major discipline.

C. It shall be the declared policy of the faculty to:

1. Accelerate by all possible means the undergraduate's entry into advanced work.
2. Place principal emphasis upon the primacy of academic objectives and the maintenance of academic standards rigorous enough to insure superior preparation for graduate or professional training.
3. Place emphasis in all classes on the significance of adequate communication, both written and oral. Students will be required to express themselves in clear and correct prose in their written assignments, both in and out of class.
4. Emphasize and reward students for clear and precise thinking, originality, creativity, independent thought, and analytical and evaluative presentation.
5. Avoid wherever possible the obsolete curriculum barriers which divide disciplines, and to encourage and emphasize the interdependence and integration of all knowledge.
6. Recognize and carry out the responsibility which is mandatory upon the state university to educate for responsible citizenship, to participate in community affairs, and to constantly increase the quality of service to the community.
7. Recognize as a principal responsibility of the faculty the duty of working actively with students in campus concerns, of meeting with them in informal situations, of undertaking the responsibility of leading them toward the exciting challenge of intellectual discovery, and of maintaining as a basic objective the teaching function which requires sympathetic understanding of, and approaches to, students.
8. To acknowledge the necessity of creativity of thought and effort in experimentation in curriculum and techniques, and to provide proper leadership in higher education in this metropolitan community and in the State.
9. To acknowledge the primary role of superior teaching in this institution, and to recognize the necessity for encouraging original research as an inevitable adjunct of superior teaching.

MECHANICAL ENGINEERING

ROBERT GUILFOIL, Instructor
A. J. OSTERGAARD, Instructor

1 Engineering Drawing (3)
Orthographic projection, freehand sketching, conventional representation, sections; Pattern and foundry work and machine operations affecting design and details, lettering, dimensioning systems including limits; Trimetric drawings; springs, threads and fasteners, design layout drawings and assembly drawings; Pen and ink tracings. No credit awarded for Arts and Science degree.

10 Descriptive Geometry (3)
Prerequisite; M.E. 1 and preceded or accompanied by Math. 10 and 11 or Math. 12. Fundamental theory of point, line and plane using the direct method; Generation of lines and surfaces; Intersections and development of solids as they apply to sheetmetal and machine parts; Force diagrams. No credit awarded for Arts and Science degree.

MUSIC HISTORY

KENNETH E. MILLER, Associate Professor
EDWARD KOTTICK, Assistant Professor

Prerequisites may be waived by consent of the department.

1 Introduction to Music Literature (3)
No prerequisite. Introduction to the study of musical style, including a detailed study of selected works from the Renaissance to the 20th century.

3 Theory of Music (3)
No prerequisite. Basic vocabulary: scales, intervals, triads, seventh chords. Techniques of analyzing and writing music. Systematic instruction in ear training, sight-singing, and melodic, rhythmic, and harmonic aspects of music-reading. Four class hours each week.

40 University Chorus (no credit)
Prerequisite: Permission of instr. Preparation and public performance of choral masterpieces.

45 Piano (1)
Credit of one semester hour to be given for one-half hour lesson and a minimum of one hour daily practice.

101 History of Western Music (3)
Prerequisite: soph. standing or consent of the dept. A general survey of the history of western music from the Greek period to the 18th century. Required for all majors in Music History.

102 History of Western Music (3)
Prerequisite: soph. standing or consent of the dept. Contin. of Music 101 to the present. Required for all majors in Music History.

134 Introduction to the Theory of Music (2)
No prerequisite. An introductory course in the rudiments of music specifically designed to meet the needs of the elementary classroom teacher. Systematic training in the fundamentals of music and their application.

137 Elementary School Music (2) Same as Educ. 137
Prerequisite: Music 134 or consent of the dept. Basic musical preparation for all Educ. majors. Development of the elementary school music program with emphasis on selection of music and methods of teaching music to children.

322 Music of the Baroque Period (3)
Prerequisite: Music 1 or consent of the dept. A detailed study of musical style from 1600 to 1750. The rise of the new style, national styles in the 17th century, and the culmination of the baroque period.

323 Music of the Romantic Period (3)
Prerequisite: Music 1 or consent of the dept. Composers, forms, and styles from Beethoven through the early twentieth century. Late 18th century background of romantic music, nationalistic currents and impressionism.

250 Introduction to Abstract Mathematics (3)
Prerequisite: Math. 201. An introduction to some of the fundamental ideas of abstract mathematics.

289 Mathematics Seminar (0-1)
Required of all mathematics majors in each of their last four semesters. Credit will be given in any semester in which a formal paper is presented.

301 Differential Equations (3)
Prerequisite: Math. 201. Common types of ordinary differential equations including many applied problems, operational methods. Brief introduction to partial differential equations, boundary value problems.

310 Advanced Calculus (3)
Prerequisite: Math 250 or consent. Limits, continuity, and differentiability of functions of one and several variables, sequences and series, the Riemann- Stieltjes integral.

316 Functions of a Complex Variable (3)
Prerequisite: Math. 310. Complex numbers and their geometrical representation, point sets, analytic functions of a complex variable, complex integration, Taylor and Laurent series, Residue Theorem, conformal mapping.

320 Mathematical Statistics (3)
Prerequisite: Math. 250 or consent. Introduction to theory of probability and statistics using concepts and methods of the calculus.

323 Numerical Analysis (3)
Prerequisite: Math. 201. Finite differences, numerical differentiation, integration, solution of equations and differential equations. Special reference to use of high speed computers.

335 Theory of Numbers (3)
Prerequisite: Math. 250 or consent. Properties of the integers, multiplicative functions, congruences, primitive roots, quadratic residues.

340 Introduction to Abstract Algebra (3)
Prerequisite: Math. 250 or consent. Introduction to theory of groups, rings, integral domains, fields, and polynomials over a field.

341 Linear Algebra and Matrices (3)
Prerequisite: Math. 250 or consent. A brief introduction to groups, vector spaces, matrices, determinants, bilinear and quadratic forms, and quadratic forms under groups.

350 Special Readings (cr. arr.)
Prerequisite: Math. 250 and consent of instr.

358 Mathematical Logic (3)
Prerequisite: Math. 250 or Philosophy 340 or consent. A study of the logic of mathematics by the axiomatic method, with a development of the propositional calculus and restricted predicate calculus, emphasizing its application to the foundations of mathematics.

362 Projective Geometry (3)
Prerequisite: Math. 250 or consent. Analytic approach to the study of projective spaces. Theorems of Desargues, Pascal, and Brianchon. Projective properties of conics.

366 Foundations of Geometry (3)
Prerequisite: Math. 250 or consent. A development of portions of Euclidean geometry from a selected set of axioms, including a discussion of consistency, independence, categoricity, and completeness of the axioms.

367 Introduction to Non-Euclidean Geometry (3)
Prerequisite: Math. 250 or consent. A summary of the history of the non-Euclidean geometries and a study of hyperbolic plane geometry.

380 Introduction to Topology (3)
Prerequisite: Math. 250 or consent. A study of topological spaces, including the concepts of limit, continuity, connectedness, compactness, etc. Special emphasis placed on, and examples taken from, the space of real numbers.

410 Theory of Functions of a Real Variable (3)
Prerequisite: Math. 310. The real number system, properties of functions of one or more real variables, mapping theorems. Introduction to measure and integration theory.

448 Topics in Algebra (3)
Prerequisite: Math 340 and 341 and consent of the instr. Topics selected from the areas of groups, rings, fields, algebras and other algebraic systems. May be taken more than once for credit with consent of instr.

ADMISSION

Inquiries regarding entrance should be addressed to the Director of Admissions, University of Missouri at St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121.

Directions to New Students

New students must submit credentials before August 1 for the fall semester, January 1 for the winter semester, and May 1 for the summer session. Admission can be determined only after all credentials are on file. All new students are required to submit application forms which may be obtained from the Director of Admissions. Out-of-state undergraduate students are required to submit a nonrefundable application evaluation fee of $10 with the application for admission. In addition, the following credentials are required.

Entering Freshmen. The entering freshman must submit a high school transcript certified by the proper official of the school in which the credits were earned and a medical history report.

Transfer Students. An undergraduate student who has attended college elsewhere must submit an official high school transcript and official college transcripts from each college attended, including statements of honorable dismissal. Reports of medical history and physical examination forms must be submitted by the applicant.

Pre-Registration Fee. All students upon notification of acceptance to the Fall or Winter semester will be requested to submit a non-refundable advance payment of his registration fee. This amount is credited to the student's incidental fee when he enrolls in the University.

FRESHMAN STUDENTS

Admission

It is the policy of the University of Missouri to admit into regular standing all high school graduates with satisfactory records.

Plan A: Graduates of fully accredited high schools may be admitted by certificate or transcript of record without examination. Applicants must have passed their high school courses with satisfactory marks. Admission by certificate is restricted to graduates of schools accredited by the University of Missouri, by other state universities of similar rank, by the North Central Association, or by other recognized accrediting agencies.

Plan B: A student who is not a graduate of a four-year high school, or who is at least 18 years of age, may qualify for admission to the freshman class by examination. The examination will presume training and experience compensating for the lack of formal training to be had in an accredited high school. Adults,

military personnel, and veterans may qualify for admission by satisfactorily passing the high school level General Educational Development tests prepared for the United States Armed Forces Institute.

Missouri Freshmen

Top Third: Applicants who rank in the upper third of their high school class at the end of the sixth semester will be admitted between Oct. 15 and Jan. 1.

Upper Half: Applicants who rank in the upper one-half of their high school graduation class at the end of seven semesters of work may be admitted from January 1 until such time as the freshman class is filled.

Upper Two-Thirds to Upper Half: Applicants who rank between the upper two-thirds and the upper one-half of their graduation class at the end of seven semesters of work will be admitted from March 1 until such time as the freshman class is filled.

Applicants who rank in the lower one-third of their graduation class cannot be accepted. The University administration suggests that students who rank in the lower one-third of their graduation class enroll in summer school. If the student earns six hours of "C", he may submit an application after the close of the Summer Session, and if space is available his application will be reviewed.

Out-of-State Freshmen

Out-of-state students must rank in the upper half of their high school graduating classes in order to be eligible for admission by certificate. However, residents of the Kansas City and St. Louis metropolitan areas, or applicants approved by the Committee on Admissions, are admitted on the same basis as Missouri residents.

Out-of-state applicants may be considered for admission with the completion of seven semesters of work provided that space is available.

A non-refundable transcript evaluation fee of $10 must accompany the application for admission. Checks or money orders should be made payable to the University of Missouri. Upon notification of acceptance the applicant will be requested to submit a non-refundable advance payment of his registration fee. This amount will be credited to the student's incidental fee when he enrolls in the University.

Freshman Placement Tests

Freshman Placement Tests are required of all students enrolling in the University with fewer than 24 hours of college credit. The results of these tests are of benefit to both the student and his adviser in planning the student's program and in considering his educational and professional objective.

Every freshman entering for the first time must present scores from the American Colleges Test (ACT), used to measure the individual's aptitude and placement in certain required courses. For further details the student should contact his high school principal or guidance counselor. The ACT is administered

MATHEMATICS

EDWARD Z. ANDALAFTE, Associate Professor
R. J. MIHALEK, Associate Professor
PATRICK CASSENS, Assistant Professor
WAYNE MCDANIEL, Assistant Professor
FREDERICK WILKE, Assistant Professor
KENNETH BECKMANN, Instructor
CHI CHENG CHEN, Instructor
ROBERT F. EMNETT, Instructor
OWEN GLEESON, Instructor
DORTHY HAIN, Instructor
JAMES G. MONIKA, Instructor
MARGOT PALLMANN, Instructor
HAROLD TESSEREAU, Instructor
FREDERICK WILKE, Instructor

Prerequisites may be waived by consent of the department.

03 Basic Algebra (3)
Fundamentals of algebra for students who have two years or less of mathematics in high school, excluding general mathematics. No credit toward a degree.

10 College Algebra (3)
Prerequisite: (a) 2½ high school units of math, including 1½ units of algebra, or (b) Math. 03
Review of fundamental concepts and topics from elementary algebra. Emphasis on polynomial functions and graphic representation of functions. Equations, systems of equations, inequalities, the binomial theorem, mathematical induction.

11 Elementary Transcendental Functions (3)
Prerequisite: 1½ high school units in algebra. Introduction to trigonometric, inverse trigonometric, logarithmic, and exponential functions.

12 College Algebra and Transcendental Functions (5)
Prerequisite: 2½ high school units of math, including 1½ units of algebra; or Math. 03. A combination of Math. 10 and 11.

15 Mathematics: Ideas and Structure (3)
Prerequisite: 2 high school units in mathematics, excluding general mathematics. An introduction to the spirit of mathematics and to modern mathematical thought. Course is designed for the student who does not intend to major in mathematics or science.

80 Analytic Geometry and Calculus I (5)
Prerequisite: Math. 10 and 11 or Math. 12; or four high school units of math, including two units of algebra and ½ unit trigonometry with grades of B or higher. Introduction to analytic geometry, differential calculus and integral calculus. Courses 80, 175, and 201 are a sequence of courses which have integrated the material formerly contained in courses in plane and solid analytic geometry and differential and integral calculus.

104 Fundamentals of Digital Computer Programming (2)
Prerequisite: Math. 10 or equiv. Principles of programming digital computers in machine, symbolic, and algebraic languages. Does not count toward a major in mathematics.

175 Analytic Geometry and Calculus II (5)
Prerequisite: Math 80. Selected topics from plane analytic geometry and calculus.

201 Analytic Geometry and Calculus III (5)
Prerequisite: Math. 175. Solid analytic geometry and selected topics in calculus.

222 Digital Computer Methods (2)
Prerequisite: Math. 201 or concurrent registration. Study of digital computer systems, techniques of programming, and application to problems in the calculus. No credit to students having credit in Math. 104.

230 Theory of Equations (3)
Prerequisite: Math. 175 or consent of instr. Solution of algebraic equations, systems of equations, relations among the roots, and numerical methods.

333 Europe in the Twentieth Century (3)
Prerequisite: History 1 and 2, or permission of the dept. The impact of World Wars I and II; the search for a new equilibrium.

340 History of Science (3)
Prerequisite: 1 lab. science and 6 hours of history. The origins of science and scientific methodology. The interaction of science and non-science. Emphasis upon the Greeks, the Renaissance, the 17th century and the 19th century.

350 Special Readings (cr. arr.)
Prerequisite: Consent of instr. Independent study through readings, reports and conferences.

351 American Intellectual History (3)
Prerequisite: History 3 and 4 or permission of instr. American intellectual development from earliest times to 1865.

352 American Intellectual History (3)
Prerequisite: History 3 and 4 or permission of instr. Contin. of History 351 from 1865 to the present.

353 United States History: Colonial America to 1763 (3)
Prerequisite: History 3 and 4, or permission of dept. English background of colonization. Rise of distinctive New England and southern societies. English colonial policy to the Peace of Paris.

354 United States History: Revolution and the New Nation, 1763-1815 (3)
Prerequisite: History 3 and 4, or permission of dept. The new colonial policy of Britain. Revolution and the new nation. Hamiltonians and Jeffersonians.

355 United States History: Jacksonian Democracy and Sectional Conflict, 1815-1865 (3)
Prerequisite: History 3 and 4, or permission of dept. The Era of Good Feelings. The Age of Jackson. Manifest Destiny. Sectional and cultural conflict. The Civil War.

356 United States History: Civil War to World War I (3)
Prerequisite: History 3 and 4. Economic, social and political development of the United States 1865 to World War I.

357 United States History: World War I to Present (3)
Prerequisite: History 3 and 4. A contin. of History 356 to the present.

365 American Urban History (3)
Prerequisite: History 3 and 4 or permission of instr. American urban development from earliest times to 1865.

366 American Urban History (3)
Prerequisite: History 3 and 4 or permission of instr. Contin. of History 365 to the present.

367 Growth of the American Economy (3)
Prerequisite: History 3 and 4, or permission of dept. Economic factors in the development of American institutions, from the colonial period to the present.

375 19th Century Diplomatic History (3)
Prerequisite: History 1 and 2 or History 3 and 4 and jr. standing. The foreign policy and diplomacy of nations in the 19th century, with central emphasis on Europe and the New Imperialism. Particular attention to the role of ideas in shaping foreign policy.

376 20th Century Diplomatic History (3)
Prerequisite: History 1 and 2 or History 3 and 4. The foreign policy and diplomacy of nations in the 20th century, with central emphasis on America and the New Diplomacy. Particular emphasis on the role of ideas in shaping foreign policy.

437 Britain and the Commonwealth (3)
The origin and development of the British Commonwealth system, with emphasis on its political, economic, and intellectual aspects.

455 The American Frontier (3)
The frontier considered as a factor in the development of American institutions. Frederick Jackson Turner and his critics. The westward course of settlement. The passing of the frontier.

490 Graduate Readings in History (3)
Prerequisite: permission of instr. Intensive readings in primary and secondary materials in an area mutually acceptable to student and instr.

495 Graduate Seminar in History (3)
Prerequisite: permission of instr. Directed reading and research in a topic chosen by the instr. Consult the course schedule published prior to the beginning of each semester for the specific topic offered.

at approximately 30 testing centers, four of which are in the St. Louis area. There are testing centers in other states as well.

Placement test scores are required in English, mathematics and foreign language (French, Spanish, German, or Russian). The Foreign Language Test (FLT) will be administered on this campus.

Preparation for College

Applicants must present a minimum of 15 acceptable high school units, excluding physical education and military science. The recommended pattern is: English—4 units; mathematics—2½ units (excluding General Mathematics), foreign language—2 units in one language, classical or modern foreign language; social studies—2 units, including 1 in history; natural sciences—1 unit of laboratory science, excluding General Science. It is recommended that any remaining units in addition to the above schedule should be taken from such areas as art, music, economics, a second foreign language, two additional years of the same language, mathematics, science. The student should choose his remaining units in keeping with his career choice.

Advanced Standing for Freshmen

The University of Missouri at St. Louis grants advanced standing to entering freshmen who, on the basis of performance on comprehensive examinations, demonstrate proficiency in certain college-level courses such as English, mathematics, history, biology, chemistry, accounting, political science, and foreign languages.

College Entrance Examination Board Advanced Placement Examinations in the subjects listed above have been approved as a basis for advanced credit at the University. Applications to take CEEB Examinations and inquiries about the material covered should be addressed to College Board Advanced Placement Examinations, Box 592, Princeton, N.J. Code number is 6889.

Test scores should be sent to the Director of Admissions. These must be on file before the first day of classes.

TRANSFER STUDENTS

Admission

Transfer students from other colleges and universities must submit an application for admission, a high school transcript and an official transcript from each college attended. All credentials submitted become the property of the University of Missouri at St. Louis.

Out-of-state undergraduate applicants must submit a $10 non-refundable transcript evaluation fee with their application for admission.

Students whose grade point average is 3.0 or higher will be admitted at any time (based upon the University of Missouri at St. Louis 4 point system). Students whose grade point average is 2.5 or higher will be accepted at any time during the semester prior to that for which entrance is requested. Students whose grade point average is 2.0 or higher may be accepted at any time during the last half of the semester prior to that for which entrance is requested. No student requesting transfer from another college or university whose grade point average is below 2.0 will be admitted. Application forms and credentials for the fall semester should be submitted by August 1; for the winter semester by January 1; and for the summer session by May 1.

Advanced Standing

Credit hours in the form of advanced standing may be allowed for work satisfactorily completed in another college or university of recognized standing insofar as such work satisfies the requirements of the division of the University in which the student registers. Courses with grades of D are not accepted. Advanced standing for the work of the senior year will not be granted. Claims for advanced standing, in order to receive recognition, must be made by the student within one semester after entrance.

Graduates of accredited junior colleges will be admitted without examination to junior standing in the colleges of the University, provided, upon examination of official transcripts, they have satisfied the entrance requirements and have paralleled the work of the first two years of the particular college.

Except as indicated below, no junior college student shall receive credit for more than 16 hours in one semester exclusive of the required practical work in physical education, and the maximum credit the student can earn in a junior college is 64 semester hours. After a student's credits, wherever earned and counted in the order earned, amount to a total of 64 hours, no additional credits

HAROLD EICKHOFF, Assistant Professor
ARMAND ERICKSON, Assistant Professor
RICHARD RESH, Assistant Professor
ARTHUR SHAFFER, Assistant Professor
BLANCHE M. TOUHILL, Assistant Professor
RICHARD E. DUNLAP, Instructor
NORMA ERICKSON, Instructor
LINDA HENRY, Instructor
ROBERT NELSON, Instructor (part-time)
FRANK WITTA, Instructor (part-time)

Prerequisites may be waived by consent of the instructor.

1 **European Civilization** (3)
Evolution of European cultural tradition from earliest times to the mid-17th century. The relationship of ideas and institutions to the general historical background.

2 **European Civilization** (3)
Contin. of History 1 to the present.

3 **American Civilization** (3)
Evolution of the cultural tradition of the Americas from earliest times to the mid-19th century, with emphasis on the relationship of ideas and institutions to the historical background. Course fulfills the state requirement.

4 **American Civilization** (3)
Contin. of History 3 to the present.

190 **American History Readings** (3)
Prerequisite: History 3 and 4, jr. standing, and consent of instr. Readings on a topic mutually acceptable to student and instr.

191 **European History Readings** (3)
Prerequisite: History 1 and 2, jr. standing, and consent of instr. Readings on a topic mutually acceptable to student and instr.

192 **Senior Readings** (3)
Prerequisite: Consent of dept. Required for all senior history majors. Directed readings in an area mutually acceptable to student and instructor.

193 **Senior Seminar** (3)
Prerequisite: Consent of dept. Required for all senior history majors. Directed reading and research, one product of which shall be a formal paper.

210 **Asian Civilization** (3)
Prerequisite: Soph. standing. The development of Asian civilization from the earliest times to the Manchu conquest, with emphasis on the relationship of ideas and institutions to the historical background.

211 **Asian Civilization** (3)
Prerequisite: Soph. standing. Either 210 or 211 may be taken separately. Contin. of History 210 with emphasis on the Asian response to the Western incursion.

296 **The Curriculum and Methods of Teaching History and Social Studies** (3) **(Same as Education 265.)**
Prerequisites: Educ. 163 and a near major in the subject matter. A study of the scope and sequence of the history and social studies courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of History and Social Studies. May not be counted toward a major in history.

330 **Europe in the Seventeenth Century** (3)
Prerequisite: History 1 and 2, or permission of the dept. The growth of the modern state system; the origins of modern science.

331 **Europe in the Eighteenth Century** (3)
Prerequisite: History 1 and 2, or permission of the dept. The Old Regime, the Enlightenment, the French Revolution and Napoleon.

332 **Europe in the Nineteenth Century** (3)
Prerequisite: History 1 and 2, or permission of the dept. The major political, economic, and intellectual developments in Europe from the Congress of Vienna to the outbreak of World War I.

GERMAN

PATRICIA HERMINGHOUSE, Assistant Professor
PAUL HOFFMAN, Assistant Professor
RICHARD UNGER, Assistant Professor
JOHN PISONI, Instructor
RONALD SCHMOLL, Instructor
CATHERINE WETTEROTH, Instructor

1 **Elementary German** (4)
Acquisition of basic German vocabulary, grammar and syntax.
2 **Elementary German** (4)
Prerequisite: German 1 or equiv. Contin. of German 1.
101 **Intermediate German** (3)
Prerequisite: German 2 or equiv. Grammar review and cultivation of reading skills through the study of moderately difficult selections of prose.
102 **Intermediate German** (3)
Prerequisite: German 101 or equiv. Contin. of 101. Further development of language skills through the use of unedited texts.
106 **Composition and Conversation** (3)
Prerequisite: German 2 or equivalent. Practice in writing, speaking and understanding German with emphasis on idiomatic usage. May be taken concurrently with German 101 or 102.
107 **Advanced Composition and Conversation** (3)
Prerequisite: German 106 or equiv. Cont. of German 106. May be taken concurrently with German 102.
190 **Readings in German** (3)
Prerequisite: Consent of instr. Readings on a topic mutually acceptable to student and instr.
251 **German Literature** (3)
Prerequisite: German 102 or equiv. From the origins to 1800. Required for German majors.
252 **German Literature** (3)
Prerequisite: German 102 or equiv. From 1800 to the present. Required for German majors.
264 **The Curriculum and Methods of Teaching Foreign Language** (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign language.
310 **English and German Romanticism** (3)
Prerequisite: English 135. Comparative study of prominent romantic writers in English and German literature. Knowledge of German not required.
350 **Special Readings (cr. arr.)**
Prerequisite: Consent of instr. Independent study through readings, reports and conferences.
390 **Senior Readings** (3)
Prerequisite: Permission of Dept. Required for all senior German majors. Directed readings in an area mutually acceptable to student and instr.
391 **Senior Seminar** (3)
Prerequisite: Permission of Dept. Required for all senior German majors. Directed reading and research, one product of which shall be a formal paper.

HISTORY

JAMES L. BUGG, JR., Professor
GLEN R. DRISCOLL, Professor
JAMES NEAL PRIMM, Professor
ROY GENE BURNS, JR., Associate Professor
JAMES NORRIS, Associate Professor
WILLIAM A. PERCY, JR., Associate Professor
HERMAN N. WEILL, Associate Professor

may be allowed for work completed in a junior college. Exceptions to these limitations may be permitted under the following conditions:

a) A student with a superior scholastic record in junior college may be allowed more than 16 hours a semester if his dean has permitted excessive registration according to the following conditions: 17 hours if his "grade point average" is 2.75 or better; 18 hours if his "grade point average" is 3. or better; 19 hours if his "grade point average" is 3.5 or better, when the grade A is assigned 4 grade points, B 3 points, C, 2 points, D, 1 point, and F (failure), 0 points. No student will be allowed more than 19 hours for a semester's work.
b) A student who enters junior college with advanced standing granted on the basis of examinations is not subject to the maximum of 64 hours if he has been granted such advanced standing on the basis of acceptable placement examinations. Examinations acceptable for advance placement include: (1) those administered by the University of Missouri, and (2) certain of the examinations administered by the College Entrance Examination Board and the Educational Testing Service of Princeton, New Jersey. Students who have earned any previous college credit or who have once entered upon college work are not eligible to take part in this program which is designed particularly for entering freshmen.
d) A junior college student may before graduation from junior college complete in any approved senior college the work of one summer session without reducing the amount of credit he may be allowed from junior college.

Time Limitation on Degree Credit

No credit which has been earned more than eight years prior to the time of a student's admission to the University of Missouri at St. Louis will be acceptable for any degree unless it is validated by the major department and by the Dean of the Division in which this student is seeking a degree.

No credit earned more than 10 years prior to the granting of a Bachelor's Degree may be applied toward the degree without being validated by the major department and by the Dean of the Division in which the student is seeking a degree.

STUDENTS FROM OTHER COUNTRIES

Abroad. Prospective students living outside the United States and its possessions are advised to write the Director of Admissions at least a year prior to the date of desired admission. Information and forms concerning admission and approximate expenses will be sent to the students. Application papers and official records of previous school work should be furnished the Director of Admissions. Upon the approval of these papers, the student will be notified by an official letter. No prospective student should make plans to leave his country without first obtaining this permission to enter the University. All students must establish evidence of proficiency in English by a recognized examination.

In the United States. Foreign students now studying in the United States may be admitted to the University only after the completion of at least 24 semester hours of C or better quality work in the school whose letter of admission was the basis for issuance of the student's visa. To complete his credential file, he must furnish original and official transcripts from each school attended, both in this country and abroad. No student should consider himself admitted to the University until an official letter has been received stating that he is eligible for admission.

THE EVENING PROGRAM

In general, the policies governing admission of students to the Day Program are applicable to the Evening Program. Students are admitted as follows:

Regular Student—a student who meets the admission requirements as established by the Faculty.

Unclassified Student—a student qualified for admission who does not desire to work toward a degree.

Special Student—A person over 21 years of age who does not qualify for admission as a regular student, but who by reason of special preparation or attainment may be judged qualified to pursue certain courses, will be admitted as a special student though not as a candidate for a degree.

Non-Degree Student—Students who rank in the lowest third of their graduation class may be admitted on a probationary status provided they can, by satisfactory evidence on approved tests, demonstrate that they have the potential to complete successfully a college course. Such students may be re-classified as regular students when they have demonstrated by one year of satisfactory work in the University their ability to obtain a degree.

OTHER STUDENTS

Visiting Student Admission

Students who do not wish to earn a degree from the University of Missouri at St. Louis may be admitted by a certification as a Visiting College Student. Admission requires certification by the student's college or university that he is in good standing and has permission to enroll in approved course work and transfer the credit back to that institution. Visiting College Student admission is limited to the Summer Session and the Evening Program. Classroom space limitations do not permit the admission of Visiting College Students to the regular Day Program. Application forms for certification can be obtained from the Admissions Office.

Hearers

With the consent of the Dean and the teacher concerned, a student may be admitted to any course as a hearer. A hearer is registered and required to at-

377 The American Novel (3)
Prerequisite: English 10 and 12 or equiv. A study of representative American novels of the 19th and 20th centuries.

383 Modern Fiction (3)
Prerequisite: English 135 or 175 or equiv. Critical reading and analysis of selected British and American fiction of the 20th century.

384 Modern Poetry (3)
Prerequisite: English 135 or 175 or equiv. Critical reading and analysis of selected British and American poetry of the 20th century.

FRENCH

MARCUS ALLEN, Associate Professor
WENDY PRESTON, Instructor
MARY DUFFE, Instructor
HARRIET WALLER, Instructor
ANNE PERRY, Instructor

Prerequisites may be waived by consent of the department.

1 Elementary French (4)
Acquisition of basic French vocabulary, grammar, and syntax.

2 Elementary French (4)
Prerequisite: French 2 or equiv. Contin. of French 1.

101 Intermediate French (3)
Prerequisite: French 2 or equiv. Grammar review and cultivation of language skills through the study of moderately difficult selections of prose.

102 Intermediate French (3)
Prerequisite: French 101 or equiv. Contin. of French 101. Further development of language skills through the study of unedited texts.

106 Composition and Conversation (3)
Prerequisite: French 2 or equiv. Practice in writing, speaking, and understanding French with emphasis on idiomatic usage. May be taken concurrently with French 101 or 102.

107 Advanced Composition and Conversation (3)
Prerequisite: French 106 or equiv. Contin. of French 106. May be taken concurrently with French 102.

190 Readings in French (3)
Prerequisite: Consent of instr. Readings on a topic mutually acceptable to student and instr.

251 French Literature (3)
Prerequisite: French 102 or equiv. From the origins to Rousseau. Required for French majors.

252 French Literature (3)
Prerequisite: French 102 or equiv. From Rousseau to the present. Required for French majors.

264 The Curriculum and Methods of Teaching Foreign Language (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign language.

350 Special Readings (cr. arr.)
Prerequisite: Consent of instr. Independent study through readings, reports and conferences.

351 The French Drama in the 17th Century (3)
Prerequisite: French 102 or equiv. Study of the works of Corneille, Racine and Moliere.

361 The French Novel in the 19th Century (3)
Prerequisite: French 102 or equiv. Study of the works of Balzac, Stendhal, Flaubert and others.

390 Senior Readings (3)
Prerequisite: Permission of dept. Required for all senior French majors. Directed readings in an area mutually acceptable to student and instr.

391 Senior Seminar (3)
Prerequisite: Permission of dept. Required for all senior French majors.

220 Growth and Structure of the English Language (3)
Prerequisite: English 10 and 12 or equiv. The historical development of the language from its beginnings to the present, concluding with an examination of the English language in America. Some supplementary reading in translation of Old and Middle English literary works.

310 English and German Romanticism (3)
Prerequisite: English 135. Comparative study of prominent romantic writers in English and German literature. Knowledge of German not required.

315 Literary Criticism (3)
Prerequisite: English 135 or 175 or equiv. Historical survey of the principles of literary criticism from Plato to the present.

324 Chaucer and the Middle English Writers (3)
Prerequisite: English 135 or equiv. Course is concerned primarily with Middle English poetry. It surveys the entire period but concentrates on the *Canterbury Tales* in particular. All readings in the original.

328 Medieval Romance and Drama (3)
Prerequisite: English 135 or equiv. A study of representative metrical romances. Also, a reading of selected English drama from its beginnings to 1600.

331 Elizabethan Poetry and Prose (3)
Prerequisite: English 135 or equiv. A survey of non-dramatic literature of the 16th century including Ascham, Elyot, Wyatt, Surrey, Spencer, Daniel, Drayton.

337 Shakespeare and the Elizabethan Dramatists (3)
Prerequisite: English 135 or equiv. Critical reading of the tragedies of William Shakespeare and contemporaries. Special attention to Shakespeare's development as a dramatist and to the intellectual milieu of the plays.

338 Shakespeare and the Elizabethan Dramatists (3)
Prerequisite: English 135 or equiv. Critical reading of the comedies and histories of William Shakespeare. Some selections from his contemporaries. Special attention to Shakespeare's development as a dramatist and to the intellectual milieu of the plays.

344 Seventeeth Century Literature (3)
Prerequisite: English 135 or equiv. Emphasis is on the non-dramatic literature of the 17th century. The prineipal figures are Milton, Donne, Herbert, Marvell, and Dryden, with some attention to Bacon, Burton, Browne, and the Commonwealth prose writers.

346 Seventeeth and Eighteenth Century Drama (3)
Prerequisite: English 135 or equiv. Critical reading of the dramatic literature of the late Renaissance, Restoration, and Post-Restoration periods.

350 Special Readings (1-3)
Prerequisite: 300-level course in area of proposed work and consent of instr. Individual work with conferences adjusted to needs of the student.

354 Eighteenth Century Literature (3)
Prerequisite: English 135 or equiv. Critical reading of selections from Pope, Swift, Addison, Steele, Gray, Johnson, Burke, and others.

363 The English Novel (3)
Prerequisite: English 10 and 12 or equiv. Study of major English novels from the 18th century. The approach is principally analytical with attention to historical development.

370 Prose and Poetry of the Romantic Period (3)
Prerequisite: English 135 or equiv. Critical reading of selections from Blake, Wordsworth, Coleridge, Lamb, Hazlitt, Byron, Shelley, Keats, and others. Also selected 18th century writers serve as background material.

371 Prose and Poetry of the Victorian Period (3)
Prerequisite: English 135 or equiv. Critical reading of selections from Tennyson, Browning, Arnold, Hopkins, and others in addition to selections from the major prose writers.

373 Major American Writers I (3)
Prerequisite: English 10 and 12 or equiv. American literature of the 19th century centering around such figures as Emerson, Hawthorne, Melville, Poe, and Whitman.

374 Major American Writers II (3)
Prerequisite: English 10 and 12 or equiv. American literature of the late 19th and the 20th centuries centering around such figures as James, Dickinson, Crane, Jeffers, Faulkner, and others.

tend at least two-thirds of the sessions, but is not required to participate in any of the work of the course. He receives no credit toward a degree. A student enrolled as a hearer may be dropped from the course when, in the judgment of his teacher and his Dean, his attendance record in the course justifies such action.

Credit For Military Service

Credit may be allowed for many of the service training programs conducted by the various branches of the Armed Forces. The recommendations of the American Council on Education as set forth in *A Guide to the Evaluation of Educational Experiences in the Armed Services* will serve, in general, as a basis for granting such credit. In order to be counted toward a degree the credit granted must be appropriate to the student's curriculum.

REGISTRATION

Former students (not currently enrolled) should file requests for permits to enroll with the Director of Admissions at least 30 days in advance of registration in order to receive their permits before the registration period.

A student who enters after the regular registration period may, because of closed courses, find difficulty in securing the subjects he desires; moreover, he may not be permitted to carry the full amount of work but must enroll for a proportionately reduced amount of work depending on the date of entrance. Ordinarily, no student will receive credit for work in any division of the University after the expiration of one-eighth of the scheduled time. The dates of the regular registration period are shown in the University Calendar.

Students entering the fall semester may pre-register during July and early August. Pre-registration for the winter semester and the summer session is limited to students enrolled during the preceding term.

FEES, EXPENSES, FINANCIAL AID

All University fees must be paid in full at the time of registration. A student who in payment of student fees presents a check to the University which for any reason is not honored by the bank upon which it is drawn will be automatically suspended from the University and will be reinstated only upon payment of the amount of the check and a reinstatement fee of $5.00. The University reserves the right to change fees and other charges at any time without advance notice.

Following is a list of the most common fees:

Incidental Fee

All students enrolled in the University are required to pay an Incidental Fee, Fall 1966, as follows:

Regular Semester
(18 weeks)

Number of Hours Credit	Incidental Fee
10 or more	$140.00

Summer Semester
(8 weeks)

Number of Hours Credit	Incidental Fee
5 or more	$70.00

For any other sessions not specified above and for partial enrollments the Incidental Fee shall be calculated at the rate of $15.00 per credit hour.

Non-Resident Tuition Fee

Tuition is free in all divisions of the University to any student who, at the time of registration for a particular semester or session, is a resident of Missouri and who has been such for not less than one year immediately preceding such registration. The nonresident fee for undergraduate students who are not residents of Missouri is:

Regular Semester
(18 weeks)

Number of Hours Credit	Nonresident Fee
1 to 6	No Fee
7	$ 50.00
8	$100.00
9	$150.00
10 or more	$187.50

JEROME W. GROLLMAN, Assistant Professor
JAMES HAZEN, Assistant Professor
E. B. MURRAY, Assistant Professor
PHYLLIS RICE, Assistant Professor
JANE WILLIAMSON, Assistant Professor

Instructors: David L. Allen, Mary Callanan, Ann Fischer, Gerald O'Gorman, Jane Parks, John D. Schaeffer, Gefald J. Schiffhorst, Gerald Knoll, William F. Whealen

Prerequisites may be waived by consent of the department.

10 Composition (3)
Theory and practice of writing expository prose. English 10 and 12 or the equivalent are prerequisite for all courses in literature and must be taken during freshman year.

12 Literary Types (3)
The student is introduced to all of the various literary types including poetry, drama, fiction, and the essay. This course may be taken concurrently with or preceding English 10 or in the semester immediately following English 10.

50 Narration (3)
Prerequisite: English 10 and 12 or equiv. Theory and practice of writing the short story.

65GH Honors Exposition (3)
Prerequisite: Honors qualification on placement examinations. Expository theory and practice for freshmen. Students who pass English 65GH with a grade of C or better satisfy the English 10 and 12 requirement. Students who pass English 65GH with a B or better receive 3 hours additional credit for a total of 6 hours in composition and literature.

101 Effective Speaking (3)
Prerequisite: soph. standing. Emphasis on effective oral communication, formal and informal. Theories and techniques of argument and persuasion, organization, evidence, delivery.

115 Commercial Writing (3)
Prerequisite: English 10 and 12 or equiv. Emphasis is placed upon news writing, newspaper feature writing, magazine article writing, and book reviewing.

120 Classical Literature in Translation (3)
Prerequisite: English 10 and 12 or equiv. A study of classical literature from Homer through Quintilian, including such major figures as Sophocles, Plato, Aristotle, Cicero, and Vergil.

125 Literature of the Old Testament (3)
Prerequisite: English 10 and 12 or equiv. A comprehensive understanding of the *Old Testament,* its literary background and significance for western civilization.

135 Major British Authors (3)
Prerequisite: English 10 and 12 or equiv. Representative selections from principal English writers from the Old English period to the present.

160 Advanced Expository Writing (3)
Prerequisite: English 10 and 12 or equiv. Emphasis is placed upon developing the critical and analytical capabilities of the writer. Course offers an introduction to research methods.

175 American Literature (3)
Prerequisite: English 10 and 12 or equiv. Representative selections from principal American writers from 17th century to the present.

190 Readings in American Literature (3)
Prerequisite: English 175 and consent of instr. Readings on a topic mutually acceptable to student and instructor.

191 Readings in English Literature (3)
Prerequisite: English 135 or equiv. and consent of instr. Readings on a topic mutually acceptable to student and instructor.

192 Senior Readings (3)
Prerequisite: permission of dept. Required for all senior English majors. Directed readings in an area mutually acceptable to student and instructor.

193 Senior Seminar (3)
Prerequisite: permission of dept. Required for all senior English majors. Directed reading and research, one product of which shall be a formal paper.

268 **The Curriculum and Methods of Teaching Physical Science (3) (Same as Chemistry 180, or Physics 180.)**
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the science courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science.

269 **The Curriculum and Methods of Teaching the Life Sciences (3) (Same as Biology 180.)**
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the science course in the school curriculum with emphasis on the selection and organization of materials and methods on instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science.

271 **Laboratory: Secondary School Teaching (6)**
Prerequisites: Educ. 163 and a major in the subject matter area. Classroom experience and student teaching in the secondary school under University supervision.

310 **Group Intelligence Testing (3)**
Prerequisites: Educ. 102 and Educ. 330 or equiv. A study of the principles of psychometrics and a critical examination of various group tests of ability.

311 **Individual Intelligence Testing (3)**
Prerequisite: Educ. 310 or equiv. Study of the Stanford-Binet Scale and other individual tests of intelligence. Practice in administering and interpreting tests.

313 **The Psychology of Exceptional Children (3)**
Prerequisite: Educ. 102. A study of the special psychological and educational problems of the child who deviates from the normal.

320 **Comparative Education (3)**
Prerequisite: Educ. 125. A comparative study of representative systems of education in South America, Europe, and Asia in contrast with the American system.

322 **The Origin of Modern Education (3)**
Prerequisite: Educ. 125. A study of educational practices and theory from ancient times to present. Emphasizes the historical setting of present-day education.

325 **Teaching Reading in the Elementary School (3)**
Prerequisites: Educ. 131. Objectives of reading instruction and standards of attainment: reading readiness; diagnosis and remedial techniques; the place of reading in the content subject; cultivation of interests in independent reading.

330 **Educational Statistics (3)**
Prerequisite: Educ. 102, 131, or 163. Statistical methods for teachers, supervisors, superintendents and beginning graduate students. Frequency distributions, measures of central tendency, variability, sampling, and correlation.

340 **Selection and Utilization of Audio-Visual Materials in Teaching. (3)**
Prerequisites: Educ. 131 or 163.

350 **Elementary School Curriculum (3)**
Prerequisites: Educ. 131. Survey of modern educational thought with regard to objectives, content, methods in elementary school curriculum.

352 **Secondary School Curriculum. (3)**
Prerequisites: Educ. 163. For secondary school principals, teachers, and superintendents. Sources, scope, and organization of the curriculum, modern trends and methods of investigation.

360 **Principles and Procedures for Student Personnel Work (3)**
Prerequisites: Educ. 251 or 271 or equiv. Student personnel work in educational institutions; objectives of student personnel work, certain pertinent techniques.

362 **Occupational and Educational Information (3)**
Prerequisite: Educ. 360. Nature, use of occupational and educational information. Characteristics, requirements of occupations and training opportunities.

ENGLISH

CHARLES T. DOUGHERTY, Professor
WILLIAM C. HAMLIN, Associate Professor
WILLIAM H. NOLTE, Associate Professor
J. B. CARLSON, Assistant Professor

Summer Session
(8 weeks)

Number of Hours Credit	Nonresident Fee
1 to 3	No Fee
4	$45.00
5 or more	$93.75

Student Union Fee

Each student registered in the University is required to pay a Student Union fee as follows:

For one semester of 18 weeks
(10 or more hours) $10.00
For one term of 8 weeks
(5 or more hours) ..... $ 5.00

For any other sessions not specified above and for partial enrollments the Student Union Fee shall be calculated at the rate of $1.00 per credit hour or fraction thereof.

Student Activities Fee

Each student registered for resident work in the University is required to pay a Student Activities Fee as follows:
For one semester of 18 weeks
(10 or more hours) ..... $ 2.00
For one term of 8 weeks
(5 or more hours) ..... $ 1.00

For any other sessions not specified above and for partial enrollments the Activities Fee shall be calculated at the rate of $.20 per credit hour.

Late Registration Fee

Any student registering after the close of the regular registration period shall pay a late registration fee of $25.00.

Petition Fee

Any student dropping one or more courses, adding one or more courses, and/or adding one or more courses and dropping one or more courses at any one time, shall pay a fee of $5.00.

Motor Vehicle Registration Fee

There will be a registration fee for each motor vehicle used by a student on the campus.

Refund of Fees

Withdrawals	*Refund*
Before the day classwork begins	Full refund less $10 for cost of handling registration
Within two calendar weeks from day classwork begins	70% Refund
After two calendar weeks and including six calendar weeks	50% Refund
After six calendar weeks	No Refund

STUDENT FINANCIAL AID

Financial aid is offered to students enrolled in the University of Missouri at St. Louis in the form of part-time employment, student loans, scholarships, and awards.

Curators Freshman Scholarships

One Curators Scholarship with a cash value equivalent to the incidental fee for two semesters is offered to the graduate of highest scholastic promise in each high school in the City of St. Louis, St. Louis County, Jefferson County, Franklin County, Lincoln County, and St. Charles County. Such students must rank in the top ten percent of their classes and on the statewide test. One additional scholarship may be granted in classes testing more than 100 graduates. These scholarships cannot be re-assigned or transferred to another student in the high school. Eligibility for this scholarship is determined on the basis of class rank and statewide test score. Need is not a factor in this selection. No application is needed; but the card which accompanies the Certificate of Recognition must be returned within 30 days of date issued.

Curators Awards

The Curators Awards also have a cash value equivalent to the incidental fee for the two semesters. Applicants for the Curators Award must meet these requirements:

a. Missouri residence;
b. Graduation from an accredited Missouri high school;
c. Rank in top third of high school graduation class;
d. Rank in top third on Statewide Tests;

155 Physical Education Activities in the Elementary School (2)
Objectives of physical education for elementary school child with applications of choice of activities, organization of program. Theory, practices. (Not for graduate credit).

157 Geography (3) Regions and Nations of the World
Introductory survey of world geography designed for general education. Presents essential characteristics and major problems of Europe, Soviet Union, Orient, Pacific World, Middle East, Africa, Latin America. (Introductory course)

163 Techniques of Secondary School Teaching (2)
Prerequisite: 102 & 125. Activities and interaction of teachers and pupils in development of conditions for learning in secondary schools. Analysis of teaching-learning process and investigation of studies of the teaching art.

170 Secondary School Administration for Teachers (2)
Prerequisite: 102 & 125. Problems of effective methods of school organization and management related to administration, finance, personnel, curriculum, guidance, in-service education, and evaluation.

251 Laboratory: Elementary School Student Teaching (6)
Prerequisite: Educ. 131, 153, 325. Classroom experience and student teaching in the elementary school under University supervision. Individual work and group conferences.

261 The Curriculum and Methods of Teaching Business and Commerce (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the business and commercial courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of business and commerce.

262 The Curriculum and Methods of Teaching English (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the English courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of English.

263 The Curriculum and Methods of Teaching Art (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of art courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of art.

264 The Curriculum and Methods of Teaching Foreign Language (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign language.

265 The Curriculum and Methods of Teaching History and Social Studies (3) (Same as History 296.)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the history and social studies courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is directed toward learning the techniques and research tools of the scholar in the field of history and social studies. May not be counted as a credit for a major in history.

266 The Curriculum and Methods of Teaching Mathematics (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the mathematics courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of mathematics.

267 The Curriculum and Methods of Teaching Music (3)
Prerequisites: Educ. 163 and a near-major in the subject matter. A study of the scope and sequence of the music courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of music.

366 **Econometrics** (3)
Prerequisite: Economics 365. Contin. of Economics 365.

368 **Business Cycles and Forecasting** (3) **(Same as Business Administration 368.)**
Prerequisite: Economics 229. Discussion of factors affecting economic conditions, short-term fluctuations in business activity, and plans and policies for economic stabilization. Emphasis on problems and techniques of forecasting.

389 **Theory of Imperfect Competition** (3)
Prerequisite: Consent of the inst. Theoretical analysis of the influence of market structure on competition.

EDUCATION

ADOLPH UNRUH, Professor
JOY WHITENER, Professor
H. E. MUELLER, Professor
ARTHUR H. HAFNER, Associate Professor
ROBERT W. OSMON, Associate Professor
PATRICK O. COPLEY, Assistant Professor
DEON O. STEVENS, Assistant Professor
SAMUEL M. VINOCUR, Assistant Professor
STEPHEN GRIBBLE, Visiting Professor
ROBERT R. RUSSELL, Academic Advisor

Prerequisites may be waived by consent of the department.

100 **Orientation** (0)
Lectures, and visits to schools. No credit.

102 **Educational Psychology** (3)
Prerequisite: Psy. 1 & 2. An analysis of the application of scientific psychological principles and concepts which underlie education.

110 **Elements of Health Education** (2)
Basic school health for all teachers. Considers health as it relates to the school and the child, and its interrelationship between the two. (Not for graduate credit)

125 **History of American Education** (3)
Prerequisite: American History 3 or 4. A comprehensive study of development of American Education. Stresses American and other educational ideas, educational theory, American school system, and social and intellectual forces affecting American education.

131 **Technique of Elementary School Teaching** (2)
Prerequisite: 102 & 125. Social psychology principles, and current educational practices relating to the organization of teaching materials, teacher-pupil interaction, and the instructional activities of elementary classtoom teacher.

137 **Elementary School Music** (2)
Basic musical preparation for all Education majors. Development of the elementary school music and methods of teaching music to children. Prerequisite: Soph. standing.

139 **Art Activities for Elementary Schools** (3)
A study of art principles and provides laboratory experiences with various media and materials. Stresses curriculum planning and development of the elementary school program in art.

140 **Elementary School Organization & Administration** (2)
Prerequisite: 102 & 125. Major problems of organization and management from viewpoint of teacher in elementary school. Analysis of social factors affecting elementary school, and an examination of the formal and informal organizations in the school as they relate to management.

150 **Children's Literature** (2)
A course designed to provide a knowledge of the various types of children's literature; criteria for selecting and evaluating reading material.

153 **Problems of Teaching Mathematics in Elementary School** (3)
Prerequisite: Math 15. Consideration of the new mathematics, problems of organizing and teaching the new mathematics in the elementary schools.

e. NEED of financial assistance. The applicant is advised to discuss this matter with the counselor or adviser. Application blank must be completed in detail; additional information may be attached.

Curators financial grants, previously limited to the top fifth, are now extended to those in the top third where there is a real need for financial help. Normally the scholarship or award is to be used during the two semesters following high school graduation, except that the time may be extended an additional semester for students whose college entrance is delayed by military service or by participation in a University-sponsored work-study program.

Additional information concerning Curators financial grants may be obtained from the Director of Admissions, University of Missouri at St. Louis.

Eve and Stuart Symington Scholarship Award

This loan and scholarship fund is for Political Science majors.

Normandy Kiwanis Club Scholarship

The Normandy Kiwanis Club awards four scholarships annually to residents of the Normandy School District who enroll in the University of Missouri at St. Louis. One scholarship is awarded to an entering freshman, one to a sophomore, one to a junior, and one to a senior student. The scholarship is renewable at the end of each academic year. Thus, the freshman recipient could, in effect, have a four year scholarship. The recipients are awarded $280.00, one-half payable at the beginning of the fall semester and the other half at the beginning of the winter semester.

St. Louis City Panhellenic Scholarships

Two full expense scholarships are awarded to two high school senior girls who have been accepted by the University of Missouri at St. Louis.

Greater St. Louis Science Fair Scholarship

This scholarship carries a stipend equal to the incidental fees for attendance at the University of Missouri at St. Louis. It will be awarded as a four-year scholarship. The winners of prizes for exhibits in the Greater St. Louis Science Fair who are Missouri residents enrolled as students in Missouri high schools and ranking in the upper one-third of their class may be considered for the scholarships. High school students recommended for these scholarships shall be selected by a Scholarship Board set up by the management of the Greater St. Louis Science Fair organization. The Committee on Scholarships and Loans selects the recipients of the scholarships from those persons recommended to it by the Science Fair Scholarship Board.

The John F. Kennedy Memorial Scholarship

Sponsored by the United Young Democrats of St. Louis County, this scholarship provides $200 toward the payment of incidental fees, is awarded on the basis of scholarship and need. (Open to all students.)

Student Association Scholarships

Sponsored by the Student Association of the University of Missouri at St. Louis, $100 scholarships for payment toward incidental fees are awarded on the basis of scholarship and need. (Open to entering first semester freshmen.)

Student Loans

Loans are available to students under the provisions of the National Defense Education Act. These loans bear no interest while the student is in school, and these loans are made to those with the greatest financial need and the best scholastic standing.

All applications for loans should be filed at least one month in advance of the time assistance is desired. Application forms and further information about loans may be obtained from the Office of Admissions and Records, Room 125, University of Missouri at St. Louis, 8001 Natural Bridge Road, St. Louis, Mo. 63121.

Student Employment

The University employs part-time students as typists, stenographers, mimeograph operators, clerks, and clerks in the library. A number of students are also employed in various jobs in the maintenance department.

The University participates in the on-campus college Work-Study Program under the Economic Opportunity Act of 1964. Up to this time a number of jobs available under this program have gone begging since eligible applicants were not available.

The University can provide employment under the Work-Study Program to a student who:

1. is a national of the United States, or is in the United States for other than a temporary purpose and intends to become a permanent resident thereof, or has his principal actual dwelling place, of a continuing or lasting nature as distinguished from temporary, without regard to his intent, in the trust territory of the Pacific Islands;
2. is from a low income family;
3. is in need of earnings from such employment in order to pursue a course of study at such institution;
4. is capable, in the opinion of the institution, of maintaining good standing in such course of study while employed under the program covered by the agreement;
5. has been accepted for enrollment as a full-time student at the institution, or in the case of a student already enrolled and attending the institution, is in good standing and in full-time attendance there either as an undergraduate, graduate, or professional student.

A student cannot be employed under the Work-Study Program for more than 15 hours in any week in which classes in which he is enrolled are in session.

Additional information concerning the Work-Study Program may be obtained from the Director of Admissions.

317 Public Finance: State and Local (3)
Prerequisite: Economics 51. A study of expenditures, taxation and financial administration of state and local governments, with emphasis on problems of current interest. Special attention given to research methods, as well as financial relations between various levels of government.

320 Macroeconomics (3)
Prerequisite: Economics 51. Study of national income, expenditure and the forces determining the level of economic activity. Special emphasis on the theory of income determination and its application to public policy.

321 Theory of Economic Policy (3)
Prerequisite: Economics 320. The impact of Federal Reserve monetary policy on the level of economic activity. Effects of government fiscal policy, regulation, debt management and wage-price guidelines on the national economy.

328 Financial Markets Analysis (3)
Prerequisite: Economics 229. Structure and operation of the money and capital markets. Analysis of demand and supply of loanable funds and the institutions comprising the financial markets.

330 International Economic Theory and Analysis (3)
Prerequisite: Economics 51. The pure theory of international trade, the theory of commercial policy, the balance of payments and monetary standards, and the theory of economic integration.

331 The International Economy (3)
Prerequisite: Economics 51 or consent of instr. Balance of payments adjustment; income, expenditures and imports; capital transfers; fixed vs. flexible exchange rates. Discussion of current problems of commercial policy, attempts at regional economic integration, and significant historical trends in international economic relations.

338 Comparative Economic Systems (3)
Prerequisite: Economics 51. A study of alternative forms of economic organization. Analysis of Capitalism, Socialism and Fascism both in theory and in their implementation in selected countries.

340 Theory of Economic Growth (3)
Prerequisite: Economics 51. Analysis of factors affecting the economic growth of a nation: labor, capital and technology. Discussion of formal growth models as well as policy implications. Focus on the advanced nations of the world.

341 Economic Development: Problems and Policies (3)
Prerequisite: Economics 340, or Economics 51. and consent of the instr. Application of the theory of economic growth to developing countries. Emphasis on problems of capital formation, education, and economic relations with other countries.

350 Special Readings (cr. arr.)
Prerequisite: Consent of instr. Unscheduled, independent directed readings on topics mutually acceptable to student and instructor. Taught by all staff.

351 Intermediate Economic Theory (3)
Prerequisite: Economics 51 and Math. 80. Analysis of prices in terms of equilibrium of the business firm and consumer demand in markets of varying degrees of competition. Determination of wages, rents, interest and profit.

355 Business and Government (3)
Prerequisite: Economics 51. Relations between business firms and government at all levels. Questions of regulation, public ownership, guidelines and competition considered.

360 Managerial Economics (3) (Same as Business Administration 360.)
Prerequisite: Economics 51. Application of economic theory to decision-making in the business firm. Discussion of price and output determination under various business conditions, as well as factors affecting wage, interest and profit.

363 Labor Economics (3)
Prerequisite: Economics 51. Forms of labor organization, state and federal labor legislation, and policies and practices of labor unions. Emphasis on an application of economic theory to the relations of labor and business.

365 Economic Statistics and Econometrics (3)
Prerequisite: Economics 51 and Statistics 31. Application of statistical techniques to economic research problems.

361 **Advanced Organic Chemistry** (3)
Prerequisite: Chemistry 262. Presents advanced material in organic reactions, natural products, and synthetic methods. 3 hrs. lect. per week.

363 **Advanced Organic Synthesis** (2)
Prerequisite: Chemistry 264. 1 hr. lect. and 7 hrs. lab. per week.

366 **Physical Organic Chemistry** (3)
Prerequisites: Chemistry 262 and 232 (Chemistry 232 may be taken concurrently). Theory of organic chemistry, conformational analysis, reaction mechanisms, tautomerism, and other advanced topics. 3 hrs. lect. per week.

371 **Advanced Biochemistry** (3)
Prerequisites: Chemistry 272. Selected advanced topics in the chemistry of life processes. 3 hrs. lect. per week.

381 **Special Topics** (3)
Prerequisite: permission of instr. A reading and seminar course in selected advanced topics. 3 hrs. lect. per week.

ECONOMICS

DAVID E. EMERY, Assistant Professor
JOHN HAND, Assistant Professor
KERN O. KYMN, Assistant Professor
DONALD A. MURRY, Assistant Professor
INGO WALTER, Assistant Professor
WILLIAM E. MITCHELL, Assistant Professor
KENNETH F. WIEAND, Instructor (part-time)
JOHN B. MOORE, Visiting Professor (part-time)

Prerequisites may be waived by consent of instructor.

50 **Principles of Economics I** (3)
Prerequisite: Math. 10 or Math. 15 or 1½ high school units in algebra. Introduction to the subject of economics, with emphasis on the operation of the national economy, money and banking, and international economic relations.

51 **Principles of Economics II** (3)
Prerequisite: Economics 50. Continuation of Economics 50, with emphasis on the theory of the firm, price determination and resource allocation.

229 **Money and Banking** (3)
Prerequisite: Economics 51. Introduction to monetary theory. Influence of the money supply and the role of financial institutions. Analysis of monetary policy as an instrument for achieving national economic objectives.

270 **Urban and Regional Economics** (3)
Prerequisite: Economics 51. The economics of location, population growth and transportation systems, with special emphasis on the urban region.

280 **History of Economic Thought** (3)
Prerequisite: Economics 51. The evolution of economic thought from the Ancients through post-Keynesian theory.

290 **Readings in Economics** (3)
Prerequisite: Economics 51. Readings on topics mutually acceptable to the students and the instructor.

291 **Senior Seminar in Economics** (3)
Prerequisite: Economics 51, 290 and senior standing. Seminar for economics majors in which the senior paper will be written. Directed research, writing, and presentation of findings.

316 **Public Finance: Federal** (3)
Prerequisite: Economics 51. The nature and scope of public finance. Analysis of expenditure, revenue, and financial administration of the federal government, with emphasis on current problems.

STUDENT AFFAIRS

The philosophy of student activities is simply an extension of the educational philosophy of the University of Missouri at St. Louis. All activities are measured by the manner in which they promote the growth of responsibility in students.

Student Government

All students enrolled at the University are members of the Student Association, the governing body of which is the Senate. The executive board is composed of a president, vice-president, secretary and treasurer; the president presides over the Senate. As the representative body of the students, the Senate charters all nonacademic organizations on campus.

Elections are held twice each academic year. In the spring, sophomore and upper class senators and the executive board members are elected for the following academic year. Freshman senators are elected during the early weeks of the fall semester. Representation on the Senate is determined by academic class (freshman, sophomore, etc.) and is proportional. As the student body of the St. Louis campus grows the proportion of representation changes.

Student Activities

The University of Missouri at St. Louis offers a wide range of activities. In addition to an intramural program, the basketball team, which is a member of the Greater St. Louis College Conference, and the wrestling team provide opportunities for the sports-minded.

Each year the Senate sponsors a series of dances, climaxed in the spring by the Inaugural Ball, when the new officers of the Student Association are installed. The Student Association also sponsors the Purple Onion, which provides an opportunity for students to perform in a night club setting. The Lecture and Concert Series at the University, which brings outstanding speakers, musicians and orchestral groups to the campus, is also supported by the S. A.

There is a growing number of subject matter clubs on campus, such as Business and Philosophy. Students who do not find an organization of their preference may form their own by drafting a constitution and petitioning the Senate for recognition. Once recognized, an organization becomes eligible for inclusion in the Student Association budget. All money in the S. A. treasury comes from the students' $2 per semester activity fee and a cash refund from the Book Store.

The Newspaper

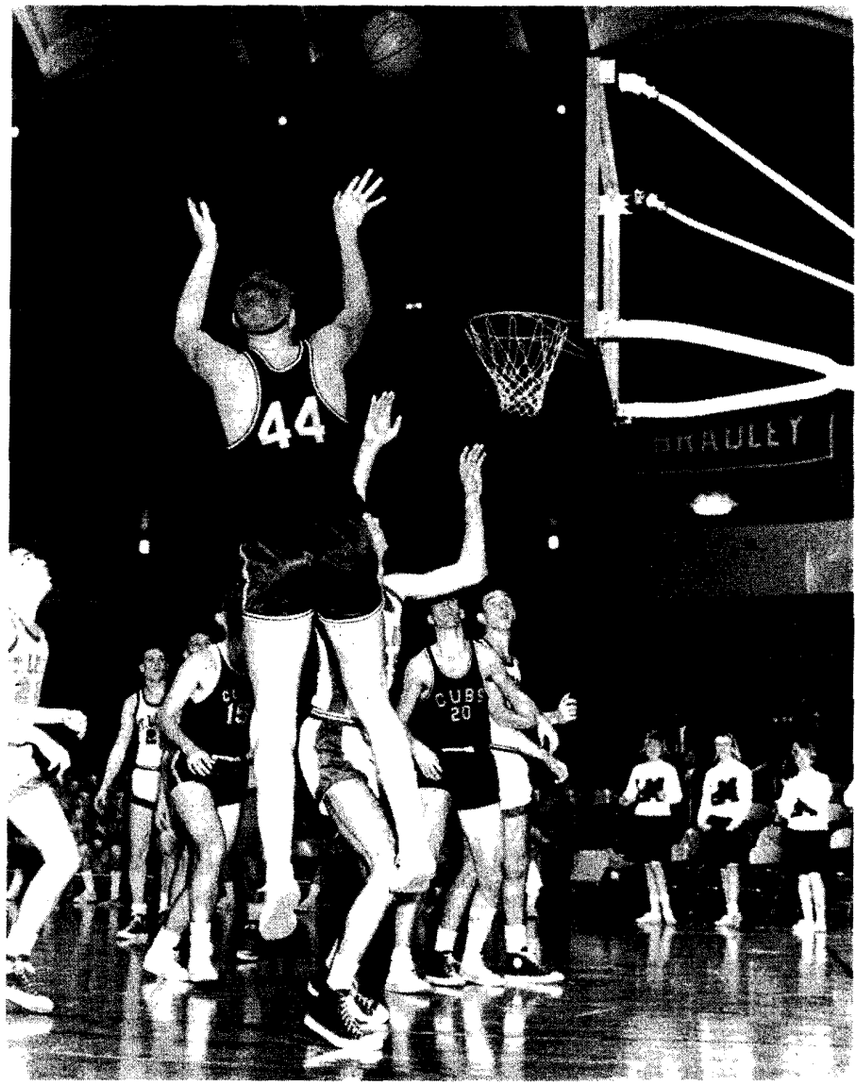
Students interested in journalism can test their abilities by writing for the student newspaper. The newspaper is tabloid size and published bi-weekly during the school year. All stages of production except the actual printing, from layout to photography, headline writing to art work, are handled by the students.

The Yearbook

The Landmark is the yearbook of the University of Missouri at St. Louis. Students with past yearbook experience, or those who simply have an interest in publication, are invited to join the Landmark staff.

Student Court

The Student Court provides an excellent opportunity for student self-government. It hears and passes judgment on all discipline cases which are non-academic. It is composed of five members: a chief justice and four associate justices. They are appointed by the Student Association president, with the consent of the Senate.



12 **Qualitative Analysis (5)**
Prerequisite: Chemistry 11, or advanced placement. A study of the chemistry of electrolytic solutions and the principles of chemical equilibrium. Laboratory work deals with the descriptive chemistry and identification of common ionic species. 3 hrs. lect. and 3½ hrs. lab. per week.

180 **Methods of Teaching Chemistry in Secondary Schools (3) (Same as Education 268).**

222 **Quantitative Analysis (5).**
Prerequisite: Chemistry 12. Principles and practice of gravimetric, volumetric, and instrumental quantitative analytical methods. 2 hrs. lect. and 7 hrs. lab. per week.

231 **Physical Chemistry I (3)**
Prerequisites: Chemistry 261 and Physics 12. Principles of physical chemistry including thermodynamics, theory of gases, phase equilibria, kinetics, crystal structure, spectroscopy, and quantum mechanics. 3 hrs. lect. per week.

232 **Physical Chemistry II (3)**
Prerequisites: Chemistry 231. Contin. of Chemistry 231. 3 hrs. lect. per week.

233 **Laboratory in Physical Chemistry I (2)**
Prerequisite: Must be preceded or accompanied by Chemistry 231. 1 hr. lect. and 7 hrs. lab. per week.

234 **Laboratory in Physical Chemistry II (2)**
Prerequisite: Chemistry 233, must be preceded or accompanied by Chemistry 232. 1 hr. lect. and 7 hrs. lab. per week.

261 **Structural Organic Chemistry (3)**
Prerequisite: Chemistry 12. Systematic presentation of structural concepts in aliphatic and aromatic systems. 3 hrs. lect. per week.

262 **Organic Reactions (3)**
Prerequisite: Chemistry 261. A systematic study of organic reactions and reaction mechanisms; synthetic organic methods. 3 hrs. lect. per week.

263 **Techniques of Organic Chemistry (2)**
Prerequisite: Must be preceded or accompanied by Chemistry 261. 1 hr. lect. and 7 hrs. lab. per week.

264 **Synthetic and Analytical Methods of Organic Chemistry (2)**
Prerequisite: Chemistry 263, must be preceded or accompanied by Chemistry 262. 1 hr. lect. and 7 hrs. lab. per week.

272 **Biochemistry (3)**
Prerequisite: Chemistry 263. The isolation, chemical characterization, and function of the structural and catalytic components of living cells and subcellular particles. 3 hrs. lect. per week.

289 **Seminar (1)**
All chemistry majors must enroll as hearers in Chemistry 289 during both semesters of their junior year; all chemistry majors must take Chemistry 289 for credit during both semesters of their senior year. Presentation of selected papers by students, faculty members, and invited speakers, at weekly departmental meetings.

290 **Research (cr. arr.)**
Prerequisite: permission of instr.

324 **Instrumental Analysis (3)**
Prerequisite: Chemistry 222, 234. Modern instrumental methods including nuclear magnetic resonance, polarimetry, refractometry, spectrophotometry, X-ray diffraction, and others. 2 hrs. lect. and 3½ hrs. lab. per week.

325 **Qualitative Organic Analysis (3)**
Prerequisite: Chemistry 264. Laboratory and instrumental methods for the systematic identification of organic compounds. 1 hr. lect. and 7 hrs. lab. per week.

333 **Thermodynamics (3)**
Prerequisite: Chemistry 232. Derivation and development of the fundamental relationships of thermodynamics and their application. 3 hrs. lect. per week.

341 **Advanced Inorganic Chemistry (3)**
Prerequisite: Chemistry 232 (may be taken concurrently). A systematic study of the behavior and reactions of the elements; emphasis on correlation of chemical properties with theoretical concepts. 3 hrs. lect. per week.

352 **Nuclear Chemistry (3)**
Prerequisite: Chemistry 232. Properties of radioactive nuclei, nature of radioactivity, nuclear reactions, and applications of nucleonics to chemistry. 3 hrs. lect. per week.

veloped in Finance 204. Special emphasis is given to the development of top management policies and their application toward complex problems of finance. Techniques for identifying and dealing with these problems before they become acute will be investigated. Cases will be integrated with appropriate outside reading.

360 **Managerial Economics** (3) **(Same as Economics 360)**
Prerequisite: Economics 51. Application of economic theory to decision-making in the business firm. Discussion of price and output determination under various business conditions, as well as factors affecting wage, interest and profit.

368 **Business Fluctuations and Forecasting** (3) **(Same as Economics 368)**
Prerequisite: Economics 299. Discussion of factors affecting economic conditions, short-term fluctuations in business activity, and plans and policies for economics stabilization. Emphasis on problems and techniques of forecasting aggregate and industry demand.

370 **Organization Theory and Structure** (3)
Prerequisite: Personnel Management 310. Organizational structure, executive behavior and their inter-relationships are examined. Focus is on the emerging research relevant to the behavior of people in organization structures and the role of administrators in recognizing, modifying and interacting within such structures.

375 **Operations Research** (3)
Prerequisites: Statistics 31, Calculus 80 and jr. standing. Development of optimum methods and models for management control and decision-making. Based on newer methods of quantitative and statistical analysis and mathematical programming.

391 **Business Policy and Administration** (3)
Prerequisite: Sr. standing, Marketing 106 and Finance 204 and Management 310. Comprehensive cases are used to examine the dynamics of business management. The role of high echelon management in the administrative process is integrated with the diverse functions of business to develop an operational system. Particular attention is given the formulation of a policy framework, planning and implementing executive action. Both team and individual analyses and reports are utilized with class evaluation and recommendations.

CHEMISTRY

CHARLES W. ARMBRUSTER, Associate Professor
DAVID W. LARSEN, Associate Professor
THOMAS L. WESTMAN, Associate Professor
ALAN F. BERNDT, Assistant Professor
JOSEPH FEDER, Assistant Professor
MARCEL L. HALBERSTADT, Assistant Professor
JANE A. MILLER, Assistant Professor
ROBERT I. STEARNS, Assistant Professor
STUART W. WEIDMAN, Assistant Professor

Laboratory Instructors: Jon Benedicktus, Gary R. Bernstein, Donald Bounds, Edward Bovier, David Henton, Thomas Jenkins, Robert Levy, Kenneth Mares, Karlis Muehlenbachs, Said Ibrahim Raziq, Patricia Skewes, Edward G. Weltin, Jr., Alex Wolberg, Eric Zaetsch.

Prerequisites may be waived by consent of the department.

1 **General Chemistry** (3)
Presents a survey of inorganic, analytical, physical and organic chemistry for students not majoring in science. 3 hrs. lect. per week.

3 **General Chemistry Laboratory** (2)
Prerequisite: Must be accompanied, or preceded, by Chemistry 1. Experiments designed to illustrate topics treated in Chemistry 1. 3½ hrs. lab. per week.

11 **Introductory Chemistry** (5)
Prerequisite: Math. 10 (may be taken concurrently). Presents an introduction to chemical principles. Required for all students majoring in science. 3 hrs. lect. and 1 hr. discussion per week, 3½ hrs. lab. biweekly.

SPECIAL PROGRAMS

HONORS PROGRAM

All students who maintain a grade average of "B" or higher and entering freshmen who ranked in the upper 15 per cent of their high school classes and the upper 15 per cent on the Freshman Placement Tests are eligible to enroll in honors courses.

A high school senior may enroll in a college course for credit with the approval and recommendation of his principal. This credit may be applied as advanced standing after the student has been admitted to the University of Missouri at St. Louis.

THE EVENING PROGRAM

The Evening Program of the University of Missouri at St. Louis offers four well-defined areas of service to the students of the metropolitan St. Louis area:

1. A regular degree granting program in education, history, English, mathematics and business. The same general policies in effect for the Day Program are applicable to the Evening Program. For admission policies see Page 11. Those people who find it necessary to work in the daytime may earn a degree by enrolling in the program.
2. Graduate level courses leading to a Master's Degree in Education offered in cooperation with the Graduate School of the University of Missouri, Columbia.
3. Courses which will meet teacher certification requirements within the the state of Missouri.
4. Courses that carry college credit and can be taken by anyone not working toward a degree.

COOPERATIVE GRADUATE PROGRAM WITH THE UNIVERSITY OF MISSOURI, COLUMBIA

Graduate work leading toward a master's degree in the field of education has been established on the campus of the University of Missouri at St. Louis in cooperation with the College of Education at the University of Missouri, Columbia.

Students are admitted through the office of the Director of Admissions in Columbia. However, application for admission forms may be obtained from:

Director of Admissions
University of Missouri at St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63121

Additional information about the graduate program or courses being offered may be obtained from:

Dr. Adolph Unruh
Chairman, Division of Education
University of Missouri at St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63121

Dr. H. W. Schooling
Dean, College of Education
University of Missouri
Columbia, Missouri

COMMUNITY AND METROPOLITAN STUDIES

Teaching. The Center for Community and Metropolitan Studies seeks to provide assistance in identifying the formal and informal educational needs of the metropolitan area and to assist those who design, teach and evaluate both formal credit and informal noncredit educational programs.

Formal credit education is planned to stimulate the development of courses within the various departments and experiment with interdisciplinary courses which will provide an introduction to community and metropolitan studies for the general undergraduate student.

Academic research provides research experience and opportunities for both students and faculty, thus an increased knowledge of the subject area and of research methodology. It promotes cooperation and exchange of information on research and education programs in community and metropolitan problems with the other institutions of higher education.

Informal non-credit education provides, in cooperation with the Extension Division, short courses and workshops for public officials, representatives of commerce and industry and other interested citizens. Through publications and through cooperation with community service organizations, it provides information and stimulates discussion of community and metropolitan problems.

Research: The Center seeks to stimulate and encourage basic and applied research in the problems of local communities and the metropolitan area.

Basic research provides new information and contributes to theory development in the various disciplines. This research is expected to result in publication in scholarly journals and to provide assistance in developing and improving the curriculum for a degree program in community and metropolitan studies.

Applied research develops practical experience and information for use in the classroom and for assisting in the solution of immediate community and metropolitan problems. The Center cooperates with the Extension Division in providing assistance for local governments through applied research programs. This research also provides assistance in developing non-credit short courses and workshops for public officials and citizens and is expected to result in publication for local information and action.

tions, negotiable instruments, bailment, personal and real property, bankruptcy and receivership. Includes a survey of Federal regulatory legislation to motivate and preserve competition and to protect the public.

270 Advertising (3)
Prerequisite: Principles of Marketing 106. Topics included are the advertising agency and media, use and expedience analysis, consumer motivation and appeal evaluation, measuring advertising effectiveness and the social and legal aspects of advertising.

275 Marketing Research (3)
Prerequisite: Principles of Marketing 106. Techniques of gathering and analyzing data for marketing decisions. Identification of fundamental problems including geographic, demographic and psychographic market segmentation. Methods of sampling, quantification and statistical analysis are developed as a means of contributing to decisions in pricing, advertising, packaging, product development, consumer motivation and other complex marketing problems.

302 Managerial Accounting (3)
Prerequisite: Accounting 37 and Economics 51. Development and interpretation of accounting data for administrative economic decisions. Accounting techniques to control costs, protect assets and analyze revenues and profits are among the topics included.

308 Production Management (3)
Prerequisite: Industrial Management 202. Integration of principles of management and economics to develop analytical approaches to production management. Role of production management philosophy explored.

310 Personnel Management (3)
Prerequisite: Economics 51. Consideration of problems in staffing, developing and motivating personnel in a work setting. Topics include organization for personnel management, group behavior, individual differences, resistance to change and other problems encountered in developing and maintaining an effective work force.

312 Industrial and Labor Relations (3)
Prerequisite: Personnel Management 310. Emphasis on labor unions and their relationship with management. Labor laws, trade union structure and government, collective bargaining, arbitration and grievance procedures are studied.

315 Marketing Management (3)
Prerequisite: Marketing Principles 106. An extension in depth of the investigation of marketing solutions to complex problems of merchandising, channel selection, brand policy, price policy, sales promotion, advertising and personal selling.

321 Cost Accounting (3)
Prerequisite: Managerial Accounting 302 or Intermediate Accounting 217 or consent of dept. Emphasizes use of accounting techniques to promote efficiency by tracing costs to personnel, processes and products. Different systems analyzed to understand their strength, weaknesses and applications.

322 Advanced Accounting (3)
Prerequisite: Intermediate Accounting 217. Study of consolidated statements, governmental accounts, accounting for foreign exchange and other special topics.

323 Accounting: Income Taxes (3)
Prerequisite: Accounting 217 or Accounting 302. Problems in computing taxable income, under existing federal and state laws, for individuals, proprietors, partners and corporations. Includes the preparation of returns and important topics in income exclusions, exemptions, personal and business deductions, tax credits and other subjects.

331 Auditing (3)
Prerequisite: Intermediate Accounting 217. Fundamental audit techniques for verification, analysis and interpretation of accounting records and financial statements. Includes developing audit evidence, working papers and audit reports. Standards of professional competence, ethics and independence are examined.

334 Investments (3)
Prerequisite: Corporate Finance 204. Financial analysis of debt and equity instruments available on organized exchanges and in less tangible "over the counter markets." Techniques of such analysis being presented in context with economic and management circumstances within the company, industry and economy.

350 Financial Policies (3)
Prerequisites: Corporate Finance 204. The intensification and application of the concepts de-

334 Analysis of Invertebrate Development (3)
Prerequisite: Biology 235. An experimental approach to the study of the factors governing growth, development, and reproduction of invertebrates. 3 hrs. lect. per week.

336 Analysis of Invertebrate Development Laboratory (2)
Prerequisite: Biology 334 (may be taken concurrently). Instrumentation and experimental studies in invertebrate development. 3½ hrs. lab. per week.

350 Analysis of Plant Development (3)
Prerequisite: Biology 255. An experimental approach to the study of the factors governing growth, development, and reproduction in plants. 3 hrs. lect. per week.

352 Analysis of Plant Development Laboratory (2)
Prerequisite: Biology 350 (may be taken concurrently). Instrumentation and experimental studies in plant development. 3½ hrs. lab. per week.

BUSINESS ADMINISTRATION

EDWIN J. GROSS, Associate Professor
WILLIAM SAIGH, Associate Professor
GEORGE WITTERIED, Associate Professor
JACK BARNHILL, Assistant Professor
VINCENT D'ANTONI, Assistant Professor
DONALD DRIEMEIER, Assistant Professor
EDWARD HOPPER, Assistant Professor
ROBERT A. SCHUCHARDT, Assistant Professor
EMERY C. TURNER, Assistant Professor
DAVID GANZ, Instructor
BARRY LEVINE, Instructor

Prerequisites may be waived by consent of the department.

31 Elementary Statistics (3)
Prerequisites: Soph. standing and Math. 10. Introduction to descriptive statistics including collection, organization, and presentation of data; averages; dispersion. Introduction to statistical inference, probability, index numbers, time series, correlation.

36 Elementary Accounting I (3)
Prerequisite: Soph. standing. Includes rules of bookkeeping, the accounting cycle, generally accepted accounting principles, financial statement preparation and analysis, and problems of income computation and asset valuation.

37 Elementary Accounting II (3)
Prerequisite: Accounting 36 or equiv. Contin. of study of generally accepted accounting principles. Accounting problems and techniques for partnerships, corporations, and manufacturing endeavors are emphasized.

106 Principles of Marketing (3)
Prerequisite: Accounting 37, Economics 51. Study of marketing institutions and marketing functions. A development of the implications and interrelationship of product policy, pricing, distribution channels, demand analysis and selling strategy.

202 Industrial Management (3)
Prerequisite: Accounting 37, Economics 51. Principles of industrial organization and management; their application to production, personnel and materials.

204 Corporate Finance (3)
Prerequisite: Economics 51, Accounting 37. The study of a firm's need for funds; the institutions, instruments, and markets concerned with raising such funds; and the techniques of analysis used to determine how effectively these funds, once raised, are invested within the firm.

217 Intermediate Accounting (3)
Prerequisite: Accounting 37. Study of accounting theory in depth with emphasis on financial accounting.

256 Business Law (3)
Prerequisite: Accounting 37, Economics 51. Introduction to legal instruments and statutes centering on such things as contracts, agencies, partnerships, unincorporated organizations, corpora-

The program is designed to develop proposals on research projects and education programs for submission, through University channels, to foundations, governmental agencies, commerce, and industry for the financial support necessary to carry out the program of the Center.

Collection, compilation and storing of data related to social, economic, political and other aspects of community and metropolitan problems are also functions of the Center.

Community Service: The Center, through all of the programs described above, seeks to make the research and educational facilities of the University available to civic groups, commercial and industrial enterprises and governments to assist them in working with the problems of a metropolitan society.

PRE-LAW PROGRAM

Consultations with various law schools indicate that their primary concern is that students presenting themselves for admission have a broad educational background which emphasizes the development "of basic skills and insights through education for comprehension and expression in words, for critical understanding of the human institutions and values with which the law deals, and for creative power in thinking."

Although the general pattern is for pre-law students to major in history, political science, or business, there is no one single program of study that is required to the exclusion of all others because law touches so many aspects of life that there is scarcely any subject which is not of some value to the law student. Since the basic need is for the stimulation of the student's intellectual development this is best achieved by allowing the student to pursue those fields of knowledge in which his interests and abilities lie.

Since the University of Missouri at St. Louis requires a broad education of all of its undergraduates, many of the courses recommended for pre-law students (basic courses in mathematics, history, psychology, sociology, economics and political science) can be taken as part of the General Education Requirements. In addition to these, however, it is strongly recommended that the pre-law student also take, either as part of his major or as electives, such courses as accounting (6 hours), corporate finance, English and American history (especially constitutional history), American political thought, public administration, logic and at least one English composition course beyond the freshman level.

PRE-MEDICAL SCIENCES PROGRAM

The University of Missouri at St. Louis does not award an A.B. degree with a major in pre-medical sciences. Students desiring to enter medical schools, dental schools, or schools of veterinary medicine should pursue A.B. degrees with majors in the discipline of their choice, but they should elect to take whatever additional courses may be necessary for admission.

Admission requirements vary, and students are cautioned to consult the catalogs of the institutions to which they expect to apply. Chemistry, biology,

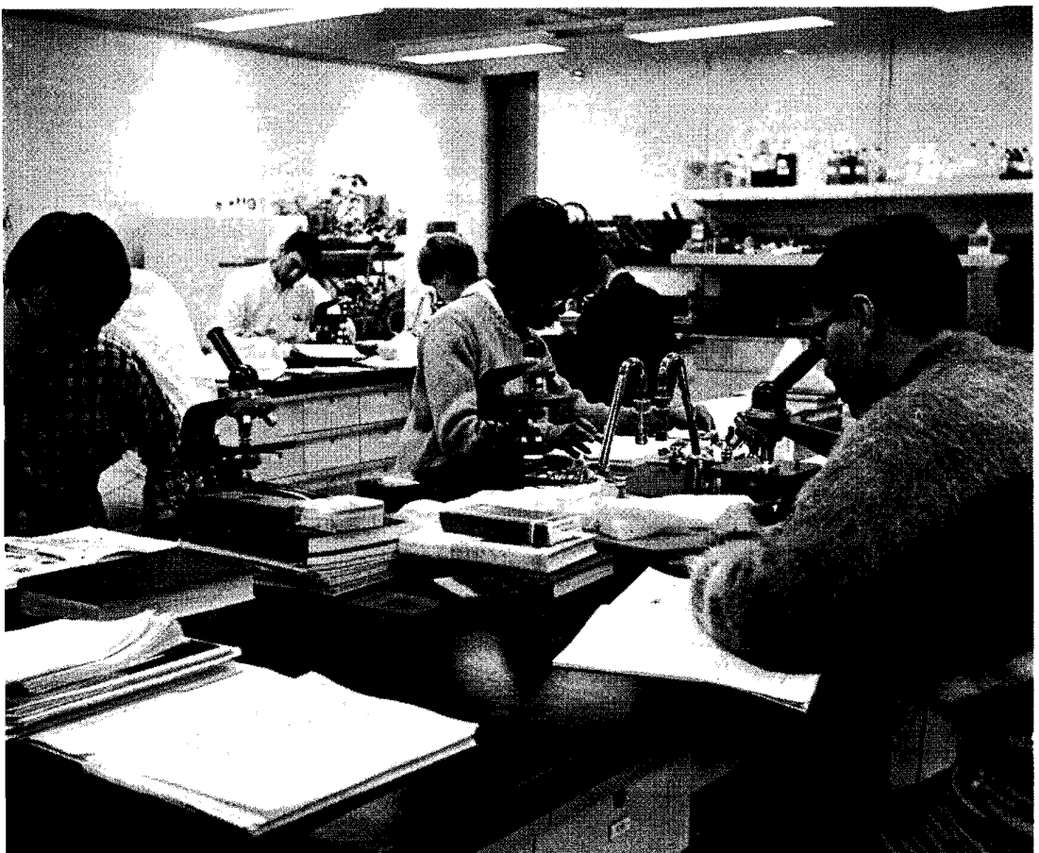
or psychology are recommended major disciplines for students interested in the healing arts. An A.B. degree, regardless of major, will usually meet the admission requirements of medical schools if the curriculum is chosen to include:

Chemistry 11, 12, 222, 261, 262, and 263 (Total 23 hours)
Physics 1, 2, and 3 (Total 8 hours)
Biology 11, 12, and 202 (Total 15 hours)

In addition to the courses specified above, the following courses are strongly recommended to all pre-medical students:

Chemistry 264 and 272
Biology 213, 224, 226 and 235
Psychology 1 and 2

Since students will normally apply to professional schools during their junior year, and since admission to professional schools will not be confirmed until after successful completion of the science requirements for admission, students are encouraged to fulfill this requirement before the end of their junior year. In order to complete the requirement by this time pre-medical students will normally take Chemistry 11 and 12 and Biology 11 and 12 during their freshman year.



11 Introductory Biology I (5)
Prerequisite: Chemistry 11 (may be taken concurrently). Biology 11/12 provides a two-semester sequence giving intensive introduction to the general properties of living systems, both plant and animal. 3 hrs. lect. & 3½ hrs. lab. per week.

12 Introductory Biology II (5)
Contin. of Biology 11. Prerequisite: Biology 11. 3 hrs. lect. and 3½ hrs. lab.

180 Methods of Teaching Biology in Secondary Schools (3) (Same as Education 269).

202 Comparative Vertebrate Anatomy (5)
Prerequisite: Biology 12. A comparative study of the organ systems of the different classes of vertebrates, with special reference to evolution and adaptation. 2 hrs. lect. & 7 hrs. lab. per week.

213 General Physiology (5)
Prerequisite: Chemistry 261 (may be taken concurrently), Biology 12. The basic functional aspects of organ systems in relation to the physicochemical properties of protoplasm. 3 hrs. lect., & 3½ hrs. lab. per week.

224 Genetics (3)
Prerequisite: Biology 213. The fundamental principles of inheritance, including classical genetic theory as well as recent advances in the molecular basis of heredity. 3 hrs. lect. per week.

226 Genetics Laboratory (2)
Prerequisite: Biology 224, (may be taken concurrently with Biology 224.) Laboratory to accompany Biology 224. 3½ hrs. lab. per week.

235 Animal Development (5)
Prerequisite: Biology 224. Anatomical and physiological aspects of the embryonic development of animals. 3 hrs. lect. & 3½ hrs. lab. per week.

246 Evolution (3)
Prerequisite: Biology 235 or 255. The course and mechanisms of organic evolution. 3 hr. lect. per week.

255 Plant Development (5)
Prerequisite: Biology 224. Anatomical and physiological aspects of the embryonic development of plants. 3 hrs. lect. & 3½ hrs. lab. per week.

289 Seminar (1)
All biology majors must enroll as hearers in Biology 289 during both semesters of their junior year; all biology majors must take Biology 289 for credit during both semesters of their senior year. Presentation of selected papers by students and faculty members at weekly departmental meetings.

290 Research (cr. arr.)

310 Cellular Biology (3)
Prerequisite: Biology 213. Cellular metabolism and structure. 3 hrs. lect. per week.

312 Cellular Biology Laboratory (2)
Prerequisite: Biology 310 (may be taken concurrently). Instrumentation and experimental techniques in cellular biology. 3½ hrs. lab. per week.

313 Comparative Animal Physiology (3)
Prerequisite: Biology 213. The evolutionary relationships of animals considered in terms of physiological and biochemical characteristics. 3 hrs. lect. per week.

315 Comparative Animal Physiology Laboratory (2)
Prerequisite: Biology 313 (may be taken concurrently). Analysis of physiological processes and their adaptive significance in specific environments. 3½ hrs. lab. per week.

321 Advanced Genetics (3)
Prerequisite: Biology 224. Selected topics in genetic theory.

323 Advanced Genetics Laboratory (2)
Prerequisite: Biology 321 (may be taken concurrently). Instrumentation and experimental studies in genetic analysis.

330 Analysis of Vertebrate Development (3)
Prerequisite: Biology 235. An experimental approach to the study of the factors governing growth, development, and reproduction of vertebrates. 3 hrs. lect. per week.

332 Analysis of Vertebrate Development Laboratory (2)
Prerequisite: Biology 330 (may be taken concurrently). Instrumentation and experimental studies in vertebrate development. 3½ hrs. lab. per week.

340 Modern Art (3)
Prerequisite: Art 1 or consent of dept. The sources of the modern movement in the 19th century beginning with Neo-Classicism and Romanticism, the subsequent development of Impressionism and Post-Impressionism, and finally the 20th century with Cubism, Expressionism, and Abstract Art.

ASTRONOMY

NORBERT ROUGHTON
CHARLES MARTIN

The following courses will meet at McDonnell Planetarium. Astronomy 1 and 2, together with Biology 1, will satisfy the General Education Requirement in Science. Astronomy 1, together with Biology 1 and 3, will also satisfy the General Education Requirement in Science. Astronomy 11 and 12 will satisfy the entire General Education Requirement in Science.

Prerequisites may be waived by consent of the department.

1 **General Astronomy (3)**
Prerequisite: Three years of high school mathematics and one year of high school physics or chemistry. The first half of a terminal course for non-science majors, with emphasis on the historical and cultural aspects of astronomy. Three class hours per week, plus observing periods to be arranged.

2 **General Astronomy (3)**
Prerequisite: Astronomy 1. Contin. of Astronomy 1.

11 **Introduction to Astronomy (3)**
Prerequisite: Math. 175, and Physics 12 or Chemistry 12. Introduction to modern concepts of the physical nature of the astronomical universe. Topics include instruments, stars, sun, nebulae, star clusters, galaxies, and various objects that make up the solar system, and their motion. Designed to allow a student to continue the study of astronomy. 3 hours plus observing sessions to be arranged.

12 **Introduction to Astronomy (3)**
Prerequisite: Astronomy 11. Contin. of Astronomy 11.

BIOLOGY

LAWRENCE D. FRIEDMAN, Associate Professor
R. GEORGE BABCOCK, Assistant Professor
JAMES F. HEISINGER, Assistant Professor
RICHARD F. TOMBAUGH, Visiting Assistant Professor of Biology
MURIEL B. BABCOCK, Instructor in Biology
ROBERT K. ROSE, Instructor in Biology
Laboratory Instructors: Thomas Cooper, Gerald L. Kropp, Joan M. O'Neill

Prerequisites may be waived by consent of the department.

1 **General Biology (3)**
Emphasis on fundamental principles of biology. Biology 1 can be applied toward fulfillment of the General Education requirement in science. Biology 1 does not satisfy the prerequisite requirements of other courses in biology. Students who plan to pursue a career in medicine or one of the medically oriented professions should enroll in Biology 11/12 rather than in Biology 1. 3 hrs. lect. per week.

3 **General Biology Laboratory (2)**
Laboratory course to accompany Biology 1. Biology 3 can be used to fulfill the General Education requirement in a laboratory science. Biology 3 does not meet the prerequisite requirements of other courses in biology. 3½ hrs. lab. per week.

PRE-PHARMACY PROGRAM

Admission to a school of pharmacy usually requires one or two years of college work in certain specified areas. Most colleges of pharmacy recommend the so-called 2-3 plan which includes two years of college work followed by three years of professional courses in the college of pharmacy. Entrance requirements vary somewhat from college to college, and students taking pre-professional courses on this campus are advised to consult the catalog of the college of pharmacy to which they expect to apply.

The following is a typical two year sequence in pre-pharmacy and meets the requirements for admission to the School of Pharmacy of the University of Missouri at Kansas City:

Freshman Year

Chemistry 11	5	Chemistry 12	5
Physics 1	3	Physics 2	3
Physics 3	2	Mathematics 11	3
Mathematics 10	3	English 12	3
English 10	3		
	16		14

Sophomore Year

Chemistry 261	3	Chemistry 262	3
Chemistry 263	2	Chemistry 264	2
Biology 11	5	Chemistry 222	5
Economics 50	3	Biology 12	5
History 3 or Political Science 11	3		15
	16		

RESERVE OFFICERS TRAINING PROGRAM

Students interested in a reserve officer training program may enroll with the Air Force or Army detachment on regular registration day. This program is offered on the campus of Washington University in St. Louis.

Air Force and Army officials are on the University of Missouri campus during the regular registration period to discuss the program with interested students. Enrollment is completed at that time.

A total of 12 hours of credit in advanced Air Force ROTC and Army ROTC may be counted toward a degree.

GENERAL REGULATIONS AND REQUIREMENTS

Requirements in American History, Institutions and National and State Constitutions

Each student who expects to complete an undergraduate degree in the University of Missouri must present as a requirement for graduation a course or courses in this area, taken at the University of Missouri or at other colleges or universities within the state of Missouri.

The requirement can be satisified by credit in one of the following courses: History 3, American Civilization (3); Political Science 11, Government in Modern Society (3); Political Science 202, State and Local Government (3). If a student is working for two baccalaureate degrees, this requirement will apply to the first degree only. The transfer student should inquire at the Admissions Office to determine whether he has satisfied this requirement.

Program of Studies; Credit Hours

No undergraduate student is permitted to carry in any semester courses aggregating less than 10 credit hours, exclusive of the required work in physical education which may hereafter be required, without the special permission of his dean. The normal registration is 15 credit hours. A student who has demonstrated by achieving a superior academic record an ability to carry more than 16 hours may, with the approval of his adviser and dean, enroll for additional hours. However, in no case shall his enrollment exceed 20 hours in a regular semester or 9 houts in a summer session.

The unit of credit given in the University, the semester or credit hour, is the equivalent of a subject pursued one period per week for one semester of approximately 16 weeks. Thus a course valued at 2 credit hours will meet two periods per week for a semester; a 5-hour course will meet five periods per week for a semester. The lecture or recitation period is 50 minutes in length and the usual laboratory period an hour and 50 minutes.

Grading System

The grades used to report courses taken toward a bachelor's degree are A, B, C, D, and F. The grade A indicates superior work; the grade B, above average work; and C, average work. The grade of D indicates that the student's work is below average and the grade F that the work done is undeserving of credit.

Graduation

The last year of work must be done in residence, and the student must have carried a full schedule during that time, except under unusual circumstances to be decided by the dean.

Prerequisites

A minimum grade of C shall be required to meet the prerequisite requirement for any course except with permission of the department in which the second course is to be taught. Prerequisite course requirements within the department being described are noted solely by number; specific course prerequisites in other departments of the University are preceded by the abbreviation of the department, e.g., Chem. 11 (Chemistry course 11). General nonspecific requirements are designated thus: gen. chem. 10 hrs. (general chemistry 10 semester credit hours). An academic standing prerequisite is stated by class, as sr. standing (senior class standing). Requirements for class standing are variable; a student should ascertain the requirements for his particular division. The minimum grade requirement in a preceding required course is specified by a capital letter and the course designation; as C in Chem. 1 (a grade of C or better in Chemistry course 1). GPA refers to grade point average.

ART HISTORY

NANCY MCBRIDE, Instructor
MICHAEL B. HARPER, Instructor

Prerequisites may be waived by consent of the department.

1 **Masterpieces of Art** (3)
No prerequisites. Illustrated discussion with examples from varied historic and contemporary art fields on the nature of art, functions and methods of creative expression. No credit for Art History majors.

101 **History of Western Art** (3)
Prerequisite: soph. standing or consent of dept. Illustrated lectures and discussion of the architecture, sculpture, painting of Greece, Rome, and Medieval Europe. Required for the major in Art History.

102 **History of Western Art** (3)
Prerequisite: soph. standing or consent of dept. Illustrated lectures and discussion of the general development of art and architecture from the 14th century to the present. Required for the major in Art History.

123 **Classical Art and Archaeology of Greece and Rome** (3)
Prerequisite: soph. standing or consent of dept. A general survey of the development of material culture in Greece and Rome from the earliest times through the Hellenistic Period and through the early Roman Empire. Required for the major in Art History.

139 **Art Activities for Elementary Schools (Same as Education 139.)** (3)

310 **Medieval Art** (3)
Prerequisite: Art 1 or 101. The secular as well as religious art of the Middle Ages from the early Christian era through the late Gothic Period.

320 **Renaissance Art** (3)
Prerequisite: Art 1 or 102. The artistic culture of Western Europe during the 15th and 16th centuries from the development of the new style in Italy to its spread throughout Europe.

325 **Baroque Art** (3)
Prerequisite: Art 1 or 102. Art in Europe from the 16th century to the end of the 18th century with emphasis on the painters Rembrandt, Velazquez, Poussin, the sculptor Bernini, and the architectural undertaking of the Palace of Versailles.

330 **American Art** (3)
Prerequisite: Art 1 or consent of the dept. A survey of the art of the United States both as an extension of the European tradition and for its original contributions.

DESCRIPTION OF COURSES

All courses offered at the University of Missouri are listed by departments or fields of learning in alphabetical order. Approximately four weeks prior to the opening of each semester a "Schedule of Courses" is published which lists the specific courses to be offered for that semester with the time of meeting, the building, and room number of each course.

This "General Catalog Including Description of Courses" includes only those courses given on the campus, University of Missouri at St. Louis. Separate catalogs are issued by the University of Missouri in Columbia, University of Missouri at Rolla, and the University of Missouri at Kansas City.

The University reserves the right to cancel without notice any course listed in the "General Catalog Including Description of Courses" or in the "Schedule of Courses" for any semester or to withdraw any course which does not have an adequate enrollment at the close of the registration period.

Course Number

Each course bears a distinguishing number which identifies it within the department and indicates, broadly, its rank. The numbering system is as follows.

1 to 99, courses primarily for freshmen and sophomores;

100 to 199, courses primarily for upperclassmen, no graduate credit;

200 to 299, courses for undergraduates, appropriate professional students and graduate students except those whose graduate major is in the department in which the course is given;

300 to 399, courses for undergraduates, appropriate professional students, and for graduate students without restriction as to the student's graduate major;

400 to 499, primarily for graduate students and appropriate professional students in special programs. Upperclass students are admitted to courses in this series only with the approval of the dean of the division in which the course is offered.

Individual restrictions of certain courses are listed under prerequisites. Thus "dept. consent" or "consent of instr." means that departmental consent (approval or permission) or consent of the instructor is required for that course.

Credit

The unit of credit at the University is the semester hour, which represents a subject pursued one period weekly for one semester of approximately 16 weeks or for a total of approximately 16 periods for one term. In general, a course valued at three semester hours meets for three periods weekly for one semester.

Following the title of the course, the number of hours of credit is given in parentheses; thus Business Law (3). If the credit is variable, to be fixed in consultation with the teacher, that fact is shown by (cr. arr.) (credit to be arranged) or by the minimum and maximum credit, as Research (2-8)

Each student must complete a minimum of 120 semester hours with a minimum average grade of 1.75 for the first two years and a 2.0 for the last two years, except that any student who maintains a minimum 2.0 average during the sophomore year will be given an additional semester in which to achieve a 1.75 cumulative average. At least 45 of the 120 hours must be above the introductory level.

The faculty may decline to recommend a student for a degree because of lack of moral qualification even though the student has completed all the formal requirements for the degree.

Extension Course Credit

A maximum of 30 semester hours of correspondence or extension courses from an accredited institution will be accepted toward an undergraduate degree, provided the work parallels the courses offered by the University of Missouri at St. Louis and has the approval of the major department and the divisional dean.

Prerequisites

A minimum grade of C shall be required to meet the prerequisite requirement for any course except with permission of the department in which the second course is to be taught.

Scholastic Deficiencies

Those students who do not maintain satisfactory scholastic averages may be required to withdraw from the University.

Motor Vehicle Registration

All students desiring to operate a motor vehicle on the campus must register it and pay a fee at the time of registration. Failure to comply with traffic regulations may subject the student to disciplinary action, payment of an additional fee, and the denial of the privilege of operating a motor vehicle in or about the campus. Copies of the Traffic Regulations for the University of Missouri at St. Louis may be secured from the Business Office.

Attendance

Students are expected to attend classes regularly. Permission to make up class work missed as a result of absences is granted at the discretion of the individual instructor.

Petitioning to Change Classes or Withdraw from a Course

To change his original enrollment a student must secure the approval of his adviser and of the dean. No student may enter a course after the first two weeks of the semester, or the first week of a summer session. A student may withdraw from a course with a grade of "Excused" until four weeks after the semester begins, so long as total enrollment does not fall below the 10 hour minimal re-

quirement. Normally the Office of the Dean will not approve the withdrawal from the following:

1. Courses which should be completed in a chronological or sequential development, especially foreign languages;
2. English Composition.

After the beginning of the fifth week of a semester, or the second week of a summer session, a student may withdraw from a course with the approval of his adviser and of the dean with a grade of "Excused," provided he is receiving a passing grade at the time of his withdrawal. Otherwise, he will receive a grade of "F".

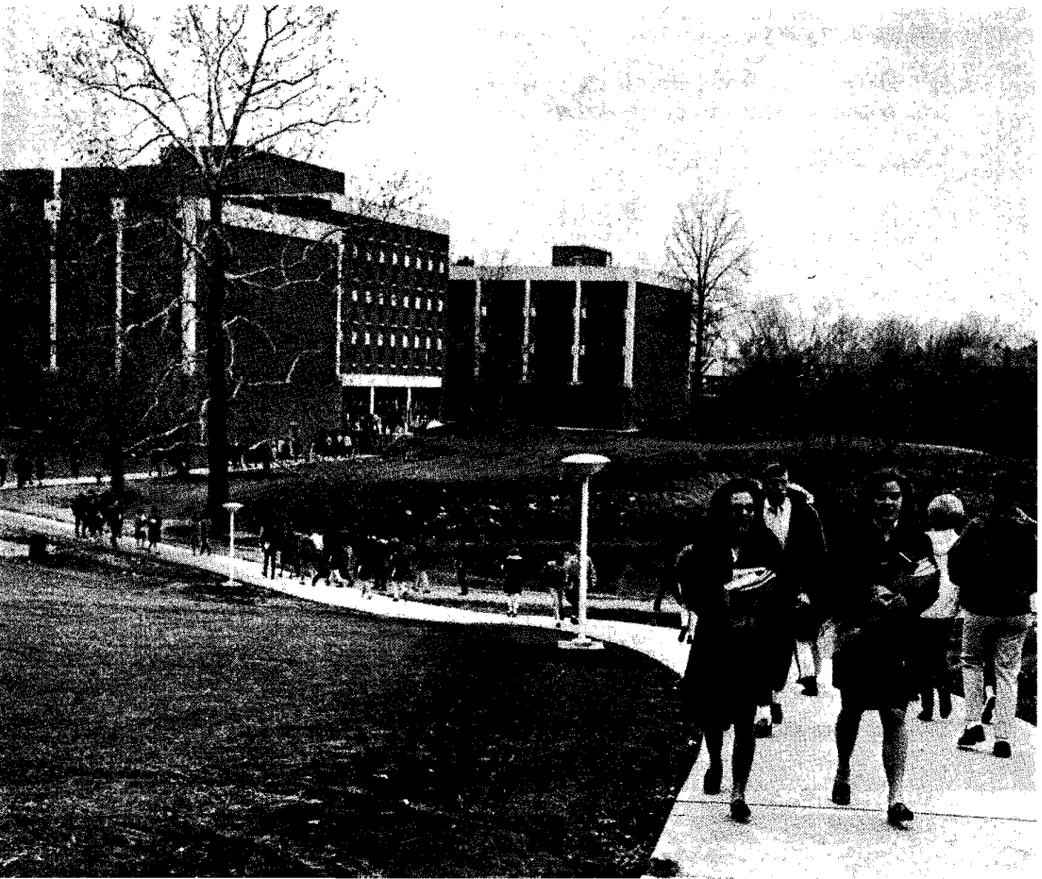
Any student who ceases to attend classes but fails to drop officially shall receive a grade of F.

Academic Honesty

Academic dishonesty is considered the worst offense at the University of Missouri at St. Louis. Those guilty of a dishonesty are automatically dismissed from the University. Plagiarism is considered a dishonest act.

New Student Orientation

All new students are required to attend an orientation program scheduled annually before the opening of classes each semester.



Sophomore Year

Chemistry 261	3	Chemistry 262	3
Chemistry 263	2	Chemistry 264	2
Physics 11	5	Physics 12	5
Mathematics 201	5	Chemistry 222	5
	15		15

Junior Year

Chemistry 231	3	Chemistry 232	3
Chemistry 233	2	Chemistry 234	2
Chemistry 289	H	Chemistry 289	H
German 1	4	German 2	4
Electives	6	Electives	6
	15		15

Senior Year

Chemistry 341	3	Chemistry 324	3
Chemistry 289	1	Chemistry 289	1
Elective in Chemistry	3	German 203	3
German 103	3	Electives	8
Electives	5		15
	15		

Junior Year

Physics 211	1	Physics 212	1
Physics 221	3	Physics 223	3
Physics 241	3	Physics 231	3
Physics 289	H	Physics 289	H
Modern Language 103	3	Modern Languages 203	3
Mathematics 222	3	Electives	6
Elective	3		
	16		16

Senior Year

Physics 311	1	Physics 312	1
Physics 301	3	Physics 300 elective	3
Physics 289	1	Physics 289	1
Electives	9	Electives	9
	14		14

BACHELOR OF SCIENCE IN CHEMISTRY

A. General Education requirements: All of the general education requirements for the A.B. degree must be met by candidates for the Bachelor of Science in Chemistry degree. The science and mathematics requirements are satisfied by C, D, E, and F below.

B. Language requirement: German is the only foreign language which may be used to satisfy the language requirement for the Bachelor of Science in Chemistry degree.

C. 46 hours of chemistry: Chemistry 11, 12, 222, 231, 232, 233, 234, 261, 262, 263, 264, 289 (all chemistry majors must enroll as hearers in Chemistry 289 during both semesters of their junior years, and all chemistry majors must take Chemistry 289 for credit during both semesters of their senior year), 324, 341 and 3 additional elective hours in chemistry at the 200 level or higher.

D. 15 hours of mathematics: Mathematics 80, 175, and 201.

E. 10 hours of physics: Physics 11 and 12.

F. Science electives: A total of 5 additional elective hours in the departments of biology, chemistry, mathematics, or physics.

G. All chemistry majors must pass a comprehensive examination during their senior year.

The following is a suggested sequence leading to the B.S. in Chemistry:

Freshman Year

	Hrs.		*Hrs.*
Chemistry 11	5	Chemistry 12	5
Mathematics 80	5	Mathematics 175	5
English 10	3	English 12	3
History 3 or		Elective	3
Political Science 11	3		
	16		16

DEGREES

The University offers a Bachelor of Arts (A.B.) degree, a Bachelor of Science in Chemistry (B.S.) degree, a Bachelor of Science in Business Administration (B.S.) degree, and a Bachelor of Science in Education (B.S.) degree.

The Bachelor of Arts candidate may select a major in: Anthropology, Biology, Business Administration, Chemistry, Economics, English, French, German, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Sociology, Spanish.

Students who are preparing to teach will obtain a degree in one of the above subject matter areas.

GENERAL EDUCATIONAL REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

A. GENERAL REQUIREMENTS

1. Each student must complete 120 semester hours with a minimum average grade of 1.75 for the first two years, except that any student who maintains a minimum 2.0 average during the sophomore year will be given an additional semester in which to achieve a 1.75 cumulative average. Each student must maintain a minimum average grade of 2.0 for the last two years. At least 45 of the 120 hours must be above the introductory level.
2. Each student must have been in residence for the last full year before graduation and must have carried a full schedule during that time, except under unusual circumstances to be decided by the Dean.

B. MAJOR FIELD REQUIREMENTS

1. Each student shall choose a major subject matter field.
2. Specific requirements for the major will be determined by individual departments except that no student may count fewer than 30 or more than 45 hours in his major field toward graduation.

C. SPECIFIC REQUIREMENTS

1. Basic English
   a) A total of 3 hours of English Composition, with a grade of C or better. Failure to obtain a C or better will necessitate repetition of the course until at least a C grade is achieved. No student will be allowed to repeat the English Composition course more than twice after initial failure.
   b) Three hours of literary types, in which the student is to be introduced to all of the various literary types.

2. Humanities
   A total of 9 hours, to be taken from at least two of the following areas: Art History, Literature, Music History, Philosophy. Literature is understood to include German, French and Spanish, as well as English and American literature. When literature courses are established in classical or modern languages these shall be included.

3. Foreign Language
   A total of 14 hours in a foreign language or its equivalent in proficiency as determined by examination. It is strongly recommended that wherever possible students shall begin a foreign language at the time of first registration.

4. Science
   a) A minimum of 8 hours, to consist of one lecture course in the physical sciences (3 hours), one lecture course in the life sciences (3 hours), plus one laboratory course (2 hours) in either the physical or life sciences.
   b) This requirement may be met by taking the introductory ten-hour sequence in any one laboratory science.

5. Mathematics
   All students will be required to take a course in Mathematics.

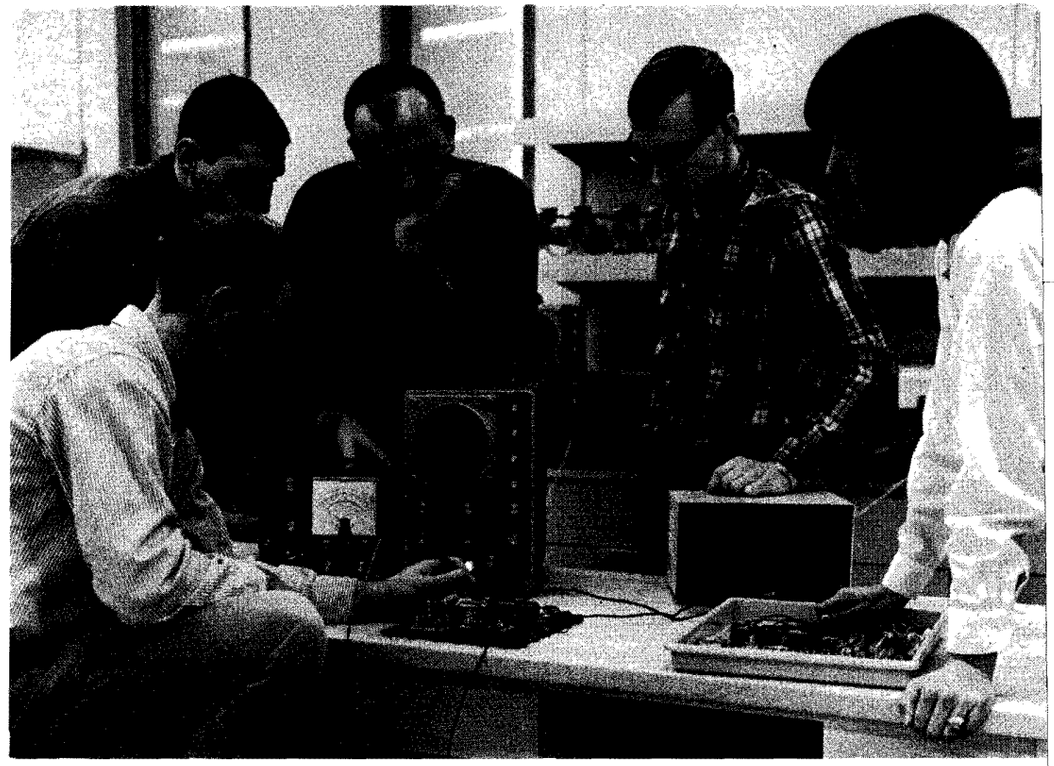
6. Social Sciences
   A total of 9 hours, to be taken from at least two of the following areas: Anthropology, Economics, Political Science, Psychology, Sociology.

7. History
   A total of 6 hours.

8. State Requirement
   A course in either American History or American Government which will satisfy the requirement of the State of Missouri.

9. Non-Western Area
   A minimum of 3 hours of work in either Asian or African studies.

10. Senior Year Requirements
    a) A course in directed readings or research in the major field.
    b) A minimum of two hours of seminar in the major field in which a formal paper is required.
    c) Each student shall pass a comprehensive examination in the field of his major. The examination may be written or oral or both.



E. Language Requirement: German, Russian or French must be elected to satisfy the language requirement; other languages may not be applied toward the A.B. degree in Physics.
F. Comprehensive Examination: All Physics majors must take a comprehensive examination during their senior year.

Physics majors preparing for admission to graduate study should plan on additional course work in Physics and Mathematics beyond the minimal requirements stated in B and C.

The following is a suggested sequence leading to the A.B. degree with a major in Physics:

Freshman Year

	Hrs.		Hrs.
Chemistry 11	5	Chemistry 12	5
Mathematics 80	5	Mathematics 175	5
English 10	3	English 12	3
History 3 or Political Science 11	3	Elective	3
	16		16

Sophomore Year

Physics 11	5	Physics 12	5
Mathematics 201	5	Mathematics 301	3
Modern Language 1	4	Modern Language 2	4
Elective	3	Elective	3
	17		15

The following is a suggested sequence leading to the A.B. degree with a major in chemistry:

Freshman Year

	Hrs.		Hrs.
Chemistry 11	5	Chemistry 12	5
Mathematics 12	5	Mathematics 80	5
Elective	3	History 3 or Political Science 11	3
English 10	3	English 12	3
	16		16

Sophomore Year

Chemistry 261	3	Chemistry 262	3
Chemistry 263	2	Chemistry 222	5
Mathematics 175	5	Mathematics 201	5
German 1	4	German 2	4
	14		17

Junior Year

Chemistry 289	H	Chemistry 289	H
Physics 11	5	Physics 12	5
German 103	3	German 203	3
Electives	6	Electives	6
	14		14

Senior Year

Chemistry 231	3	Chemistry 232	3
Chemistry 233	3	Chemistry 289	1
Chemistry 289	1	Electives	10
Electives	9		14
	15		

PHYSICS

The requirements for the A.B. degree with a major in Physics are:

A. General Education Requirements: All physics majors must complete the requisite courses to fulfill the general education requirements for the A.B. degree. The departmental requirement stated in B, C, and D below may be used to satisfy the science and mathematics requirements.

B. 34 hours of Physics: Physics 11, 12, 211, 212, 221, 223, 231, 241, 289 (all Physics majors must enroll as hearers in Physics 289 during both semesters of their junior year, and all physics majors must take Physics 289 for credit during both semesters of their senior year), 301, 311, 312 and three additional elective hours in physics at the 300 level or higher.

C. 18-21 hours of Mathematics: Mathematics 80, 175, 201, 222 and 301. Students with experience in digital computer programming may be excused from Mathematics 222.

D. 10 hours of Chemistry: Chemistry 11 and 12.

UNIVERSITY DIVISIONS

Business

The Division of Business offers work leading to two degrees: the Bachelor of Arts and the Bachelor of Science in Business Administration. Both degrees represent a balanced educational program combining the essence of a liberal arts education with the important core courses of a professional education in Business Administration. There is ample opportunity within this curriculum to concentrate in one of the traditional areas of accounting, economics, finance, management, or marketing. The degree is designed to educate a graduate to render both an initial and long range contribution to society and to develop fully his own potential in an economic environment. In addition, the curriculum in Business Administration offers an excellent foundation for work toward an L.L.B. degree or graduate work in Business and Economics.

ACADEMIC MAJOR IN BUSINESS ADMINISTRATION

Bachelor of Arts

The requirements for the A.B. degree with a major in Business Administration are:

A. General Education requirements (All Business majors must complete the requisite courses to fulfill the general education requirements for the A.B. degree.)

B. Economics 50 and 51

C. The following "core" courses:
   Accounting 36—Principles of Accounting
   Accounting 37—Principles of Accounting
   Statistics 31—Elementary Statistics
   Accounting 302—Managerial Accounting
   Management 106—Prinicples of Marketing
   Management 310—Personnel Administration
   Management 202—Industrial Management
   Finance 204—Corporate Finance
   Management 256—Business Law
   Management 391—Business Policy and Administration

D. An additional 15 hours in the Department of Business Administration, specializing to the extent he desires.

E. At least one 3 hour senior level seminar and a research paper (normally to be satisfied by Management 391).

F. A grade of "C" or above in courses serving as prerequisites.

G. A candidate for graduation must present a 2.0 departmental grade point average.

Bachelor of Science

The General Education requirements for the degree Bachelor of Science in Business Administration are the same as the General Education requirements for the degree Bachelor of Arts in Business Administration with one important exception.

The student must complete a minimum of an additional 14 total hours in mathematics, science and/or other quantitative subjects beyond the eight hour science and three hour mathematic provision in the General Education requirements. This effectively represents a 25 hour minimum total requirement in mathematics, science and/or other quantitative subjects. The additional 14 hours in science, mathematics and/or other quantitative areas may be substituted for the 14 hour modern foreign language portion of the General Education requirements.

To earn the Bachelor of Science degree the students must complete:

A. At least eight hours of science as prescribed in the General Education section of the Catalog.

B. A minimum of Calculus 80 in the area of mathematics.

C. Enough additional hours to bring the total hours to 25, from any combination of courses in the areas of mathematics, science, statistics (to include Elementary Statistics 31), computer science, or in business, economics, and other disciplines that offer courses which develop quantitative applications for decision-making. The quantitative courses in business, economics and related disciplines will be designated by the faculty and communicated in the course schedules and by student advisers.

TYPICAL CURRICULUM
Major in Business Administration

Freshman Year

	Hrs.		Hrs.
English 10	3	English 12	3
Economics 50	3	Economics 51	3
Mathematics 10	3	Mathematics 11 *Or*	3
Humanities	3	Modern Language 2	(4)
History *Or*	3	History	3
Modern Language 1	(4)	Humanities requirement *Or*	3
	15 or 16	Science requirement*	(3)
			15 or 16

Sophomore Year

Accounting 36	3	Accounting 37	3
Mathematics 80 *Or*	5	Statistics 31	3
Modern Language 101	(3)	Math, Science or other quantitative course *Or*	3
Humanities *Or*	3	Modern Language 102	(3)
Laboratory Science requirement	5	Humanities or Science requirement*	3
	16 or 14	Social Science requirement	3
			15

* The science requirement may be met by taking the ten-hour introductory sequence in any one laboratory science.

The following is a suggested sequence leading to the A.B. degree with a major in biology:

Freshman Year

	Hrs.		Hrs.
Chemistry 11	5	Chemistry 12	5
Biology 11	5	Biology 12	5
English 10	3	English 12	3
History 3 or Political Science 11	3	Elective	3
	16		16

Sophomore Year

Chemistry 261	3	Chemistry 222	5
Chemistry 263	2	Biology 224	3
Biology 213	5	Modern Language 2	4
Modern Language 1	4	Elective	3
	14		15

Junior Year

Biology 235 or 255	5	Elective in Biology	3
Biology 289	H	Biology 289	H
Modern Language 103	3	Modern Language 203	3
Electives	6	Electives	9
	14		15

Senior Year

Biology 289	1	Biology 289	1
Elective in Biology	3	Elective in Biology	2
Electives	12	Electives	12
	16		15

CHEMISTRY

The requirements for the A.B. degree with a major in chemistry are:

A. General Education requirements: All chemistry majors must complete the requisite courses to fulfill the general education requirements for the A.B. degree. The departmental requirement stated in B, C, and D below may be used to satisfy the science and mathematics requirements.

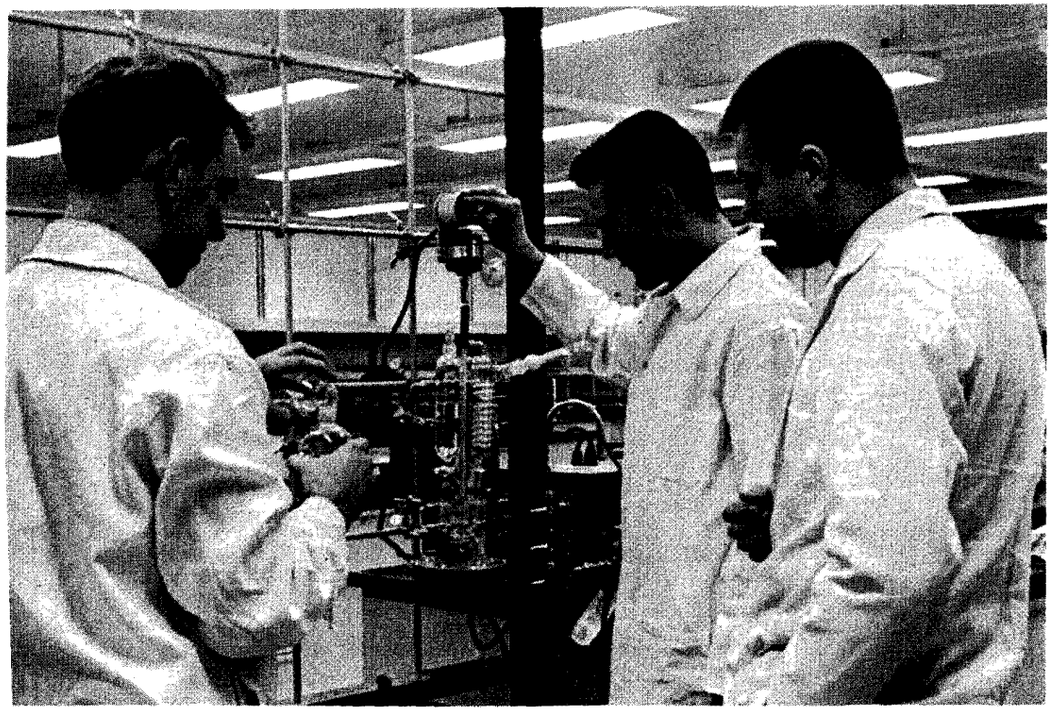
B. 33 hours of chemistry: Chemistry 11, 12, 222, 231, 232, 233, 261, 262, 263, and 289 (all chemistry majors must enroll as hearers in Chemistry 289 during both semesters of their junior year, and all chemistry majors must take Chemistry 289 for credit during both semesters of their senior year).

C. 15 hours of mathematics: Mathematics 80, 175 and 201.

D. 10 hours of physics: Physics 11 and 12.

E. Language requirement: German must be used to fulfill the language requirement. In rare instances French or Russian may be substituted for German, but only with departmental approval. Spanish does not satisfy this requirement for chemistry majors.

F. Comprehensive examination: All chemistry majors must pass a comprehensive examination during their senior year.



C. 20 hours of chemistry: Chemistry 11, 12, 222, 261, and 263.
D. Comprehensive examination: All biology majors must pass a comprehensive oral and written examination during their senior year.

Recommendations:

1. The admission requirements of many graduate schools, medical schools and dental schools include 8-10 hours of physics. Biology majors contemplating graduate or professional training should therefore plan to elect either the Physics, 1, 2, and 3 sequence, or preferably, the Physics 11, 12 sequence.
2. Some graduate schools require a knowledge of calculus. Consequently, it is desirable for biology majors to take the calculus sequence through Mathematics 201.
3. Additional work in chemistry, particularly Chemistry 262, 264, and 272, is strongly recommended.
4. In most graduate schools the language requirement must be met with German or French specifically. For this and other reasons it is desirable for biology majors to fulfill the language requirement for the A.B. degree by studying one of these two languages.
5. Most medical schools require Comparative Anatomy for admission. Premedical students majoring in biology should therefore include Biology 202 in their biology electives.
6. Because an important area of biology consists of the study of living organisms in their natural environment, biology majors are encouraged to attend a summer session at a field biology station. This would ordinarily be done between the junior and senior years. Many biological stations offer financial support in the form of summer fellowships.

Junior Year

Principles of Marketing 106	3	Corporate Finance 204	3
Industrial Management 202	3	Business Law 256	3
Managerial Accounting 302	3	Personnel Administration 310	3
Arts & Science electives	6	Arts & Science electives	6
	15		15

Senior Year

Business electives	9	Business Policy and Administration	3
Arts & Science electives	6	Business electives	6
	15	Arts & Science electives	6
			15

Teacher Education

The Division of Teacher Education has been organized to supervise and direct the preparation of teachers. Programs for educating teachers for elementary and secondary schools are available at the University of Missouri at St. Louis.

The program for the education of elementary school teachers varies considerably from that of the secondary school teachers. The former includes many additional requirements and it is necessary to plan the four-year program carefully with an adviser. Failure to do so may result in inappropriate course selections, thereby requiring the student to complete more than the minimum of 120 semester hours for the degree. The program in Early Childhood Education which is now available also requires careful planning.

Course description should be examined carefully for prerequisites since in many cases it will be virtually impossible to proceed to other courses without having completed them.

Students who expect to teach in high schools are advised to earn strong majors in their chosen subject matter areas. They should, therefore, consult with their advisers before enrolling each semester to assure themselves of appropriate selections from among the curricular offerings.

BACHELOR OF SCIENCE IN EDUCATION

Elementary School Teachers

The General Education requirements for this degree are the same as the General Education requirements for the Bachelor of Arts degree except that the requirement of a foreign language may be waived for students who wish to present, instead, 14 semester hours in one department above the General Education requirements.

All students planning to teach in the elementary schools are expected to earn a major in one of the following disciplines: English, mathematics, any one foreign language, history, sociology-anthropology, psychology, political science, philosophy, economics, or a composite major in science (two or more).

The professional education course requirements are given below:

Educational Psychology
History of American Education
Techniques of Elementary School Teaching
Elementary School Organization and Administration
Child Psychology
Teaching Reading in Elementary Schools
Problems of Teaching Mathematics in Elementary Schools
Children's Literature
Student Teaching
Elementary School Music
Art Activities in Elementary Schools
Regions and Nations of the World
Elements of Health Education
Physical Education in the Elementary Schools

Also available is a program in Early Childhood Education. This specialized program should be planned with the assistance of an adviser. The requirements for general education and the professional education courses required of elementary school teachers are the same for this program. Beyond this, the preparation is different and the courses are carefully selected. The additional requirements needed to round out the program are:

A. Studying the child and working with him: (all of these)
   Psychology of Exceptional Children
   Early Childhood Education
   Educational Tests and Measurements
   Psychology of Individual Differences
   Psychology of Human Learning
   Individual Inventory
   Individual Intelligence Testing
B. The child in his social milieu: (any two courses)
   Family Relations, or, The Family
   Introductory Sociology or Introductory Anthropology
   Social Psychology
   Cultural Determinants in Learning
C. Related and useful studies: (any three courses)
   Speech or Speech Correction
   Principles and Procedures for Student Personnel Work
   Nutrition and Health
   Psychology of Sensation and Perception

Secondary School Teachers

The General Education requirements are the same as the General Education requirements for the Bachelor of Arts degrees, except that the requirement of foreign language may be waived for students who wish to present, instead, 14

Introduction to Sociology	6 hours
Physical Anthropology	3 hours
Social Theory	3 hours
Research Methods	3 hours
Junior Readings	3 hours
Senior Seminar	3 hours
Senior Thesis	3 hours
Electives in sociology or anthropology	6 hours
	30 hours

4. A major in anthropology must complete satisfactorily each of the following:

Introduction to Anthropology	6 hours
Introduction to Sociology	6 hours
Peoples and Cultures of the World	3 hours
Race and Ethnic Relations	3 hours
Senior Readings	3 hours
Senior Seminar	3 hours
Electives in sociology or anthropology	6 hours
	30 hours

5. Departmental majors, whether in sociology or anthropology, will be required to pass a written comprehensive examination during the second semester of their senior year. The examination will test the student's grasp of theory, methods, and contemporary research findings. As partial preparation for the examination, a basic reading list will be provided each major.

Science

The Division of Science offers work leading to two degrees: the Bachelor of Arts, and the Bachelor of Science in Chemistry. The Division also offers a two year pre-pharmacy curriculum and advises students who plan to enter medical schools, dental schools or schools of veterinary medicine.

BACHELOR OF ARTS DEGREE

BIOLOGY

The requirements for the A.B. degree with a major in biology are:

A. General Education requirements: All biology majors must take the requisite courses to fulfill the general education requirement for the A.B. degree. The departmental requirement stated in B and C below may be used to satisfy the science requirement.
B. 33 hours of biology: Biology 11, 12, 213, 224, either 235 or 255, 289 (all biology majors must enroll as hearers in Biology 289 during both semesters of their junior year and must take Biology 289 for credit during both semesters of their senior year), and 8 additional elective hours in biology at the 200 level or higher.

PSYCHOLOGY

The requirements for the A.B. degree with a major in psychology are:

A. General Education requirements: 55 hours. See page 30.
B. General area requirements:
   1. German and French are the only acceptable foreign languages for psychology majors. Other languages may be taken as electives if desired.
   2. Psychology majors are urged to follow the Chemistry 11-12 sequence and the Biology 11-12 sequence. However, the General Education requirements in science will be acceptable. Note: Biology 11 and 12 are prerequisites for Psychology 314.
   3. The Psychology Department recommends that rather than electing an excessive number of hours in psychology, students elect courses in the following areas: mathematics, chemistry, biology, sociology, anthropology, literature, and philosophy.
C. Departmental requirements: 32 hours.
   1. A major in psychology consists of 32 hours, but additional hours may be elected to maximum of 45 hours.
   2. All psychology majors must take:

Psychology 1 and 2 (preferably in the freshman year)	6 hours
Psychology 201 (preferably in the sophomore year)	4 hours
Psychology 319 and 320 (preferably in the junior year)	6 hours
Psychology 361 (preferably in the senior year)	3 hours
Psychology 192 (for seniors only)	3 hours
Psychology 193 (for seniors only)	3 hours
Electives in psychology	7 hours
	32 hours

SOCIOLOGY-ANTHROPOLOGY

The requirements for the A.B. degree with a major in sociology-anthropology are:

A. General Education requirements: 55 hours. See page 30.
B. General area requirements:
   Sociology and anthropology majors are strongly advised to take at least 6 hours in one or more of the following areas: economics, political science, philosophy, and psychology.
C. Departmental requirements: 30 hours.
   1. Majors may choose a program emphasizing either sociology or anthropology. Either avenue will provide a basis for graduate study in the field chosen.
   2. A major in either sociology or anthropology consists of a minimum of 30 semester hours. It is recommended that students take additional work, to a maximum of 45 hours, in the Department.
   3. A major in sociology must complete satisfactorily each of the following:

additional hours in the fields of science and mathematics, or 14 additional hours in one department.

Students preparing to teach in the high schools may major in any one of the several disciplines offered. For example, a major may be earned in any one of the sciences (biology, chemistry, physics); in a foreign language, (French, Spanish, German); in one of the social sciences (economics, political science, psychology, sociology-anthropology); or in history, mathematics, philosophy, English, and business education.

Specific requirements for the major will be determined by individual departments except that no student may count fewer than 30 or more than 45 hours in his major field toward graduation.

The professional education course requirements are:
- Educational Psychology
- History of American Education
- Techniques of Secondary School Teaching
- Secondary School Administration for Teachers
- Elements of Health Education
- Adolescent Psychology
- Special Methods
- Student Teaching

Humanities

The Division of Humanities presently offers work in four areas: art history, English, music history, and philosophy. It is the acknowledged purpose of the Division of Humanities to offer not only specialized training for its own academic majors but also to provide students from all disciplines the opportunity to broaden their cultural heritage toward a better understanding of their world.

Recommended Program for the Bachelor of Arts Degree in English

A. General Education Requirements ..... 55 hours
B. Department of English Requirements
   All requirements for the English major hereafter stated are understood to include English 10 and 12 or English 65GH.
   The English Department stipulates the following course requirements for all students seeking the Bachelor of Arts degree in English:
   1. No fewer than 36 nor more than 45 hours in English will be accepted toward graduation as an English major (Bachelor of Arts).
   2. At least 27 hours will be taken beyond the introductory level.
   3. All students majoring in English will take the following specific courses:

a. English 135—Major British Writers ..... 3 hours
b. English 175—American Literature ..... 3 hours
c. English 220—Growth and Structure of the English Language ..... 3 hours

Total 9 hours

4. All students majoring in English will take at least one course in each of the following periods:
   a. Middle English Literature ..... 3 hours
   b. Sixteenth Century English Literature (Shakespeare may be included in this period) .... 3 hours
   c. Seventeenth Century English Literature ..... 3 hours
   d. Eighteenth Century English Literature ..... 3 hours
   e. Nineteenth Century English Literature ..... 3 hours
   f. Major American Writers or Modern Literature.... 3 hours

   Total 18 hours

   Specific courses will be selected with the assistance of a departmental adviser.
5. At the senior level, all students seeking the Bachelor of Arts degree in English will take the following courses:
   a. Senior Readings ..... 3 hours
   b. Senior Seminar ..... 3 hours

   Total 6 hours

C. Electives:
   1. These hours are to be chosen with the assistance of the departmental adviser.
   2. Although no minors as such are required, each student must develop a supporting concentration of 12 hours *beyond the General Education requirements* to be approved by the English Department in no more than two of the following areas: philosophy, history, art history, music history, anthropology, languages, and political science.
   3. In the case of a student preparing to teach at the elementary or secondary level, the School of Education requirements would fulfill 2. above.

Recommended Program for the Bachelor of Science Degree in Secondary or Elementary Education with a Major in English

A. General Education requirements as prescribed for the Bachelor of Science in Education degree. (55 hrs.)

B. Department of English Requirements

All requirements for the English major hereafter stated are understood to include English 10 and 12 or English 65GH.

The English Department stipulates the following course requirements for all students seeking the Bachelor of Science degree in Secondary or Elementary Education with a major in English:

3. Every history major must take a directed readings course (3 hours) and a departmental seminar (3 hours) during his senior year. A formal paper will be required in the seminar. In addition he must satisfactorily pass both a written and an oral examination in the field of the major.

POLITICAL SCIENCE

The requirements for the A.B. degree with a major in political science are:

A. General Education requirements: 55 hours. See page 30.

B. General area requirements: 18 hours.

Political science majors are required to take a minimum of 3 hours of work in economics, psychology, sociology, and philosophy and at least 6 hours of work in two of these fields. These hours may be used to satisfy in part the General Education requirements in the Humanities and Social Sciences. As early as possible a political science major should determine if he is interested in preparing for secondary school teaching, or for government or foreign service, or for graduate work in political science or law and should consult with his adviser about other courses he should choose as electives.

C. Departmental requirements: 36 hours.
   1. A major in political science consists of 36 hours, but students may elect to take additional work in political science up to a maximum of 45 hours.
   2. A political science major is required to complete the following satisfactorily:
      Political Science 11 and 12 (Government in Modern Society)
      Political Science 261 and 262 (History of Political Thought)
   3. In addition, a political science major must complete satisfactorily at least one course in five of the following seven fields. In the field of Political Philosophy and Theory this requirement is satisfied by the required courses in the History of Political Thought:
      Comparative Politics
      International Relations
      Political Philosophy and Theory
      Political Process
      Public Administration
      Public Law
      State and Local Government
   4. In his senior year each political science major must complete a series of prescribed readings (Political Science 192), must prepare a senior paper and defend it before the staff and senior majors (Political Science 193), and must pass a comprehensive, departmental, written examination.

Economics 290 (Readings in Economics)
Economics 291 (Senior Seminar in Economics)

2. An economics major must complete satisfactorily Economics 291 during his senior year. In the course of the seminar, he will prepare a senior paper which he will present to seminar students as well as interested members of the staff. He must indicate competence both in the area of his chosen topic and in the general area of economics within which it lies.
3. At the end of his senior year each economics major must pass a written comprehensive examination designed to test his competence in general economic theory, policy, and institutions.

HISTORY

The requirements for the A.B. degree with a major in history are:

A. General Education requirements: 55 hours. See page 30.

B. General area requirements: 21 hours.

1. History majors must take a minimum of 9 hours of work in philosophy, literature, and art history, selected from at least two departments. These hours may be used to fulfill the General Education requirements in Humanities.
2. History majors must take a minimum of 12 hours in economics, political science, and sociology, selected from at least two departments. These hours may be used to fulfill the General Education requirements in the social sciences.

C. Departmental Requirements: 36 hours.

1. A major in history consists of 36 hours, but students may elect to take additional work in history up to a maximum of 45 hours.
2. History majors may emphasize either American history or European history in their major program as follows. Specific courses will be chosen in consultation with the student's adviser.

American

History 1 and 2	6 hours
History 3 and 4	6 hours
American history at the 300 level	12 hours
European history at the 300 level	6 hours
Senior year requirements	6 hours
	36 hours

European

History 1 and 2	6 hours
History 3 and 4	6 hours
European history at the 300 level	12 hours
American history at the 300 level	6 hours
Senior year requirements	6 hours
	36 hours

1. No fewer than 30 nor more than 45 hours in English will be accepted toward graduation as an English major (Bachelor of Science in Education).
2. At least 24 hours will be taken beyond the introductory level, six hours of which must be in American literature.
3. All students majoring in English will take the following specific courses:
   a. English 135—Major British Writers ..... 3 hours
   b. English 220—Growth and Structure of the English Language ..... 3 hours
   Total 6 hours
4. All students majoring in English will take at least one course in each of the following periods:
   a. Middle English Literature ..... 3 hours
   b. Sixteenth Century English Literature (Shakespeare may be included in this period) .... 3 hours
   c. Seventeenth or Eighteenth Century English Literature ..... 3 hours
   d. Nineteenth Century English Literature ..... 3 hours
   Total 12 hours
5. All students majoring in English will take at least six hours in American literature (see No. 2 above).
   Total 6 hours

Specific courses are to be selected with the assistance of a departmental adviser.

Beyond the requirements listed above, the student is also urged to go beyond the minimum hours indicated. It should be further noted that the student seeking the Bachelor of Science Degree in Secondary Education with a major in English must take a course in the methods of teaching English.

Recommended Program for the Bachelor of Arts Degree in Philosophy and for the Bachelor of Science Degree in Secondary or Elementary Education with a Major in Philosophy

A. General Education requirements ..... 55 hours
B. Philosophy requirements ..... 30 to 45 hours

1. Every Philosophy major should take, as early as practical, four courses in the problems, methods, and general history of philosophy:
   a. Philosophy 1—Elementary Logic ..... 3 hours
   b. Philosophy 5—Introduction to Philosophy ..... 3 hours
   c. Philosophy 209—History of Western Philosophy, Thales through Leibniz ..... 3 hours
   d. Philosophy 210—History of Western Philosophy, Locke Through Contemporary ..... 3 hours
   Total 12 hours

2. To insure that his more advanced studies will serve to broaden the student's interests, every student is required to take at least one course from each of these four groups:
   a. Philosophy 300—Plato and Aristotle .....3 hours
      Philosophy 311—Augustine and Aquinas .....3 hours
   b. Philosophy 320—Kant .....3 hours
      Philosophy 330—Rationalism and Empiricism ....3 hours
   c. Philosophy 360—Recent American and Analytic Philosophy .....3 hours
      Philosophy 341—Existentialism .....3 hours
   d. Philosophy 340—Formal Logic .....3 hours
      Philosophy 351—Philosophy of Science .....3 hours

      Total 24 hours

Although these courses total 24 hours, the required minimum is 12 hours: at least one course each of the four groups.

3. In his senior year every Philosophy major will take a three hour course in directed readings in the area of philosophy of primary interest to him. Also, he will take a three hour seminar in which he demonstrates ability to conduct individual research.

   Total 6 hours

Minimum total for the A.B. in Philosophy or the B.S. in Education with a major in philosophy .....30 hours

C. Electives and Education Requirements: 20 to 35 hours to bring total hours to 120. These will be selected by the student in consultation with his adviser.

Mathematics

The Division of Mathematics offers work leading to the degrees of Bachelor of Arts and Bachelor of Science in Education. The division also advises students who are pursuing a two-year pre-engineering program.

ACADEMIC MAJOR IN MATHEMATICS

Requirements for the A.B. degree or the B.S. (Secondary Education) degree with the major in Mathematics are:

A. General Education Requirements: All mathematics majors must take the requisite courses to fulfill the general education requirements for the desired degree. (The student's foreign language requirement shall be completed in German, French or Russian, except by prior permission of the student's adviser and department chairman.)

B. Six 3-hour courses numbered above 201, including courses from each of the following areas, with at least two courses from some one area:

1. General Education requirements.
2. 36 hours of Spanish: 1, 2, a minimum of 3 courses from among 106, 107, 121, 122; 251, 252, 261, 262, 390*, 391*, and one other 300 level course in Spanish or Latin American literature. (Although the Spanish major is encouraged to prepare himself as thoroughly as possible, the total of 36 hours may be reduced in proportion to the degree of his success achieved on a language placement test taken upon his entrance to the University.)
3. All Spanish majors must pass a written and oral comprehensive examination during their senior year.

Recommendations

1. It is strongly recommended that a Spanish major take a minimum of 14 credit hours of another language.
2. It is also suggested that a Spanish major take as much work as possible in the related areas of American and European history, literature, philosophy, art, and music.
3. The Spanish major is encouraged to investigate the various programs which will enable him to travel abroad during the summer preceding his senior year.

*Not required for degree in Education.

Social Science

ECONOMICS

The requirements for the A.B. degree with a major in economics are:

A. General Education requirements: 55 hours. See page 30.

B. General area requirements:
   1. An economics major is required to complete the following courses:
      Mathematics 80 (Analytic Geometry and Calculus I)
      Business 32 (Elementary Accounting I)
      Business 36 (Elementary Statistics)
   2. Depending on the student's interests, electives should be chosen from such related fields as business administration, history, mathematics, philosophy, political science, psychology and sociology-anthropology. All electives will be selected in consultation with the student's adviser.

C. Departmental requirements: 33 hours.
   1. An economics major is required to complete all of the following courses:
      Economics 50 (Principles of Economics I)
      Economics 51 (Principles of Economics II)
      Economics 229 (Money and Banking)
      Economics 320 (Macroeconomics)
      Economics 351 (Intermediate Economic Theory)

major is encouraged to prepare himself as thoroughly as possible, the total of 36 hours may be reduced in proportion to the degree of his success achieved on a language placement test taken upon his entrance to the University.)

3. All French majors must pass a written and oral comprehensive examination during their senior year.

Recommendations

1. It is strongly recommended that a French major take a minimum of 14 credit hours of another language.
2. It is also suggested that a French major take as much work as possible in the related areas of European history, literature, philosophy, art and music.
3. The French major is encouraged to investigate the various programs which will enable him to travel abroad during the summer preceding his senior year.

*Not required for degree in Education.

GERMAN

The requirements for the A.B. degree with a major in German or a B.S. degree in Education with a major in German are:

1. General Education requirements.
2. 36 hours of German: 1, 2, 101, 102, 106, 107, 251, 252, 390*, 391* and two other literature courses on the 300 level. (Although the German major is encouraged to prepare himself as thoroughly as possible, the total of 36 hours may be reduced in proportion to the degree of his success achieved on a language placement test taken upon his entrance to the University.)
3. All German majors must pass a written and oral comprehensive examination during their senior year.

Recommendations

1. It is strongly recommended that a German major take a minimum of 14 credit hours of another language.
2. It is also suggested that a German major take as much work as possible in the related areas of European history, literature, philosophy, art, and music.
3. The German major is encouraged to investigate the various programs which will enable him to travel abroad during the summer preceding his senior year.

*Not required for degree in Education.

SPANISH

The requirements for the A.B. degree with a major in Spanish or a B.S. degree in Education with a major in Spanish are:

1. Algebra-Number Theory: Math 335, 340, 341
2. Analysis: Math 310, 316
3. Geometry: Math 362, 366, 367
4. Applied Math.-Probability-Statistics: Math 320, 323

C. The student shall complete two sequences of at least 9 hours each in departments related to mathematics, including a course beyond the introductory level in one sequence; or a single sequence of at least 18 hours in one such department. Related sequences may be chosen from Physics 11 and 12 and above; Chemistry 11 and 12 and above; Philosophy, including 340 and 351; Economics, including 365 or 366; or other areas approved by the Mathematics Department.

D. During his senior year, the student must complete at least one semester of Math 350, Special Readings, for 1-3 hours credit.

E. During his last four semesters the student shall enroll in Math 289, Mathematics Seminar. In each of the last two semesters the student must give oral presentations which may be on topics covered in his Special Readings course. The student will receive credit for Mathematics Seminar in any semester in which he presents a formal paper.

F. No grade below "C" in any mathematics course may be counted toward a major in mathematics, and the student must achieve an overall grade point average of 2.0 in all courses attempted in his major department.

The following are suggested sequences of courses leading to the A.B. degree or the B.S. in Education degree:

BACHELOR OF ARTS
Major in Mathematics
(Science Emphasis)

Freshman Year

	Hrs.		Hrs.
English 10	3	English 12	3
History	3	History	3
Math 80	5	Math 175	5
Chem 11	5	Chem 12	5
	16		16

Sophomore Year

Math 201	5	Math 250	3
Physics 11	5	Physics 12	5
French or German 1	4	French or German 2	4
Humanities	3	Humanities	3
	17		15

Junior Year

Math Seminar	0	Math Seminar	0
Math 310 or 316	3	Math 320 or 323	3
Math 335, 340 or 341	3	Math 362, 366 or 367	3
French or German 101	3	French or German 102	3
Phy. or Chem. Elect.	5	Social Science	3
	14		12

Senior Year

Math Seminar	1	Math Seminar	1
Math 350	1-3	Math Elective	3
Math Elective	3	Humanities	3
Social Science	3	Social Science	3
Electives	6	Electives	6
	14-16		16

BACHELOR OF ARTS

Major in Mathematics
(Philosophy of Mathematics Emphasis)

Freshman Year

	Hrs.		Hrs.
English 10	3	English 12	3
History	3	History	3
Math 80	5	Math 175	5
French or German 1	4	French or German 2	4
	15		15

Sophomore Year

Math 201	5	Math 250	3
Physics 11	5	Physics 12	5
French or German 101	3	French or German 102	3
Philosophy 5	3	Philosophy 340	3
	16		14

Junior Year

Math Seminar	0	Math Seminar	0
Math 310 or 316	3	Math 320 or 323	3
Math 335, 340 or 341	3	Math 362, 366, or 367	3
Humanities	3	Social Science	3
Phy. Elective	5	Electives	6
	14		15

Senior Year

Math Seminar	1	Math Seminar	1
Math 350	1-3	Philosophy 351	3
Math 358	3	Math Elective	3
Social Science	3	Social Science	3
Electives	6	Electives	5
	14-16		15

BACHELOR OF SCIENCE IN EDUCATION

Major: Mathematics

Freshman Year

	Hrs.		Hrs.
English 10	3	English 12	3
History 3	3	History 4	3
Math 80	5	Math 175	5
Chem 11	5	Chem 12	5
	16		16

Sophomore Year

Math 201	5	Math 250	3
Physics 11	5	Physics 12	5
Education 125	3	Education 110	2
Psychology 1	3	Psychology 2	3
	16	Humanities	3
			16

Junior Year

Math 310 or 316	3	Math 366-367	3
Math 340 or 341	3	Physics or Chemistry (Elective)	5
Education 102	3	Education 163	2
Psychology 170	3	Education 170	2
Humanities	3	Humanities (Non Western)	3
Education 100	0		
	15		15

Senior Year

Math 320-323	3	Math Elective	3
Education 266	3	Minor Elective	3
Education 271	6	Electives	9
Social Science	3		
	15		15

Modern Foreign Languages

The Division of Modern Foreign Languages offers work leading to the degrees of Bachelor of Arts and Bachelor of Science in Education.

FRENCH

The requirements for the A.B. degree with a major in French or the B.S. degree in Education with a major in French are:

1. General Education requirements.
2. 36 hours of French: 1, 2, 101, 102, 106, 107, 251, 252, 390*, 391* and two other literature courses on the 300 level. (Although the French